EVERYDAY BELIEFS ABOUT EMOTION: THEIR ROLE IN SUBJECTIVE EXPERIENCE, EMOTION AS AN INTERPERSONAL PROCESS, AND EMOTION THEORY

EDITED BY: Stephanie A. Shields, Eric A. Walle and Yochi Cohen-Charash

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Editorial: Everyday Beliefs About Emotion: Their Role in Subjective Experience, Emotion as an Interpersonal Process, and Emotion Theory

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Editorial on the Research Topic

Everyday Beliefs About Emotion: Their Role in Subjective Experience, Emotion as an Interpersonal Process, and Emotion Theory

People hold various beliefs about emotion, such as what causes an emotion, how and why emotions differ, and what one should do about their own and others' emotions (e.g., Ben-Artzi and Mikulincer, 1996; Ford and Gross, 2019). These lay beliefs vary within and between cultures (e.g., Mesquita and Frijda, 1992; Qu and Telzer, 2017), and are transmitted through language (Lakoff, 2016) and socialization practices (Oatley, 1993). Emotion researchers are similarly embedded within cultural contexts and are not exempt from the influence of lay beliefs. Thus, the exploration of lay beliefs of emotion can provide insight into when and how they influence academics and non-academics alike.

The goal of this special issue is to galvanize research on lay beliefs about emotion. As summarized in **Table 1**, this research can deepen our understanding of (a) how people experience their emotions, (b) emotion as an interpersonal process, (c) the formulation of emotion theory and research practices, and, in turn, (d) open new and exciting avenues for theory and research (see **Table 2**).

LAY BELIEFS AND THE EXPERIENCE OF EMOTION

Lay beliefs about emotions are developed and reinforced in many ways. They both shape and are constructed by the broader culture (Oatley, 1993), can be embedded into specific roles (Hochschild, 1979), and can vary across situations or entire groups of people (Ford and Gross, 2019). People within the same culture may hold different beliefs about emotions depending on their ethnic community—such as indigenous compared to non-indigenous communities—or depending on their role—such as parents compared to teachers (Halberstadt et al.). Thus, everyday understandings of emotions change over time, situations, and people, in accordance with broader cultural and normative expectations.

TABLE 1 | How lay beliefs about emotion permeate emotion processes, theory, and research.

Experience of emotion	Interpersonal processes	Emotion theory and research practices
Lay beliefs influence…	*Lay beliefs influence…*	*Lay beliefs influence…*
• …the value placed on particular emotions, and hence whether people seek out or avoid certain emotions	• …the (accurate or inaccurate) perception of emotions in other people	• …confirmation biases, in which researchers gravitate toward research questions and hypotheses that confirm their pre-existing beliefs about an emotion
• …how people appraise their own emotions, and what additional emotions may occur in an emotion episode	• …the inferences that people make about others who experiencing or express an emotion, and/or about the emotional context	• …attentional biases in the types of emotional phenomena researchers focus on, or even believe exist
• …emotional behavior in specific contexts or by specific people, such as through expectations about whether an emotion is appropriate	• …the ways in which people behave toward others, which can suppress or reinforce certain emotions in specific contexts or from specific groups of people	• …various aspects of the emotion process (e.g., appraisals, emotion regulation, emotion perception), despite rarely being explicitly discussed in emotion theories
• …the long-term consequences of an emotion for the person experiencing it, such as through the ways in which people believe they should regulate the emotion	• …perceived functions or implications of different emotions within a particular interpersonal context, such as conflict	• …the types of information that researchers can gain regarding poorly-understood social phenomena

We provide examples here of the influences of lay beliefs about emotion. This table is not intended to be exhaustive, and researchers should continue to investigate additional possible influences of lay beliefs.

Once instilled, lay beliefs about emotions permeate the experience of emotion in several ways. First, beliefs shape how people perceive, interpret, and manifest their emotions, such as by influencing the value placed on particular emotions (Ben-Artzi and Mikulincer, 1996), and whether people seek out or avoid certain emotions (Harmon-Jones et al., 2011). For example, Stearns discusses how contemporary United States culture emphasizes childhood happiness, which was uncommon in the early 1800s. Second, lay beliefs influence how people appraise their own emotions, such as whether one's emotions are appropriate to the situation (Warner and Shields, 2009), which could cause additional emotions to occur. For instance, viewing envy as a sin (Silver and Sabini, 1978) may cause people who feel envy to simultaneously experience shame or embarrassment about being envious. Third, because lay beliefs can be situation- or person-specific, certain beliefs may only influence the experience of emotion within specific contexts or may do so differently for different people. As an example of the latter, Sharman et al. found that individuals' gender, self-ascribed gender roles, and gender role attitudes predicted their behavioral crying responses. Lastly, lay beliefs may have long-term consequences for the person experiencing an emotion, such as by influencing their preferred emotion regulation strategies, and, in turn, how they recover from distressing events (Karnaze and Levine).

LAY BELIEFS AND INTERPERSONAL PROCESSES

Lay beliefs about emotions also shape how people perceive and interact with others in emotional contexts. For instance, parents and teachers may rely upon their lay beliefs about emotions to identify (sometimes inaccurately) how children feel in a given situation (Hagan et al.; Reschke and Walle). Even beliefs about one's own emotional abilities, such as the ability to take another's

perspective, can influence how accurately one recognizes others' emotions (Israelashvili et al.).

Once an emotion is detected, lay beliefs can shape what people infer about the person expressing the emotion and the emotional context (e.g., Zawadski et al., 2013). For example, van Roeyen et al. found that people who perceived a crier's tears as fake (regardless of whether or not they actually were fake) attributed socially undesirable characteristics to the crier (e.g., lower competence and warmth) and judged the crier less favorably. Furthermore, these inferences can feed back into one's lay beliefs about others' emotions, or the groups that others represent. Albohn and Adams, for instance, found that people tend to detect hedonically-unpleasant emotions in the neutral faces of older adults, relative to younger adults, which may foster different lay beliefs about the emotional dispositions of older and younger adults.

Lay beliefs can also influence behaviors toward others. Cultural expectations influence beliefs about whether certain emotions should be experienced or expressed, either by specific persons, in specific situations, or in general (e.g., Hochschild, 1979; Shields, 2005). People can face significant repercussions depending on whether or not their emotions conform to others' expectations (Cheshin). For instance, men not only tend to feel more comfortable about crying in traditionally masculine contexts, compared to non-masculine contexts, but they also are penalized less by others for crying in these contexts (MacArthur). Lay beliefs may thus become more deeply entrenched through encouraging individuals to behave toward others in accordance with their own beliefs, such as suppressing or emphasizing certain emotions in specific contexts. How lay beliefs influence interpersonal processes often depends on aspects of the context. For example, Kurilla found that the concept of conflict varies across cultures, along with the perceived ways that different emotions contribute to conflict. Thus, researchers should account for the broader situational or cultural context when hypothesizing how lay beliefs influence interpersonal processes.

TABLE 2 | Lay beliefs about emotion: future directions for theory and research.

Recommendation #1: Further Understand How Lay Beliefs Influence Emotion Processes

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Sample Future Directions
- How do lay beliefs influence emotional processes over the life span or between generations?
- How do people react in situations where different lay beliefs conflict with each other (for example, when culture-specific beliefs conflict with role-specific beliefs)?
- Through what mechanisms do lay beliefs influence emotion processes?

Recommendation #2: Conduct "Meta-Research" Examining How Lay Beliefs Influence Emotion Theories and Research Practices

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Sample Future Directions
- How do research questions and hypotheses about emotions differ across cultures or academic disciplines?
- How does culture influence the ways in which researchers discuss emotions?
- To what degree do researchers focus on studying certain emotions over others? What factors influence this attention?

Recommendation #3: Promote the Theoretical Understanding of Lay Beliefs

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Sample Future Directions
- What roles do lay beliefs play in existing theories of emotion, such as appraisal theories or theories of emotion regulation?
- Is there room for a theory dedicated solely to the influences of lay beliefs on various emotion processes?
- How can researchers best conceptually organize lay beliefs about various aspects of emotions, such as its emotion's functionality or its appropriateness in a given context?

LAY BELIEFS AND EMOTION THEORY AND RESEARCH

Researchers also have lay beliefs about emotions, which can shape how they study and theorize about emotions. Lay beliefs influence both confirmation biases and attentional biases. Regarding the former, Lindebaum and Jordan (2014) critiqued researchers for overemphasizing symmetrical effects of emotion, in which hedonically-pleasant emotions predict socially desirable outcomes and hedonically-unpleasant emotions predict socially undesirable outcomes. These symmetries may stem in part from value-judgments of these two classes of emotions as being "good" and "bad," respectively (Cohen-Charash, 2018), and create confirmation biases in emotion research by neglecting the undesirable consequences of hedonically-pleasant emotions and the desirable consequences of hedonically-unpleasant emotions.

Lay beliefs influence attentional biases in the types of constructs researchers focus on or even believe exist, resulting in the emphasis of certain emotional phenomena over others. For example, researchers have given relatively limited attention to neutral affect, compared to positive and negative affect (Watson et al., 1988), despite evidence that neutral affect can influence thoughts and behavior (Gasper et al.). While such attentional biases may facilitate a deeper understanding of some affective phenomena, they can also create theoretical and empirical blind spots regarding other phenomena.

Although lay beliefs influence various aspects of the emotion process—such as appraisals, intrapersonal and interpersonal emotion regulation, and emotion perception—beliefs are only rarely explicitly discussed in the formulation of emotion theory. Lay beliefs may warrant a more central role in emotion theory, which requires a formal effort by researchers to understand and organize them (see Joshanloo, for an example). Lay beliefs may even serve as a starting point to explore poorly-understood phenomena, as Wild and Bachorowski (this issue) suggest regarding social interaction quality.

WHAT LIES AHEAD?

This special issue seeks to spark increased theory and research on lay beliefs about emotion. We offer three focal directions for future theory and research on this topic (see **Table 2**). First, researchers should further examine how lay beliefs influence the experience, understanding, and regulation of emotions. The articles in this special issue reveal a constellation of lay beliefs, stemming from various sources (e.g., culture, ethnic group, role) and pertaining to various aspects of an emotion (e.g., its functionality, how it should be regulated). Researchers should examine how these and other beliefs influence emotion processes uniquely and in interaction with one another and with the broader context. We further recommend that researchers examine the processes through which lay beliefs influence emotion, and, in doing so, account for both temporal (e.g., momentary, lifespan, generational) and granular (e.g., individual, family, cultural) levels of analysis.

Second, researchers should recognize their lay beliefs, the influence of these beliefs on their research, and how these beliefs promote or hinder a deeper understanding of emotions. To this end, we advocate for "meta-research" focused on understanding how lay beliefs implicitly and explicitly influence emotion theory and research. Such research could consider various factors (e.g., language, culture, personality) that influence how researchers discuss or hypothesize about specific emotions, as well as the amount of attention given to different emotions. As an example of the latter, meta-analytic research could help reveal what emotions and outcomes researchers emphasize or neglect. Furthermore, because lay beliefs are embedded in language, text analytic approaches

(e.g., natural language processing) could aid in examining how researchers from different disciplines and cultures discuss emotions.

Finally, we suggest that the various influences of lay beliefs be more explicitly outlined in existing theories about emotions, such as theories about emotion regulation and emotional development. We also suggest that researchers dedicate theories to the influence of lay beliefs about emotions on various emotion processes. Such theoretical developments will enrich emotion science and serve to better connect academic and everyday conceptualizations of emotion.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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Happy Children: A Modern Emotional Commitment

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American parents greatly value children's happiness, citing it well above other possible priorities. This commitment to happiness, shared with parents in other Western societies but not elsewhere, is an important feature of popular emotional culture. But the commitment is also the product of modern history, emerging clearly only in the 19th century. This article explains the contrast between more traditional and modern views, and explains the origins but also the evolution of the idea of a happy childhood. Early outcomes, for example, included the novel practice of hosting parties for children's birthdays, another mid-19th-century innovation that has expanded over time. Explaining the intensification of the happiness commitment also reveals some of the downsides of this aspect of popular emotional culture, for example in measurably complicating reactions to childish unhappiness. The basic goal of the essay is to use this important facet of modern emotional history to evaluate a commitment that many modern parents assume is simply natural.

Keywords: happy children, childhood, emotions history, American culture, childrearing, happiness

One of the most pervasive beliefs about emotion, at least in American culture, is the idea that children should be happy and that childhood should be a happy, perhaps unusually happy, stage of life. There is little question that many parents are strongly guided by this standard, even though a variety of experts argue that they often go about it in the wrong way. And it is highly likely that many adults simply assume that childhood happiness is a natural connection, that while its implementation may be varied and debated and while a few reprobates may not accept the goal at all, the basic notion is simply a normal part of human life.

International polling confirms the pervasiveness of the happy childhood assumption, in American and several other cultures – though it also opens the door for a somewhat more nuanced assessment. A recent survey found that 73% of Americans rated happiness as the most important goal in raising children and assessing the results of education – far ahead of any other option. And they were joined, or even modestly surpassed, by a number of other modern Western societies: Canada at 78%, with France heading the pack at 86%. Other goals paled in comparison, even though it was possible to select more than one option: only 20% of Americans rated success as a major goal (along with 17% in Australia and the United Kingdom).

However – and here is the first opening for more than a brief summary of the happiness/childhood emotional linkage – several other major societies presented quite a different profile in the same poll. Most strikingly only about 49% of respondents in India selected happiness, overshadowed by the 51% who put success and achievement first. Mexicans also

rated success most highly. The Chinese, interestingly, did not seize on success but they did not highlight happiness either, putting good health at the top of the list. The poll suggested, plausibly enough, that a predominant commitment to children's happiness was an artifact of advanced economic development (bolstered, quite possibly, by a particular dose of Westernism as well) (Malhotra, 2015).

Certainly the American assumption that happiness and childhood go together can be additionally confirmed. A childrearing expert, Robin Berman, puts it this way: "When I give parenting lectures around the country, I always ask the audience 'What do you want most for your children/'... The near-universal response I get is 'I just want my kids to be happy.'" Berman herself deeply challenges the validity of this commitment, but for now the main point, again, is to emphasize the depth of the American assumption (shared, clearly, with other Western societies). It is understandable that many Americans simply take the priority for granted, open perhaps to a discussion of what strategies best achieve the goal but not inclined to subject the goal itself to much scrutiny. The idea that children should be happy, indeed that childhood stands out as a particularly happy time of life, is deeply ingrained (Berman, 2016).

But without placing too much emphasis on international polling, the gap between Western and Asian (or Mexican) responses already suggests that the childhood/happiness equation is not automatic or in any sense natural, but the product of more particular circumstance. And this in turn opens the way to a more searching analysis, aimed initially at determining where the idea that children should be happy came from in the first place and then tracing the way the association has evolved in the United States, with some clear downsides or problems attached.

Assessing the childhood/happiness linkage provides in fact a fruitful opportunity to demonstrate the role of emotions history in shedding light on significant popular assumptions and commitments. The emotions history field, which has grown rapidly within the history discipline over the past 30 years, contends that key aspects of the emotional beliefs and experiences of any society are shaped not by invariable psychobiology but by particular social and cultural circumstances. This means that we can learn more about the past by including emotional variables in the human equation and that – as in this case – we can understand current patterns better if we examine how they have emerged from contrasting assumptions in the past (Matt and Stearns, 2013; Boddice, 2018).

In the case of happy children, the emotions history approach raises two initial questions, before we get into most recent evolution of the association: what did people think about happiness and childhood at an earlier point and when (and of course why) did the happiness emphasis begin to develop.

The most glaring historical challenge to the childhood happiness equation is not easy to handle, but it adds up to the statement: before about the middle of the 19th century most Americans (and, probably, most people in most agricultural societies) did not equate children and happiness and indeed were unlikely to see childhood as a particularly happy phase of life (Greven, 1988; Mintz, 2006). This does not mean that

they necessarily expected children to be unhappy, or that they were gratuitously nasty to children, or that they did not enjoy moments of shared joy. But any kind of systematic happiness, or even a common use of the term, was simply not part of popular expectations (Gillis, 1981).[1]

And the reasons for this stance are not hard to identify, in a combination of general features of premodern childhood and some particular cultural assumptions that took deep root in colonial America. In the first place, high child mortality rates – with 30–50% of all children born perishing before age 5 – surrounded children themselves with frequent death and constrained adult reactions as well. A dead child might be deeply mourned, but the expectation of transiency obviously affected perceptions of childhood more generally: adulthood could easily be seen as a preferable state. Further, for most people childhood after infancy was primarily associated with work, under the sometimes rough direction of adults. Childishness, in this context, was not highly valued, as opposed to the early acquisition of more mature qualities. In all probability, obedience was the quality most sought in children themselves. Small wonder that, before the 19th century, few autobiographers spent much time describing their childhoods in any detail or referring to their early years with any pleasure (Stearns, 2016).

This is not to say that before the 19th century children had no pleasure, or that adults never enjoyed their more informal interactions with offspring: considerable historical debate cautions against too gloomy a view. Work requirements were not always too intense, particularly for younger children, and there were informal opportunities for playfulness (Huizinga, 2016).[2] Traditional leisure outlets, and particularly the village festival, gave young people some space for pranks and hijinks. But none of this seriously qualifies the claim that more systematic ideas associating childhood with happiness were lacking.

In the colonial American context, this general situation was exacerbated, particularly in New England, by the strong Protestant commitment to the notion of original sin. How many adults viewed actual children through this severe lens is hard to determine, though it was certainly linked to harsh disciplinary practices in schoolrooms and churches. But even if youngsters were not actively seen as sinners requiring redress, Protestant beliefs certainly argued against conceptions of happy childhoods. Indeed a number of studies suggest that, even for adults, an emphasis on a degree of melancholy was urged even for adults, well into the 18th century (Greven, 1988; Demos, 1999; Mintz, 2006).

Granting the perils of trying to establish the absence of a quality in the past, the claim seems reasonably secure: the association of childhood and systematic happiness, as opposed to periodic moments of release, is essentially a modern development.

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[1]In contrast, youth, though never systematically empowered, might be valued. Greek and other cultures celebrated the beauty and athletic prowess of youth. Artisanal arrangements in many societies – Europe, Japan, the Middle East cherished a few relatively carefree years between apprenticeship and full adulthood. But childhood was a different matter.
[2]Huizinga's *Homo Ludens* mounts a particularly detailed case for children's play in traditional societies.

FIGURE 1 | Frequency of the word "happiness" in American English, 1700–2008, Google Ngram viewer, accessed March 19, 2019.

FIGURE 2 | Frequency of the phrase "happy children" in American English, 1700–2008, Google Ngram viewer, accessed March 19, 2019.

Several factors, taking shape in the later 18th and early 19th centuries in the United States and other parts of the Western world, began to reshape the conception of childhood, despite the lingering hand of the past.

Interest in happiness in general began to accelerate in Western culture during the second half of the 19th century (Kotchimedova, 2005; MacMahon, 2006; Jones, 2017). The Enlightenment encouraged a new commitment to optimism about life on this earth, and hopes for happiness increased accordingly. Apologies for good humor, common during the previous century with its preference for melancholy in the face of human sinfulness, began to disappear (Stearns, 1988). Even more, a positive expectation that decent people should present a cheerful demeanor began to gain ground. One historian has suggested that, along with the general push from Enlightenment thinking, improvements in dentistry and a decrease in rotten teeth heightened a willingness to smile openly – and to expect others to do the same (Jones, 2017). Emphasis on happiness may also have been furthered by some measurable improvements in life's comforts, from home heating to cleaner clothing, at least for the property-owning middle classes. And of course, in revolutionary America, pursuit of happiness was listed as a basic right.

This significant cultural shift did not initially apply to children, at least with any specificity. Older beliefs persisted. Checking the rise of attention through the relative frequency word use (happiness, cheerfulness) bears this out suggestively (**Figures 1**, **2**). Google Ngrams suggest the chronological lag: while references to cheerfulness and happiness in general peaked in relative frequency during the 18th century in American English, commentary on happy children was virtually non-existent until the 19th century, and became at all common only in the middle decades of the century.[3]

Obviously, sometime was required to overcome earlier assumptions and extend new cultural expectations downward in age. For several decades after 1800, some halting steps suggested the difficulty of fully overcoming earlier standards: thus the idea of cheerful obedience gained ground in family manuals. Insistence on obedience was maintained, but for the first time the potentially demanding hope that it could be accompanied by a cheerful demeanor was added to the list (Stearns, 2014).

In addition to the time required to apply an initially adult innovation to the thinking about children, several other shifts in the first half of the 19th century further explain the timing of the change. Most obviously, amid intense American debate during the 1820s and 1830s, traditional notions of original sin were increasingly replaced, in mainstream Protestantism, by insistence on childish innocence. By the late 1820s the most

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[3]Google Ngram Viewer is a search application that allows one to measure the relative frequency of particular terms or words in the Google Books database. While in some ways problematic and obviously not a complete representation, the tool is a helpful way to assess cultural trends and changes.

widely purchased family manuals routinely highlighted children's sweetness and purity, which only bad adult behavior would corrupt. An obvious barrier to the notion that children might be happy was being lifted, though amid ongoing sectarian dispute (Sedgwick, 1850).[4]

Here it is possible to see how the new cultural commitment to happiness combined with several other social factors to generate a new approach to children. Most obviously the birth rate began to drop, which may have facilitated more emotional attention to the individual child. Work obligations increasingly yielded to schooling as a child's obligation, in the middle classes; seeing children in less functional terms might have contributed to a new interest in happiness, bolstered as well by a desire to cushion the burdens of education. Most tantalizingly, the middle decades of the 19th century saw a general middle-class interest in portraying the family as an emotional refuge from the complexities of economic and social life amid early industrialization – what one historian has called the family as "haven in a heartless world." Here was a clear context for new attention to cheerful children as part of this equation, linking the shift to social pressures as well as the larger cultural framework (Lasch, 1977; Mintz, 2006).

Certainly, as the role of the middle-class family began to shift away from function as a production unit and toward service as a source of emotional refuge and support, the ideal of a loving and happy assemblage, children very much included both as beneficiary and source, became increasingly common. While smile-drenched photographs would await the 20th century, in part thanks to improvements in technology, positive representations of the family unit, often grouped around a piano, became increasingly common (Mintz, 2006).

Again, the middle decades of the 19th century were something of a transition. Association of happiness and childhood continued to gain ground, but explicit discussions of parental obligations concerning happiness, or of happiness as an explicit goal, were not yet fully developed. Had polls been conducted in the 1850s, they might have suggested the same kind of priorities for achievement or health, over happiness, that remain common in places like India or China today.

But one innovation, that would ultimately become emblematic of the conversion of expectations about childhood, quietly started becoming standard fare in middle-class life: the (presumably) happy birthday – directed toward children – girls and boys alike – above all. Here is another case – more specific than children's happiness in general – where understanding innovation cuts through any assumptions of timelessness (Pleck, 2000; Baselice et al., 2019).

For children's birthdays are a modern invention. Royals publicly touted their birthdays in many societies, going back to the Egyptian pharaohs, as a means of promoting public attention and support. European aristocrats may have begun celebrations in the 18th century, but the emphasis was on adults as well as social privilege. The idea of singling out children depended on a much higher valuation of their individual importance than any

traditional society had generated – which is why the emergence of the new practice is so revealing.

The first recorded child birthday in what was becoming the United States occurred in Boston in 1772, for the 12-year old daughter of a wealthy family. Presumably this was a way to show off the family's wealth as well as honoring a child. As the birthday practice began to spread, very slowly, several goals were often mentioned besides the family's material achievement: a means of encouraging young people to display gratitude and sometimes as well an opportunity for the birthday child to give little gifts to servants as a token of appreciation (Pleck, 2000; Cross, 2004).

By the middle of the 19th century birthday celebrations were clearly becoming more common. Several manuals were written to guide the practice, one of them going through several editions. Emphasis rested on a modest party, with pastries and special fruits (commercial baking was improving at this point, thanks in part to German immigration: an obvious source of cakes). Parents would usually offer a single gift, sometimes a toy but sometimes religious or educational material. By the 1870s, when the hugely successful *Ladies Home Journal* was founded, women's magazines began to feature stories about successful birthdays at least once a year, until (by 1900) the practice had become so common that guidance was no longer needed (except perhaps for encouraging parties for adults as well). By this point many African American schools were also celebrating birthdays, and there were signs of working-class and immigrant interest as well (Prentiss, 1857; Barnard, 1861; Leslie, 1869; Industrial School for Colored Girls, 1916).

The new practice faced some opposition (as it still does today in societies were birthdays are just beginning to surface). Some religious writers worried that children would be made too prideful, that a celebration that should actually honor God, or at least one's parents, was being distorted. While worries about consumer excess were not yet common (this would await the 20th century), some commentators criticized children who came to insist on annual festivities; the demanding child was hardly a traditional ideal (Davenport, 1864; Hill, 1906).

But, obviously, birthdays advanced quite rapidly, clearly indicating an eagerness to highlight the individual child, and this even before the massive reduction in child mortality that would further support the practice. And the question, briefly, is why. Of course families imitated each other; undoubtedly children learned from their friends and put some quiet pressure on their parents; consumer success and opportunities to display gratitude continued to enter in. But by the 1850s all the published recommendations on birthdays, and all the comments from approving parents, stressed the role of these festivities in making children happy.

The parents and prescriptive writers who commented on birthdays and cheered them on made the basic goal very clear: birthdays were becoming important because they made children happy, and happiness in turn was quietly turning into a priority. Thus a comment in 1886 insisted that birthdays should be pleasurable, full of "rejoicing jubilees": "a ripe, full year is a glorious thing to have had," and for their part children, "poor little things," "need all the fun they can get." Schools began to pick up the celebratory theme: a Helena, Montana, high school noted

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[4]These early Victorian manuals interestingly combine the emphasis on childish innocence with continued insistence on obedience with rarely if ever a bow to happiness.

"the charming custom" growing among students and teachers to acknowledge the occasion through surprise parties and small gifts. Late 19th-century etiquette writers, recommending birthday festivities, urged the occasions be "joyous, for children are easy to please" and "nothing is quite as beautiful and gratifying as a group of laughing, happy children." Childrearing manuals, though late to the topic, echoed similar sentiments. Right after 1900 Alice Birney commended regular attention to birthdays by "makers of happy homes" because of the "pleasure and enthusiasm" that the festivities generated (A New Idea, 1855; Aldrich, 1891[5]; Gardner, 1904; Primary Education Journal, 1907; Buffalo High School Yearbook, 1925; Helena Independent Newspaper, 1982).[6]

Beyond the rise of the birthday and its signal connection to aspirations for children's happiness (and the concomitant expansion of Christmas celebrations), wider commentary on the importance of happy childhood proliferated in the early 20th century. Whereas 19th-century childrearing manuals had remained somewhat hesitant, prioritizing other goals and insisting on connecting happiness to moral behavior, popular entries after 1900 prioritized the goal with no strings attached. "Don't forget to be indulgent; do your best to make a pleasure possible, and enter heartily into it." To be sure, parental "readiness" to "bring happiness into your children's lives" should be rewarded by good behavior. But happiness began to be its own goal, predicated on a belief that children's dispositions prepared adult qualities, and was important to train people up to be cheerful (Leach, 1993).

From about 1915 on, the happiness theme became truly ubiquitous. "Happiness is as essential as food if a child is to develop into normal manhood or womanhood." Parents had a "duty" to make their offspring happy: "The purpose of bringing-up in all its phases should be to make the child as happy as possible" (italicized in the original for emphasis) (Birney, 1905). "Make a child happy now and you will make him happy 20 years from now… And happiness is a great thing…It contributes to the making of a normal childhood, which is in turn the foundation of normal manhood or womanhood." Chapters of parenting books began to be devoted explicitly to the need to promote childish happiness, even, in many accounts, as the expense of discipline. Even the rather severe behaviorist, John Watson, intoned, "Failure to bring up a happy child…falls on the parents' shoulders" (Stearns, 2012). And, symbolizing the intensification, it was in the 1920s that the song "Happy Birthday" emerged, gaining widespread popularity during the following decade. Enjoyment and nurturing of happy children had become a central feature of ideal family life but also a solemn obligation as part of preparing for successful adulthoods. Finally, the theme began to spill beyond family life, to other institutions that dealt with children. "Cheerfulness" was one of the twelve characteristics enshrined in Boy Scout Law, for example, while the Campfire Girls insisted on happiness directly. And – though this issue remains with us today – schools and teachers began

to be drawn into concerns about children's happiness as well (Groves and Groves, 1924; Spalding, 1930; De Kok, 1935; Baruch, 1949; Gruenberg, 1968).

Intensification of the childhood/happiness has obviously continued into recent decades, among other things adding measurably to parental obligations. By the 1960s parents were reporting an increasing sense of obligation to play regularly with their children, as part of their commitment to sponsoring happiness. In the schools, the Social and Emotional Learning movement (another 1960s product) has gained ground, urging teachers to emphasize positivity and guard against less happy emotions. Serving the happy child continues to gain momentum (Stearns, 2019).

But the main point – happy childhood as a product of recent history – deserves primary emphasis. The commitment to happy childhoods obviously builds on the precedents that had developed during the later 19th century. It connected quite explicitly to increasing hopes for happiness in life in general and to beliefs that cheerful people were more likely to win success in life. And the escalation surely benefited from the new demographic framework: with low birth rates and, now, rapidly declining child mortality, it was easier to connect the early years of life with more positive goals. Happy childhoods became part of what has been aptly described as the rise of the "priceless" child (Zelizer, 1994).

Though the idea of children's happiness emerged over time, and responded to a number of wider cultural and social changes, it must be remembered that it was a really new aspiration. The fact that most modern American, or French, or Canadian parents regard it as a normal goal, indeed a self-evident priority, should not disguise its innovative nature or, in historical terms, its relative recency. Our current assumptions have a past, responding to a changing environment.

But there is more to this historical perspective as well, including some complexities that are at least as relevant to contemporary childhood and parenting as the happiness commitment itself. The evolution of the idea of the happy child, particularly from the early 20th century onward, also highlights some of its downsides and risks. Three points stand out, all of which add to the expansion of parental obligations inherent in the modern happiness theme itself: the extent of parental responsibility: the association with consumerism; and, above all, the problem of sadness.

The first wrinkle in the surge of interest in children's happiness, as it took shape from the early 20th century onward, was a basic question that was, however, rarely hauled out for explicit evaluation: were children naturally happy, or did parents (and other adults) have an obligation to create happiness in a more difficult terrain? Commentary on birthdays in the 19th century occasionally, as we have seen, suggested that the celebration should help compensate for a less-than-joyous stage in life. And this might touch base with more traditional ideas about the drawbacks to being a child. On the other hand, enthusiasm about childish innocence, though more modern, might emphasize children's spontaneous gaiety and their positive contribution to a cheerful family.

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[5] Aldrich also writes of taking "personal note" of each student on the birthday.
[6] As noted above, the American Journal of Education had been recommending birthdays since the 1860s.

Actual childrearing materials frequently suggested a mixed opinion – sometimes within a single passage. Thus from a 1920s manual: "childhood is meant to be a joyous time. In the opinion of most adults it is actually the most joyous time of life" (the dramatically modern view). But then, twenty lines down, "Nevertheless it is the province and duty of parents to make the childhood of their progeny a joyous time." Other materials suggested that the obligations here could be quite demanding.": "Avoid unpleasant incidents like the plague. They shake the fabric of happiness to its foundations." Make sure that kids never go to bed sad: "Darling we are quite happy now, aren't we? Look up and smile at mother... You know she loves you so much and wants you to be always the very happiest little boy in all the world"(O'Shea, 1920; Galloway, 2013).

Inconsistency about children's nature, where happiness was concerned, may be built into the modern process to some extent. Many parents will have days when they can simply capitalize on a child's good mood, and others when a tremendous amount of effort is involved. The uncertainty obviously staked out a potentially challenging obligation for adults, adding to the growing emotional list of what a good parent was responsible for: if children were not naturally happy, or when their mood turned sour, the vigilant parent needed to compensate. But uncertainties also spilled over into the other main complexities of the growing commitment to happiness.

This in turn relates to the second complexity. It was probably inevitable that interests in happy childhood became deeply connected with family consumerism. The marriage began to take clear shape early in the 20th century and it steadily intensified thereafter. The first explicit parental purchases for children date back to the late 18th century, when the focus was on the new genre of children's books. Interest expanded in the 19th century, as in the practice of birthday gifts, but the range remained rather modest. But with the 20th century, and particularly with the rise of the toy industry, the interest in using purchases to promote children's happiness became increasingly entrenched.

Many aspects of this intertwining are familiar enough. Shortly after 1900 many parents began to buy toys even for infants (including the soon-famous Teddy Bear). There was brief discussion of whether this kind of attachment to things was desirable in the very young, but hesitation was brief and short-lived. "Things" made children happy and prepared a life of consumer attachments, and they helped fulfill the otherwise daunting parental task of linking childhood and joy. Whole companies devoted their attention to the happiness connection: Disney, founded in the 1920s, made happiness its core theme, and later would proclaim that child-centered parks like the California Disneyland were the "happiest places in the whole world." Not to be outdone, soon after World War II McDonalds would sell its child-focused and highly caloric burger combination as a "happy meal," complete with cheap toys (Cross, 2004).

Another post-World War II innovation pushed the linkage further. Many parents began to prepare for Christmases or birthdays by encouraging their children to draw up wish lists, which usually turned out to be quite long and detailed exercises in maximization (Moir, 2017). The result? Another dilemma.

As one children's consumer expert put it: "how much do you want your child to be happy – meeting what you think are their desires?" (Rosen, 2015). Against this, the sheer limits of a family budget (though sometimes transcended through the credit card) and a recurrent concern that many kids were becoming too greedy and materialistic, that they were internalizing the happiness/consumerism equation too thoroughly. Worst of all was a growing belief that children learned, if unwittingly, to play on their parents' commitment to happiness, developing a sense of entitlement that overwhelmed any sense of gratitude (Stearns, 2012).

The consumer/entertainment/happiness combine played on one final later 20th-century development: a redefinition of boredom. Boredom was a modern concept in itself: the word came into common usage only in the mid-19th century, associated obviously with the growing interest in active happiness. Initially, however, boredom applied to childhood mainly as a character lesson: children should be taught not to be boring. After 1950, however, the meaning was flipped: boredom now became a state to be blamed on others, a reason for personal discontent. And children became adept not only at identifying their boredom, but at strongly implying that their parents, or teachers, or others had an obligation to do something about it. "I'm bored" became yet another way of telling the adult world that it was falling short, for the child should be entertained (Stearns, 2003; Toohey, 2011).

In real life, of course, most children learned to handle a bit of moderation. Wish lists were rarely fully fleshed out, and children could even survive the lack of the year's most popular toy or game. But the dedication of part of childhood to early forms of consumerism, and the pressure on parents to fulfill part of their happiness obligations through toys and entertainments, played no small role in actual family life and, sometimes, a nagging sense of falling slightly short.

And this linked to the third complexity of happy childhoods: the inevitable tensions that resulted when confronted with the unhappy child. Not surprisingly, the relative frequency of discussing unhappy children went up rather dramatically in the 19th century (as Google Ngrams suggest), as a counterpart to the new expectations more generally. While rates dropped a bit thereafter, the topic remained vivid, encouraged by growing interest in, and claims by, child psychologists and other experts. Two outcomes seem pretty obvious. First, of course, the unhappy child (or the period of unhappiness), whether directly experienced or not, was a cautionary tale for parents themselves: something must have gone wrong, some adult must have failed in her duties, for this to have emerged. The facile association of unhappy childhoods and parental dereliction (and often, resultant unhappy adulthoods) became a conversational and literary staple by the mid-20th century, particularly amid the popularization of Freudian psychology (Ludy, 2007). And second, when the unhappy child was encountered there was a risk of exculpatory diagnosis: the child must be unhappy because of some psychological disorder, the unhappiness a sign of some kind of illness, beyond the responsibility of good parents. It became harder to accept or even understand the sad child (Berman, 2016).

Historical value judgments are never easy, particularly since by definition we are trapped in our own contemporary standards. It is hard not to believe that, for all the complexities involved, the emergence of the idea of happy children was an advance over earlier frameworks – which is one reason that the idea of children's happiness has spread geographically as part of globalization (though without yet creating uniform agreement). But, inevitably, since we are enmeshed in the happiness culture it is hard to evaluate it against past patterns.

Certainly, there are the downsides, which the historical approach, cutting through any assumption that the idea of happy childhood is a natural human concept, helps highlight as well. It becomes too easy to overdo the happiness card, whether the result is undue accumulation of childish junk or the difficulty of appreciating periods of childish sadness. It is easy to complicate the actual achievement of normal happiness by expecting too much, by reacting to quickly to emotional lows. As it emerged from the 19th century onward, the assumption that children should be cheerful as part of the child's contribution to the happy family can be genuinely burdensome, just as the assumption places obligations on parents as well. The realization that much of this is a recent historical product, which might be open to some reconsideration or modification, can be constructive. Not a few experts are joining in urging greater nuance and flexibility about the childhood/happiness association.

There is one final point. We began this essay by noting the premium that Western parents, when polled, place on children's happiness. But of course happiness is not the only thing we want, and it is even possible that our cultural standards prompt us to claim a higher priority than we really mean. Contemporary Americans certainly do not want unhappy children, but the classic helicopter parent, this creature of the past quarter century, may actually be more focused on achievement than we explicitly recognize – however, parentally orchestrated that achievement may be. Recent analysis that suggests how successful many middle-class parents have become in positioning their children for college and beyond, in a newly demanding economic environment, may complicate the happiness equation: these parents want to think their offspring are happy, but they are orchestrating other goals (Druckerman, 2019). The extent to which middle-class American parents are unusually focused on the importance of hard work, compared to European counterparts, certainly raises some questions about actual priorities, despite lip service to the hope for childish joy (Doepke and Zilibotti, 2019). The happiness standard will surely prompt the demanding parent to bursts of indulgence, often with a strong consumer component, and probably some real guilt about not succeeding as consistently on the happiness front as we would like.

The relatively modern conversion to the notion that children should be happy added important criteria to the ways many American parents evaluated their own performance and clearly helped motivate changes in actual interactions with children, including the growing commitment to consumerism. It affected people's evaluations of their own childhoods, and could affect children directly as well, as in the injunctions to be cheerful. But, as several recent studies of happiness suggest, the results in terms of actual happiness and well being are harder to assess: expectations could be raised beyond reasonable hope of fulfillment, and signs of occasional sadness might become harder to handle (Ahmeds, 2010). Add into this the pressures for achievement and success, so vivid in the current generation of middle-class teenagers, and the evaluation of actual outcomes, as opposed to professed goals, becomes undeniably complicated.

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The Relationship of Gender Roles and Beliefs to Crying in an International Sample

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This study aimed to (1) investigate the variation in self ascription to gender roles and attitudes toward gender roles across countries and its associations with crying behaviors, emotion change, and beliefs about crying and (2) understand how the presence of others affects our evaluations of emotion following crying. This was a large international survey design study (N = 893) conducted in Australia, Croatia, the Netherlands, Thailand, and the United Kingdom. Analyses revealed that, across countries, gender, self-ascribed gender roles, and gender role attitudes (GRA) were related to behavioral crying responses, but not related to emotion change following crying. How a person evaluates crying, instead, appeared to be highly related to one's beliefs about the helpfulness of crying, irrespective of gender. Results regarding crying when others were present showed that people are more likely both to cry and to feel that they received help around a person that they know, compared to a stranger. Furthermore, closeness to persons present during crying did not affect whether help was provided. When a crier reported that they were helped, they also tended to report feeling better following crying than those who cried around others but did not receive help. Few cross-country differences emerged, suggesting that a person's responses to crying are quite consistent among the countries investigated here, with regard to its relationship with a person's gender role, crying beliefs, and reactions to the presence of others.

Keywords: crying, gender roles, social support, beliefs about crying, emotion regulation

The way in which people remember and evaluate their crying experiences are influenced by many factors. These may be whether the cause of crying was positive or negative, how long since the crying occurred (with crying remembered more positively the more time has passed), and social variables, such as the number of people present (Rottenberg et al., 2008a; Bylsma et al., 2011; Vingerhoets, 2013). When researchers consider the social effects of crying, they primarily focus on specific social contexts. However, often neglected in these considerations are other social determinants, such as the socialization of gender roles, which likely play a part in how humans engage in and evaluate their crying experiences.

Although it is well established that women cry more than men (see Vingerhoets, 2013) this difference does not innately appear, with no such differences appearing among infants and small children (see Vingerhoets and Scheirs, 2000). From the age of 11, however, differences in crying proneness and frequency begin to emerge (van Tilburg et al., 2002). Of course, contrary to the notion that women might be biologically inclined to be more emotional, research investigating the role of menarche and crying have found no association with menstrual cycles and crying behaviors (van Tilburg et al., 2003; Romans et al., 2017). Furthermore, much of this change appears to stem from a reduction in boys' expressions of crying, rather than an increase in girls'. However, this still leaves us with the general finding that women tend to cry more, report more proneness to crying, and often feel better after crying than their male counterparts (De Fruyt, 1997; Vingerhoets and Schiers, 2000; Peter et al., 2001; Becht and Vingerhoets, 2002; van Hemert et al., 2011; Denckla et al., 2014).

THE ROLE OF CULTURE

Although cross-cultural research has been limited within the crying literature, some research has found a consistent gender difference across at least 35 countries (Becht and Vingerhoets, 2002; Fischer et al., 2004). That is, women cry more frequently and tend to report more positive crying experiences across cultures. This difference is particularly pronounced in many Western countries, with women in those countries showing considerably higher frequencies of crying as compared to women in Asian, South American, and in some West and East African countries (Becht and Vingerhoets, 2002). Despite these gender differences in frequency, however, in some countries, the difference in emotion improvement after crying between men and women was considerably smaller, and in some instances, non-existent, with gender overall explaining very little variance in emotion change.

Further analysis of this research has found that socio-cultural factors may play a role in how crying behaviors are expressed and evaluated (Becht and Vingerhoets, 2002). Indeed, in countries that were more gender equal, wealthier, and where people reported crying often and with little feelings of shame, both men and women tended to report feeling better after crying than people in countries with less equality and wealth. For crying behaviors, the more individualistic a country, the greater the reported crying frequency was for both men and women, with greater gender empowerment related to higher crying frequency among women. However, research by Fischer et al. (2004) alternately found that country level gender empowerment showed no relationship to crying frequency and concluded that crying behavior is more strongly determined by biological rather than social factors.

These results suggest that the influence of culture on gendered differences in crying may play a role in influencing crying behaviors and evaluations. However, research in this area has primarily examined these potential influences using country level indexes and constructs of different socio-cultural factors

(e.g., country gender empowerment). They were not able to investigate other possible individual difference factors related to gender and emotion expression. Here, we discuss two related avenues that may help to further explain gender differences found in crying research: (1) individual variation in the acceptance of gender and emotion norms (Frymier et al., 1990; Zahn-Waxler et al., 1996; Fischer and LaFrance, 2015) and (2) individual differences in crying beliefs (Sharman et al., 2018) that may affect engagement in crying and how it is evaluated.

GENDER AND EMOTION EXPRESSION NORMS

The widespread distinction between masculinity and femininity in the expression of negative emotions has resulted in a gender-role-consistent pattern of emotion expression, with men tending to express more powerful and hostile emotions such as "anger" and having less tolerance for emotions that display vulnerability, such as sadness and shame (Zeman and Garber, 1996; MacArthur and Shields, 2015). Women, on the other hand, tend to express more vulnerable emotions, such as sadness, fear, and shame, rather than anger (Fischer and Manstead, 2000; Fischer and LaFrance, 2015). Indeed, early parental socialization of emotion expressions in children appears to encourage more expression of anger and less expression of sadness in boys, whereas the opposite is true for girls, with parental socialization resulting in more displays of sadness and less anger than boys from as early as pre-school (Fivush et al., 2000; Brody, 2001; Chaplin et al., 2005). Furthermore, there is an important influence of peers on emotion expression, whereby children are more likely to emphasize gender-role-consistent emotion behaviors when interacting with their peers (Zeman and Garber, 1996; Chaplin and Aldao, 2013). In cultures where gender differentiation for emotion expression is pronounced, this socialization tends to culminate in the attitude that showing vulnerable emotions is a weakness for boys, illustrated with the well-known saying that "boys don't cry" (MacArthur and Shields, 2015).

Given this socialization, perhaps unsurprisingly, differences in shame felt when crying have been found, with men reporting greater shame than women across the countries studied (Becht and Vingerhoets, 2002). However, this effect was small, and indeed, gender differences, particularly regarding mood and emotion ratings of crying across some of crying research have shown small or no effects (e.g., Williams, 1982; Lombardo et al., 1983; Peter et al., 2001). Other research has alternatively focused on individual differences in beliefs about social roles. For example, Ross and Mirowsky (1984), employing a US sample, focused on men's crying to understand if sex-role orientation showed an association with high or low crying expressions, with the authors hypothesizing that non-traditional men were more likely to reject stereotypical masculinity. Analyses revealed a relationship between the strength of men's sex-role orientation and their crying frequency, such that men who adhered to more traditional sex-roles reported lower crying frequencies in response to sadness than non-traditional men. These results have led to suggestions that the differences found

between men and women in crying research might be better explained by a person's perception of gender role patterns (Vingerhoets et al., 2000). That is, the extent to which a person endorses attitudes and behaves consistently with their gender role may influence both their behavior and emotion evaluations of crying. Despite these claims, however, there is a dearth of research on gender roles and their influence on crying behaviors and evaluations. Although there are clear gendered differences in reported crying behaviors and emotional evaluations following crying, understanding the influence of individual differences in gender roles may help researchers to understand some of the variability in crying experiences reported. Moreover, the measurement of crying behaviors has often been limited to crying frequency, which provides an estimate of recent crying but does not provide more detailed information regarding a single crying experience.

CRYING BELIEFS

Crying research has tended to focus on how people evaluate their crying experiences by measuring whether people feel better or worse following crying (see Becht and Vingerhoets, 2002; Bylsma et al., 2011). Alongside monitoring changes to their own internal mood and emotional states across time, people also appear to use broader evaluative strategies to understand their crying experiences through beliefs that they hold about how crying works generally and in different social contexts (Sharman et al., 2018).

Crying beliefs likely develop through a combination of prior experience and social expectations regarding crying. Indeed, general beliefs about the benefits of crying have changed little over the last 150 years with crying in the media almost consistently promoted as beneficial and, if suppressed, harmful to wellbeing (Cornelius, 2001). Yet, despite this overall saturation in the media, women are still more likely to endorse beliefs that crying is positive. Certainly, there is some evidence that beliefs about the effect of crying show small gender differences, with women believing that crying is more helpful than do men (Sharman et al., 2018). Although the research on crying beliefs is limited, these positive beliefs might help to explain why women rate feeling better than men following crying, where expectations and beliefs about an emotional experience might help to direct that emotional experience (Bastian et al., 2012). However, these gender differences were not always consistent, with beliefs that crying was unhelpful in private or social situations showing no gendered differences (Sharman et al., 2018). Given that men are more likely to be socialized to believe that crying is a weakness, particularly in social situations, we would expect beliefs to show more of a gendered effect. These results suggest that beliefs about crying may not be as salient to gender stereotypes and because of this, these beliefs may actually mediate the impact of gendered emotion norms surrounding crying.

The current study investigated the individual variations in gender roles across genders and its links with crying behaviors, emotion change, and beliefs about crying. Our primary aim

was to understand the function of gender roles and socialization in crying beliefs, crying intensity, and change to emotion following crying, regardless of country. Importantly, in this research, we have referred to emotion, rather than mood as others have done (e.g., Becht and Vingerhoets, 2002). Specifically, we were interested in negative emotions of relatively short duration that caused crying and how those emotion states may have changed immediately following crying, rather than moods, which are generally considered to be longer lasting (Rosenberg, 1998). Furthermore, we also distinguish between GRA and self-ascription to gender roles. As crying behaviors, beliefs, and emotional evaluations likely encompass an interplay of both attitudes toward gender roles (e.g., "crying is for girls") and degrees to which someone personally subscribes to those gender roles, we include both measures in this research.

We hypothesized that there would be relationships between reported gender, GRA, self-ascribed gender roles, beliefs that crying is helpful, change in emotion following crying, and crying intensity. Such that (H1a) women would be more likely to endorse more feminine gender roles, with men more likely to endorse more masculine gender roles. Furthermore, (H1b) participants who endorsed more masculine gender roles would report less intense crying, (H1c) worse emotions following crying, and (H1d) beliefs that crying is less helpful overall. Conversely, participants who endorsed more feminine gender roles would display higher crying intensity, improved emotion ratings following crying, and beliefs that crying is more helpful overall.

We hypothesized that (H2) the relationship between gender roles and perceived emotional change following crying would be accounted for by beliefs that crying is helpful. However, we expected that effect to be observed when recency of the crying episode was accounted for, as crying is more likely to be remembered as generally more beneficial the more time that has passed since a crying episode (Vingerhoets, 2013). Thus, a stronger endorsement of feminine gender roles would be related to more beliefs that crying is helpful, leading to more positive emotion ratings following crying. We similarly hypothesized (H3) that the relationship between gender roles and crying behavior (i.e., intensity of crying) would be mediated by beliefs that crying is helpful. Specifically, participants who subscribed to more feminine gender were expected to report beliefs that crying is helpful, leading to greater crying intensity (i.e., time spent crying and the strength of tearing during the last episode[1]; see **Figure 1**). Notably, despite general cross-country differences, we believed that gender roles and their respective relationships with crying would remain consistent across countries. To explore whether these relationships were sensitive to country differences, mediation models (H2 and H3) were analyzed to check if this effect was robust across countries, or whether these relationships differed depending on country.

Although the primary aims of this research addressed the potential influence of gender roles in crying behaviors and emotion change following crying, we were also interested in the extent

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[1]As we were specifically interested in a person's reports from their last crying experience, we did not include the general measure of crying frequency as a behavioral measure in the predicted mediation model.
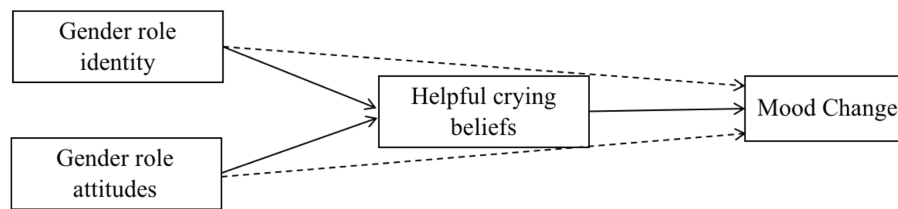
FIGURE 1 | Model of predicted pathways between gender roles, beliefs about crying (BACS), and crying intensity.

to which the social context might influence people's evaluations of emotion change following crying. That is, what role does the presence of others play in determining whether a crying person feels better, worse, or experiences no change after crying?

CRYING AND THE SOCIAL CONTEXT

Evolutionary explanations of crying have suggested that crying mainly serves interpersonal purposes, such as soliciting help and facilitating social bonds (Gračanin et al., 2018). Crying research has, thus far, shown convincing evidence for this view, finding that shedding tears in the presence of others appears functional. Specifically, the evidence indicates that crying is likely a social signal that encourages more helping behaviors, sympathy, succor, and less avoidance from nearby others (Hendriks and Vingerhoets, 2006; Hendriks et al., 2008; Provine et al., 2009). However, overwhelmingly the methodology used in this research has involved participants rating their willingness to help when presented with vignettes or images of crying (or sad) faces, with little exploration from the perspective of the crier. Moreover, the available evidence that crying encourages helping behaviors in others comes from experimental studies conducted in primarily Western contexts.

Some research focused on the crier's experience has begun to emerge, with research comparing people who had lost the ability to cry and those who could. For example, Hesdorffer et al. (2017) found no differences between the two groups on their ratings of well-being but did find that people who could cry felt more socially connected with others than those who could not. These findings suggest that crying may assist in creating feelings of social connectedness, yet it is still unclear whether that social connection and help happens during the crying experience itself or, perhaps, because crying encourages a person to seek help afterward. Although study participants express willingness to help when shown images of people crying more than when shown images of the same people without tears (Hendriks et al., 2008; Provine et al., 2009), overall, there has been little research into whether help is actually received by criers. Specifically, it is unclear whether this help is actually functional in improving criers' emotional state, and furthermore, whether help is received similarly in different cultural contexts.

Crying is more likely to occur in the presence of family and friends than strangers (Vingerhoets et al., 1997, 2000; Nelson, 2005). Yet, it is unclear whether crying among familiar

others is more beneficial in terms of help provided and improved emotional state following crying. Of course, it is also possible that someone may provide help to a crying person, but that the crier perceives it to be unhelpful. Thus far, research is scant on whether social crying is beneficial from the perspective of the crier. However, Bylsma et al. (2011) investigated mood change and its relationship to the number of people present. They found that having another person present was associated with an improved mood, whereas crying alone or with more than one person was associated with worse emotion states following crying. A secondary analysis of the same data set, but instead measuring cathartic crying (i.e., a feeling of emotional release following crying) found that feelings of catharsis were related to socially supportive responses (Bylsma et al., 2008). However, this research did not distinguish between help provided from strangers or persons known to a crier and whether there are cultural differences in how social support is interpreted by the crier.

Therefore, a secondary aim of this research was to understand if the presence of others when a person is crying influences how helped or supported they feel when they cry and whether this influences how emotion is evaluated following crying. We hypothesized that: (H4) similar to previous research findings, the crier's emotional state would improve most when crying with one other person present. Specifically, when compared to two or more people present when crying, the crier's emotional state would improve most when one person is reported as present; (H5) when the person is known to the crier, criers would be more likely to report that help was provided; (H6) when a crier reports that they have been helped, they would be more likely to report feeling better following crying compared to when no help is reported; (H7) those who believe that crying in social contexts is unhelpful would be less likely to show an improved emotional state when crying in the presence of others compared to when alone. Specifically, we predicted that those who endorse more beliefs that crying is unhelpful in social contexts would rate a worse emotional state following crying when one or more person is present during crying compared to those crying alone. Given the lack of research across cultures in this area, we also explored possible cross-country differences within these hypotheses.

All hypotheses and analyses were pre-registered before data collection and can be found on the Open Science Framework (OSF) at https://osf.io/y37xz/. All materials, data files, and analyses can be found on the OSF at https://osf.io/xvdkz/.

MATERIALS AND METHODS

Exclusion Criteria

Participants were included in the study if they were aged between 18 and 40 years, stated that they resided in one of the target countries (see below), and could remember a previous crying experience that was caused by a negative emotional event, which was not caused by something they read in a book or watched on television or in a movie. These criteria were chosen to ensure that participants were comparable across countries in terms of age and crying experiences (i.e., due to a personal negative event). Eighty-three participants did not meet these criteria. Specifically, they indicated that they resided outside of one of the specified countries, their age was outside 18–40 years, they described their last crying experience as caused by watching a film or video clip rather than a personal experience, or stated they could not remember their last crying event at all.

Participants

Following exclusion, a total of 893 participants completed the survey, comprising 508 women and 379 men, and a further 5 people, 4 who identified their gender as "other" with some specifying as non-binary or gender queer, and 1 person who did not answer this question (M_{age} = 22.81 years, SD_{age} = 5.28). Given the small number of participants who identified their gender as "other," we did not include these participants among analyses that involved gender. However, they were included in all other analyses.

Participants were recruited in Australia, Croatia, the Netherlands, Thailand, and the United Kingdom. These countries were chosen because they were the home countries of the authors, who shared a mutual interest in crying research. **Table 1** provides an overview of participant characteristics from each country. All participants were screened *via* their place of residence and aged between 18 and 40 years, and for all countries, the most common response for the question asking how long they have lived in that country was that they were born and raised there. Ethics approval for data collection across all countries was granted *via* the University of Queensland and the National Statement on Ethical Conduct in Human Research, and the University of Amsterdam ethics committees. Participants were collected *via* student samples at each collaborator's university, collected from the broader community based on their place of residence, or from an online sample (*Prolific*; www.prolific.ac). Participants were compensated through course credit at each respective university, and online volunteers were compensated £10 per hour for their participation.

Measures

Triggers

To ensure participants met the criteria for the study, they were asked if the last time they cried was primarily out of sadness, frustration/powerlessness, anger, or something else with an option for free text entry. Participants were also asked

TABLE 1 | Participant demographics for each country, including number of participants by gender, mean (SD) age in years, and the percentage of participants who indicated they were born and raised in that country.

Country	Men	Women	Non-binary/ not specified	Age	% born and raised in that country
Australia	78	94	3	22.83 (4.39)	56
Croatia	75	79	1	23.59 (6.36)	91
Netherlands	75	150	0	21.05 (4.02)	90.2
Thailand	75	88	2	24.72 (4.88)	94.5
United Kingdom	76	97	1	22.53 (6.07)	80.5

For participants who indicated they resided in Australia, the second most common response for the length of time lived in Australia after 'born and raised here' was 11–15 years.

the reason they were crying by selecting if they were crying because of something that happened to you, because of something that happened to someone else (e.g., seeing someone hurt in real life), or "other" with an option for free text entry. Participants who stated that their reason for crying was due to a trigger that was not caused by something either personal to them (e.g., watching a movie), or because of a positive experience were excluded from analysis.

Emotion Change

Emotion change was measured on a single item asking how participants felt immediately following crying compared to before on a 7-point scale (1 = much better and 7 = much worse).

Crying Intensity

Intensity of crying was measured using a standardized composite score of two items measuring the length of crying time and amount of tearing during the last crying episode. These items were "how long did you cry for?" measured from 1 (less than 5 min) to 5 [continuous (starting and stopping) over a long period of time] and "how intensely did you cry?" rated from 1 (tears in eyes) to 5 (tears down face with vocal sobbing and body movements). These two items were significantly correlated (r_s = 0.39, p < 0.001) and combined using standardized unit weights.

Crying Frequency and Time Passed

Participants were asked to indicate how long it had been since they last cried. This was measured categorically on a 6-item scale (1 = in the last day, 3 = in the last month, and 6 = more than 6 months ago). Participants were also asked to estimate the number of times they cried over the last month for any reason including crying for positive or negative reasons. Importantly, where participants provided a range of crying frequency (e.g., 10–15 times), an average of their estimate was imputed, or the minimum crying experience identified, for example "more than 10 times", was imputed as "11" times in the last month. This occurred for 65 participants who gave a range or estimate of their crying frequency. If no clear frequency was identified in a response, such as "a lot," then the field was left empty.

Social Context

Participants were asked how many people they were with measured on a 5-item scale (1 = alone, 2 = one other person, 3 = two other people, 4 = three other people, and 5 = four or more other people). To measure if support was received from a person they were with, participants were asked "If you were with one or more people, did you receive support (e.g., emotional, informational, or active help) from them?". Support was measured on a 4-item scale (1 = yes, 2 = unsure, 3 = no, and 4 = not applicable). To understand if the person they were with was known to them, participants were asked "If you were with one or more people, did you know them or were they a stranger?". Responses were recorded across four items, 1 = stranger, 2 = acquaintance, 3 = both stranger(s) and acquaintance (s), or 4 = close friend or family member.

Beliefs About Crying Scale

The Beliefs About Crying Scale (BACS) consists of three subscales, comprising a total of 14 items (Sharman et al., 2018). Each item is measured on a 5-point scale (1 = Never, 5 = Always), with three subscales, Helpful (seven items; $\alpha = 0.73$; e.g., "after crying I feel an emotional release"), Unhelpful-Individual (three items; $\alpha = 0.65$; e.g., "Crying makes me feel worse when I'm alone"), and Unhelpful-Social (four items; $\alpha = 0.78$; e.g., "it's embarrassing when I cry around friends or family"). Given the large sample, small number of items, and lack of hypotheses for Unhelpful-Individual scale, we considered the lower reliability score acceptable for the purposes of this research. Higher scores on the Helpful subscale indicate greater belief in crying as helpful for wellbeing and emotional recovery. Higher scores on the Unhelpful-Individual scale indicate more beliefs that crying leads to feeling worse when alone. Higher scores on the Unhelpful-Social scale indicate more beliefs that crying is unhelpful in social settings because it can lead to feelings of shame and embarrassment.

Gender Roles

Self-ascribed masculinity-femininity was measured using the Traditional Masculinity Femininity Scale (TMF; Kachel et al., 2016). This scale measures gender role identity (facets of self-subscribed masculinity-femininity) with items that do not depend on culture and time, as they rely on a person's own definition of masculine/feminine that would be shaped by their culture and experiences. Each of the six items (e.g., "I consider myself as…" and "traditionally, my behavior would be considered as…") were measured on a 7-point scale ranging from 1 = very masculine to 7 = very feminine ($\alpha = 0.94$).

A measure of gender attitudes (GRA) was also included taken from the wave six World Values Survey 2010–2014 (Inglehart et al., 2014). This is a 5-item measure of attitudes toward traditional gender roles including questions such as "A university education is more important for a boy than for a girl" ($\alpha = 0.68$). Although all five items were measured, one item was removed to improve overall reliability ("being a housewife is just as fulfilling as working for pay"; $\alpha = 0.74$). Answers were measured on a 4-point scale from 1 = strongly agree to 4 = strongly disagree.

Procedure

Each survey for respective countries was translated and back-translated from English by at least two bilingual speakers of English and Croatian, Dutch, or Thai. Participants were asked to remember their last crying experience that was caused by a negative emotion (e.g., sadness, anger, and frustration) that was not caused by something that they read in a book or watched online, on television, or in a movie and to report when they last cried with a free-text entry to describe it if they wished. Regarding this crying experience, participants were asked what caused their crying, how many people they were with and if they received help (i.e., emotional, informational, and instrumental), and the intensity with which they cried. Participants were then asked how they felt immediately following crying compared to before and their frequency of crying over the last month. They then completed each of the BACS and gender role scales presented in random order and finally answered demographic questions, relating to their age, country of residence, and gender. Participants self-selected to complete the survey based on the memory of their last crying experience and after being screened for relevant age, participants were recruited in their respective countries or online after confirmation of their country of residence. All participants were provided a link to complete this survey online in their own time.

RESULTS

All analyses were conducted in R version 3.5.2 (R Core Team, 2017). Mediation analyses were tested using *lavaan* (v0.6-3; Rosseel, 2012). The data were first explored to see variations among crying behaviors and evaluations between countries and gender. Overall, women reported crying more frequently, $t(752) = 11.9$, $p < 0.001$, $d = 0.74$, and more intensely than men, $t(858) = 6.69$, $p < 0.001$, $d = 0.45$. Although men and women's crying frequency and women's crying intensity did not significantly differ between countries (all $ps > 0.05$), men's crying intensity showed differences across countries, $F(22, 355) = 1.65$, $p = 0.033$, $\eta^2 = 0.09$, with Croatian men showing the lowest crying intensity compared to the other countries sampled (see **Table 2**). Ratings of change in emotional state following crying showed no difference across men and women; $t(882) = 0.89$, $p = 0.38$, $d = 0.06$. However, beliefs about crying were significantly different between men and women across all three subscales with women believing that crying was more helpful, $t(769) = 5.24$, $p < 0.001$, $d = 0.36$, more unhelpful in social situations, $t(761) = 2.27$, $p = 0.02$, $d = 0.16$, and more unhelpful when alone [$t(884) = 3.10$, $p = 0.002$, $d = 0.21$]. These ratings showed no differences across countries (all $ps > 0.05$). See **Table 2** for descriptive statistics.

Crying Relationships and Mediation

Due to the combination of ordinal and continuous variables, and non-normal distribution of the crying intensity variable, initial bivariate correlations were conducted using Spearman's rho with α adjusted to <0.005 given multiple comparisons. This analysis found significant relationships between the TMF

TABLE 2 | Mean (SD) crying behaviors and evaluations separated by country and gender.

Country	Gender	Frequency	Emotion change	Cry intensity	BACS helpful	BACS unhelpful social	BACS unhelpful individual
All countries	Male	1.49 (2.41)	3.41 (1.29)	−0.21 (0.76)	3.09 (1.03)	3.29 (1.19)	2.00 (0.87)
	Female	4.6 (5.12)	3.33 (1.26)	0.16 (0.86)	3.44 (0.94)	3.47 (1.07)	2.18 (0.79)
	Others	4.64 (7.02)	2.86 (1.21)	−0.17 (0.56)	4.29 (0.87)	2.82 (1.04)	1.57 (0.60)
Australia	Male	1.62	3.37	−0.28	2.98	3.33	2.11
	Female	5.74	3.43	0.20	3.13	3.41	2.11
	Others	7.67	3.67	−0.11	3.57	2.92	1.89
Croatia	Male	1.33	3.24	−0.40	3.55	3.13	1.84
	Female	3.89	3.49	−0.04	4.21	3.46	2.09
	Others	1	4	−0.20	5.29	1.5	2
Netherlands	Male	1.01	3.45	−0.06	2.96	3.41	2.04
	Female	3.91	3.57	0.10	3.24	3.73	2.39
	Others	–	–	–	–	–	–
Thailand	Male	1.56	3.23	−0.27	3.06	3.17	1.97
	Female	3.73	2.78	0.11	3.5	3.03	1.84
	Others	2.25	2	−0.24	4.5	3.38	1.17
United Kingdom	Male	1.9	3.75	−0.03	2.92	3.42	2.04
	Female	6.02	3.25	0.41	3.4	3.54	2.29
	Others	4	1	−0.20	5	2.75	1

Frequency of crying was estimated over the last 30 days; higher scores on emotion change indicate 'feeling worse' following crying; higher scores on cry intensity is related to longer crying time with more intense tearing; higher scores on all beliefs scale indicate greater endorsement of the scale.

scale, self-reported gender, crying intensity, and the extent to which crying was believed to be helpful. The GRA scale was also correlated with gender, TMF, and crying intensity but not related to the BACS$_{Helpful}$ scale, see **Table 3**. However, emotion states following crying only displayed a relationship with helpfulness ratings on the BACS.

These relationships indicate that compared to masculine and more traditional gender roles, more feminine and less traditional gender roles was related to greater crying intensity, and beliefs that crying was more helpful overall. Similarly, women were more likely to endorse more feminine and less traditional gender roles, to believe that crying was helpful, and to cry more intensely than men in the sample. Finally, those who believed that crying was helpful were also more likely to feel as though their emotional state improved following crying.

As no relationship was observed between either measure of gender roles and emotional change, a mediation model was only tested with each gender role measure predicting crying intensity and mediated by beliefs that crying is helpful (BACS$_{Helpful}$; see **Figure 1**). To ensure time since crying was controlled for, this variable was dichotomized following examination of the distribution of crying into recent crying (crying in the last week or earlier, $N = 335$) or non-recent crying (crying more than a week ago, $N = 559$). Because the crying intensity variable displayed a non-normal distribution, bootstrapping was utilized at 1,000 samples. These results revealed significant direct effects of both predictors. However, helpfulness, as rated on the BACS, did not mediate the relationship between either self-ascribed gender roles or attitudes toward gender roles and crying intensity when accounting for the time since crying occurred [$ab = 0.008$, $p = 0.20$, CI ($−0.003$, 0.023)]. Secondary mediation analyses were conducted to check if these effects were consistent across countries. These analyses also found no mediation across countries. See **Table 4** for all mediational results.

TABLE 3 | Correlations between self-reported gender, gender roles, beliefs that crying is helpful (BACS$_{Helpful}$), crying intensity, and emotion change following crying.

	TMF	GRA	BACS$_{Helpful}$	Cry intensity	Emotion change
Gender	0.758**	0.311**	0.166**	0.221**	−0.035
TMF	–	0.331**	0.214**	0.185**	−0.040
GRA		–	0.017	0.150**	0.040
BACS$_{Helpful}$			–	0.096*	−0.443**
Cry intensity				–	0.002
Emotion change					–

*Spearman's rho *p < 0.005, **p < 0.001; gender = male (1), female (2); TMF, traditional masculinity/femininity scale; GRA, gender role attitudes.*

TABLE 4 | Results overall and across countries testing if the relationship between gender roles and crying intensity is mediated by beliefs that crying is helpful.

	Estimate *ab*	SE	*p*	Lower CI	Upper CI
All countries	0.008	0.006	0.200	−0.003	0.023
Australia	0.009	0.013	0.501	−0.011	0.039
Croatia	0.018	0.020	0.386	−0.014	0.086
Netherlands	0.012	0.012	0.325	−0.005	0.043
Thailand	0.011	0.030	0.721	−0.041	0.079
United Kingdom	0.037	0.032	0.250	−0.018	0.110

ab, indirect effect; SE, standard error; CI, confidence interval; p, significance.

Mediation Exploration

Given that there was no correlation found between BACS$_{Helpful}$ and the GRA scale, to check if the lack of relationship between these variables influenced the mediation, a second mediation model was analyzed using only the TMF scale. This analysis confirmed the previous results finding that there was no mediation of crying intensity and gender roles measured through the TMF scale *via* BACS$_{Helpful}$ [$ab = 0.009$, $p = 0.20$, CI ($−0.005$, 0.024)].

To explore the assumption that gender roles are a better predictor of crying behaviors than gender alone, a second mediation model was suggested by a reviewer. This model found partial mediation of the relationship between gender and crying intensity, but only through the GRA scale [$ab = 0.047$, $p = 0.02$ CI (0.011, 0.090)] and not the TMF scale [$ab = -0.017$, $p = 0.79$, CI (-0.150, 0.115)]. These results highlight that gender and attitudes toward gender roles likely both play a role in how intensely people cry, $c' = 0.366$, $p < 0.001$, CI (0.261, 0.476).

Social Context Effects

Correlational analyses and pairwise t-tests were employed to understand the relationship between emotion following crying and the number of people present when crying, with neither finding significant relationships between variables. Specifically, no correlation was revealed between emotion and the number of people present, $r = 0.02$, $p = 0.60$. Furthermore, when compared against two, three, or more people present when crying, having just one-person present did not appear to influence emotion, all ps > 0.05. In fact, further comparisons against people who were alone also found no differences in their ratings of emotion when compared to those with people present, ps > 05. No differences were found among these analyses when explored by country.

People were most likely to cry around someone who was known to them (95%), compared to a stranger (5%), and more likely to report receiving help overall (82%), compared to not (18%). A chi-square analysis found a significant relationship between reported help and if the persons in the social context were known, $x^2(1, N = 421) = 8.00$, $p = 0.005$. However, as very few people cried around strangers, an additional analysis examined if the strength of the relationship with those present impacted whether help was perceived to be provided, specifically the presence of "acquaintances" compared to a "friend/family member." These results revealed that when a person cries in the presence of someone they know, how well they know that person has no influence on whether help was perceived to be provided, $x^2(1, N = 391) = 0.11$, $p = 0.74$. A t-test was used to explore whether emotion improved when the person was known to the crier that yielded no significant difference but did show a large effect size $t(418) = 1.36$, $p = 0.18$, $d = 0.56$. As only six people reported crying around strangers compared to 414 people who reported crying around people they knew, this large effect size suggests the relationship would likely exist in a more equally distributed sample.

To understand whether emotion improved most when help was perceived to be given, compared to when no help was perceived, a t-test was utilized and found a significant difference between the two groups, $t(436) = 2.84$, $p = 0.005$, $d = 0.35$. Further exploration found that for those who were in a social situation, there was no interaction of country and help reported (see **Figure 2**). However, there was a significant main effect of country on reported emotional change following crying, $F(4,428) = 3.06$, $p = 0.02$, $\eta^2 = 0.03$. Further *post hoc* comparisons with Tukey's corrections revealed that participants living in Thailand
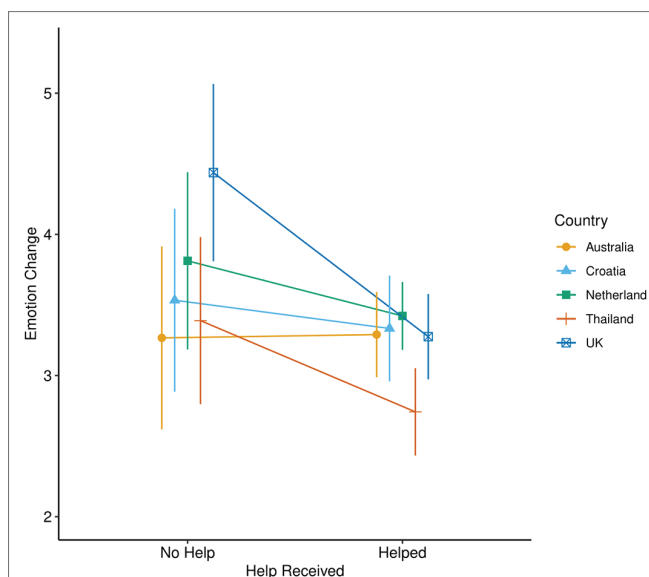
FIGURE 2 | Plot of emotional change ratings whether help was provided when crying in a social context compared by country. Emotion change scores range from 1 = much better to 7 = much worse.

rated a better emotional state overall when crying in a social context, compared to those from the United Kingdom, $t(428) = 3.22$, $p = 0.01$, with no other significant differences emerging.

Finally, a correlational analysis was used to understand the relationship between emotional change following crying and beliefs that crying is unhelpful in social contexts. Results showed that worse emotional change ratings following crying were significantly related to stronger beliefs that crying is unhelpful in social contexts, $r = 0.16$, $p < 0.001$. This relationship was found to be significant for both people who were exposed to social contexts, $r = 0.16$, $p = 0.001$, and people who were alone, $r = 0.15$, $p < 0.001$, with a Fisher r-to-z transformation indicating no significant differences between these groups ($z = 0.13$, $p = 0.89$). When analyzing these correlations across countries, however, it was revealed that one country (i.e., Thailand) was driving this effect with no other countries showing significant relationships either socially or alone with emotional change and beliefs about crying ($r_{ThaiSocial} = 0.44$, $p < 0.001$, $r_{ThaiAlone} = 0.26$, $p = 0.008$) with a Fisher r-to-z transformation comparing correlations indicating no differences between the two groups ($z = 1.28$, $p = 0.20$).

DISCUSSION

The aim of this research was first to understand how gender roles may be involved in crying behaviors and emotional effects, and secondly to gain a better understanding of how the presence of others may impact on participants' crying experiences. Although this research utilized an international sample, we did not predict cross-cultural differences in the overall relationships between the variables investigated, and largely found none.

Gender Roles
Correlations
We hypothesized that relationships would exist between gender, attitudes toward gender roles, self-ascribed gender roles, beliefs that crying is helpful, crying intensity, and emotional state following crying. This hypothesis was partially supported by our results. In particular, women were more likely to endorse more feminine and less traditional gender roles, with, as predicted, more self-ascribed feminine gender roles related to greater crying intensity and beliefs that crying was more helpful overall compared to people who identified more masculine gender roles. This result reveals, similar to what was found by Ross and Mirowsky (1984) regarding sex-roles, that identification with and attitudes toward gender roles are related to crying behaviors as well as beliefs in the helpfulness of crying. However, we did not find that emotion improvement was related to either self-ascription of gender roles or attitudes toward traditional gender roles. In fact, the only variable that was related to emotion change was with beliefs that crying was helpful. Specifically, those who believed that crying was helpful were also more likely to feel better following crying. Although this relationship appears circular, it helps to understand the widely held public perception that crying is helpful (Cornelius, 2001). We consider that beliefs about crying's utility may initially influence how a person evaluates their crying experience. However, it is more likely that these processes reinforce one another. That is, a person's initial evaluation that crying is helpful would likely be adjusted given a crying experience that leaves the crier feeling worse. Testing the direction of this relationship may be possible in future longitudinal research using experiencing sampling, which would allow the measurement of a number of crying experiences and whether there are related changes to beliefs about crying.

Mediation
Given a lack of relationship between emotion following crying and gender roles, the second hypothesis was not tested in a mediation model. The third hypothesis, however, was also not supported. That is, when accounting for time passed since crying occurred, beliefs that crying is helpful did not account for the relationship between gender role attitudes and self-ascription and intensity of crying. Similar lack of mediated relationships was found for all countries showing that crying intensity seemed to be accounted for by gender roles. To further understand the relationship between gender roles and crying behaviors, they were explored in a mediation model to understand if crying behaviors might be better explained by a person's self-perception and attitudes toward gender roles than gender alone (Vingerhoets et al., 2000). These results found that both gender and attitudes toward gender roles meaningfully influenced reports of crying intensity. Specifically, females were more likely to cry more intensely, and the strength of this relationship was partially mediated by females having less traditional attitudes toward gender roles, which in turn predicted more intense crying.

Taken alongside the correlational results, these effects suggest that a person's gender and the extent to which they subscribe to their gender role (attitudes and self-perception toward gender roles) is highly related to their behavioral crying responses. However, how crying is evaluated appears instead to be related to our attributions of the helpfulness of crying. This may explain why we have previously seen such large differences in crying frequencies between genders but not large differences in how men and women seem to evaluate their crying experiences (Becht and Vingerhoets, 2002; Sharman et al., 2018).

Crying and Social Help
We also explored the possible social factors involved in crying and emotion change. Contrary to our predictions, we found that ratings of emotion following crying were not affected by the number of people present. Indeed, this effect persisted even when compared with those who were alone and did not differ across countries. This result is not consistent with previous cross-cultural research that found that the presence of one person during a crying episode was related to the greatest emotional improvement (Bylsma et al., 2008). These differences in social responses following crying may have arisen from variation in measurement of emotional improvement, with Byslma et al.'s study measuring change following crying using a 3-point scale, compared to the 7-point scale that was used here.

The results showed some support for our fifth hypothesis, that there is a relationship with whether the crier perceives they received help and whether the crier knows the person who helps them. However, comparatively few people indicated that they cried around strangers or people they did not know. Further analyses found that when crying around friends or family compared to acquaintances, there were no differences in whether help was reported by criers. This suggests that simply knowing someone or a group of people, regardless of how strong that relationship is increases a person's likelihood to cry around them and that no matter the closeness of the relationship with the crier, known others are perceived to provide the same amount of help. Finally, we also observed a large effect of emotional improvement when crying around someone the person knew. Although this result was not statistically significant, the large effect size suggests this relationship likely exists, but that our samples split between these groups were not of sufficient size to detect an effect, with only six people indicating they cried in the presence of a stranger who were perceived to help. These results do, however, confirm that people are more likely to cry in front of people known to them, rather than strangers (Vingerhoets et al., 1997). Furthermore, these findings support the proposed effects of social crying found in previous research, suggesting that crying encourages others to provide help and succor (Hendriks and Vingerhoets, 2006; Hendriks et al., 2008; Provine et al., 2009). These results also tentatively add to this perspective, indicating that there are distinctions in how help is perceived when provided from strangers or persons known to a crier in whether that help is functional in improving a person's emotional state.

Support was also found for H6. More precisely, we found that when help was reported by the crier, they tended to rate a better emotional state than those who did not report receiving

help from a person present. There were also differences between countries on their reports of emotional change following crying when crying in social situations generally, with participants in the United Kingdom reporting feeling worse following crying compared to those in Thailand. This may suggest a cultural difference among those in the United Kingdom where there is, perhaps, more shame attached to crying in front of others. However, with no other research measuring crying and shame comparing these countries, we can only be tentative in our conclusions here. Overall, it appears that help generally does not alter the course of emotion change following crying in most of the countries studied. Separately, however, some countries did show differentiation in emotion ratings when help was reported, with Thai participants showing the most positive emotion ratings overall when help was reportedly provided. This may mean that there are cross-country differences in how people interpret their emotion states when they feel they have been helped, although we do not know whether this is specifically related to crying situations.

We did not find support for our final hypothesis. The relationship between reported emotional state following crying and the belief that crying is unhelpful in social contexts was the same for those who cried in the presence of others and those who cried on their own. That is, regardless of whether people cried alone or in a social context, people reported worse emotional states following crying when they held beliefs that crying is unhelpful in social contexts. However, this effect appeared to be driven exclusively by Thai participants who tended to rate their emotional state as more negative if they believed crying was unhelpful socially, whether they were crying alone or in a social setting. This effect could be explained by the presence of stronger normative beliefs within Thai society that displaying negative emotions is disrespectful as they can cause distress in others (Cassaniti, 2014). All other countries showed no significant relationships between social beliefs and their emotional state following crying. The results from testing Hypotheses 6 and 7 indicate that, cross-culturally, there are differing social and emotional evaluation characteristics that people are exposed to, which likely affect how they interpret the helping behaviors of others and how that intersects with their evaluations of emotions following crying (Heinrichs et al., 2006; Mesquita et al., 2014).

Limitations

The cross-country sample of this research provides good generalizability for the results, with sample sizes within and between countries that allow for strong inferences about potential country differences. Nonetheless, there were several limitations to this research. First, this study utilized retrospective self-report, which may have biased participants' responses. As some participants remembered their last crying experience to be longer than 6 months before, it is possible that participants reported their crying experiences more favorably as time passed (Rottenberg et al., 2008b; Bylsma et al., 2011). Although time since crying was controlled in some analyses, we are still cautious about the conclusions we can make from this research. Furthermore, we note that questions regarding gender that

measured global judgments of traits and attitudes may have resulted in greater confirmation to gender stereotypes (Else-Quest et al., 2012). Additionally, greater conformity to stereotypes may have been primed by questions regarding crying, a stereotypical female behavior (Jones and Heesacker, 2012). Perhaps future research would benefit from more accurately measuring gender roles using state-based questions.

Second, the average age of our sample was around 23 years old. Although we included an overall age-bracket between 18 and 40 years, restrictions with sample collections across countries, and attempts to ensure the data were comparable, meant that our samples were much younger. This makes it difficult to generalize our results across age groups, where there may be different influencing social factors, for example, that impact how older or younger adults interpret their crying experience (Blanchard-Fields et al., 2004; Zimmermann and Iwanski, 2014).

Third, it is difficult to derive definite conclusions from our results for those participants who reported that they were "alone" when they cried. As one reviewer noted, there may be a myriad of influencing factors, such as the presence of animals or pets and perhaps memories or imagined social others. Future research would benefit greatly from understanding the potential social role of animals or pets during crying, and even how the imagining of social others may impact emotional evaluations following crying.

Conclusion

Overall, explorations into crying behavior and emotion change across country and gender found that women cried more frequently and more intensely than men across all countries, yet ratings of emotion following crying were not different between men and women. Our results strongly suggest that these commonly replicated results based on emotion and crying frequency may be explained by gender, prescription to gender roles, and beliefs about whether crying is helpful. That is, self-reported gender and prescription to gender roles appears to be related to the extent to which crying is engaged in, and the intensity of crying (i.e., greater endorsement of femininity relates to more crying and greater crying intensity). Conversely, evaluating whether a crying experience results in feeling better or worse appears instead to be related to individual differences in attributions of the helpfulness of crying, rather than gender.

Beliefs about crying were surprisingly different between genders with women not only showing greater beliefs that crying was generally helpful as was found previously but also beliefs that crying was more unhelpful individually and unhelpful socially, which have formerly shown no differences (Sharman et al., 2018). Although the effects were small, these findings suggest that women may be more sensitive to both positive and negative emotions when crying in different contexts. We do not believe that these results are contradictory but provide further weight to the importance of context specificity. That is, beliefs that crying is helpful are often quite general, such as "crying makes me feel better," and may be more likely to be influenced by popular opinions (Cornelius, 2001). However, when considering crying in specific contexts such

as when alone or in a social space, people may be more likely to draw on specific experiences. Furthermore, as women are more frequent criers, they are more likely to have experienced crying in more varying contexts.

These results also provide some further support for the social function of crying. That is, that crying is a strong social signal that encourages help and succor (Gračanin et al., 2018). Importantly, these results provide a greater understanding of what that helping process means, specifically, that a person is more likely both to cry and to feel that they will receive help around a person that they know, compared to when in the company of a stranger. In addition, that help does not appear to change depending on the extent to which a person is known, with acquaintances and friends/family members perceived to provide equal amounts of support to a crier. Moreover, and notably, when a crier said that they were helped by either instrumental, informational, or physical means, they tended to report a better emotional state following crying than those who did not receive help, but who were around at least one other person. However, it is also important to note that the presence of others has a complex relationship with how people evaluate their emotion following crying, and that the country in which we live may affect how we interpret our crying experience.

DATA AVAILABILITY STATEMENT

All datasets generated for this study are included in the manuscript/supplementary files.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by University of Queensland Health and Behavioural Sciences, Low and Negligible Risk Ethics Sub-Committee. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

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Lay Conceptions of Happiness: Associations With Reported Well-Being, Personality Traits, and Materialism

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Lay conceptions of happiness are beliefs about the nature, value, antecedents, and outcomes of happiness. Happiness research has largely focused on the levels, predictors, and outcomes of happiness, whereas conceptions of happiness have received less attention. This study sought to expand our understanding of these conceptions by examining a relatively large number of them (i.e., eudaimonism, inclusive happiness, externality of happiness, fear of happiness, transformative suffering, fragility of happiness, valuing happiness, and inflexibility of happiness), in samples from Korea and Canada. Five components of well-being (i.e., social well-being, psychological well-being, life satisfaction, positive affect, and negative affect), the Big Five personality traits, materialism, and demographic variables were measured in addition to conceptions of happiness. The results showed that conceptions of happiness predicted various components of well-being over and above personality traits and demographic variables. These conceptions contributed additional variance to the prediction of materialism. The conceptions were largely independent of personality traits, and there were gender and age differences in the conceptions of happiness. The results also suggest that two dimensions of "effortful virtuosity vs. doubtful pursuit" and "malleability vs. stability" are the underlying dimensions along which the conceptions of happiness vary. There were similarities and differences in the results for Korea and Canada. In sum, this study provides a relatively comprehensive and systematic exploration of the conceptions of happiness, their structure, nomological network, and their relevance to well-being research. It is hoped that these results will stimulate more research on lay conceptions of happiness.

Keywords: conceptions of happiness, happiness, well-being, eudaimonism, personality, materialism

INTRODUCTION

Happiness research has largely focused on studying the levels, predictors, and outcomes of happiness. People's lay understandings of happiness, however, have received relatively less attention. There are, yet, independent lines of research that focus on a single conception of happiness. For example, the distinction between hedonic and eudaimonic conceptions of well-being (Huta and Ryan, 2010; McMahan and Estes, 2011) and incremental and entity theories of well-being (Howell et al., 2016) have been independently investigated in previous research. However, prior research to date has not systematically explored the structure and associates of these conceptions. The present study sought to take initial

steps toward this objective by simultaneously studying eight conceptions of happiness.

Psychologists have extensively studied lay beliefs about the self, others, world, future, and similar. For example, the personal construct theory posits that people anticipate events by the personal meanings they place on those events, i.e., constructs, and people's behavior is partly shaped by their constructs (Winter and Reed, 2016). People's social cognitions (i.e., interpretations of own and others' social behaviors) have also been extensively studied (Fiske and Taylor, 2013). Overall, psychological findings indicate that lay beliefs and constructs have real-life consequences and changing them may lead to changes in mood, behavior, or life outcomes. In fact, changing personal beliefs is an important element of many branches of psychotherapy such as schema therapy and cognitive-behavioral therapy (Beck, 2005).

Conceptions of happiness are another group of personal beliefs and constructs that may have far-reaching real-life consequences. Yet, relatively little is known about these conceptions and their influence on people's daily lives. In this paper, I will broadly define conceptions of happiness as lay beliefs about the nature, value, antecedents, and outcomes of happiness. Here, eight conceptions of happiness were examined in Korea and Canada. These conceptions are listed and defined in **Table 1**.

Prior research shows that conceptions of happiness are associated with actual levels of well-being. For example, fear of happiness, externality of happiness, and fragility of happiness have been found to be negatively associated with subjective well-being (Joshanloo, 2017b, 2018a; Joshanloo et al., 2017). The present study sought to expand these findings by including a larger number of conceptions and outcomes. The study includes five dimensions of well-being as outcome variables (social well-being, psychological well-being, life satisfaction, positive affect, and negative affect). Social and psychological well-being capture eudaimonic and the latter three variables capture hedonic well-being (Joshanloo, 2016). Another outcome variable was materialism (emphasizing the acquisition of material goods and luxuries in its own right and as a pathway to happiness, Goldberg et al., 2003). It was expected that people's conceptions of happiness would be associated with their materialistic values as, for example, materialism and hedonism have been found to be positively related (Karabati and Cemalcilar, 2010). To establish the incremental validity of the conceptions, the Big Five personality traits and demographic variables were controlled for in some of the analyses. There is evidence to suggest that personality traits are associated with conceptions of happiness. For example, Joshanloo (2018b) found a positive correlation between fragility of happiness and neuroticism. To expand these findings, the Big Five traits were also used as predictors of the conceptions of happiness.

The study sought to answer five main questions: (1) Are conceptions of happiness significant predictors of various dimensions of well-being? (2) Do the Big Five traits predict conceptions of happiness? (3) Do conceptions of happiness predict well-being and materialism over and above personality traits and demographic variables? (4) What are the underlying dimensions along which conceptions of happiness vary? (5) Do conceptions of happiness vary by gender and age? The purpose of the present study was not to statistically compare results from Korea and Canada and thus measurement invariance was not tested. The analyses were run and presented separately for each nation.

METHODS

Participants

A total sample of 1177 Korean participants (average age = 40.955, SD = 12.097) were included in the study (females = 51.1%). A total sample of 660 Canadian participants (average age = 51.733, SD = 15.637) were included in the study (females = 62.9%). These samples consist only of participants who passed the three attention checks included in the survey. The participants were recruited through data collection agencies, and were paid for their participation.

Measures

In Korea, all of the scales were translated from English into Korean by a team of bilinguals, research assistants, and professors. Reliabilities for all measures are reported in **Table 2**.

Well-Being

The *social and psychological well-being* subscales of the Mental Health Continuum-Short Form (Keyes, 2006) were used to measure social (five items) and psychological (six items) well-being. The items are responded to on a 6-point scale ranging from 0 = *never* to 5 = *every day*. The *satisfaction with life scale* (Diener et al., 1985) was used to measure life satisfaction. Each of the five items is rated on a 7-point scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. The *negative and positive affect scale* (Mroczek and Kolarz, 1998; Joshanloo, 2017a) was used to measure positive and negative affect. The scale includes six items for negative affect (e.g., nervous) and six items for positive affect (e.g., cheerful). Respondents indicate how much of the time (ranging from 1 = *none of the time* to 5 = *all of the time*) during the past 30 days they felt each of the affective states.

Materialism

The parent materialism measure (Goldberg et al., 2003) was used. The scale has eight items (e.g., "I'd rather spend time shopping than doing almost anything else"). A 4-point scale (1 = *disagree a lot* to 4 = *agree a lot*) was used in Canada. A 5-point scale with an additional response option (3 = *neutral*) was used in Korea.

Personality

The Big Five traits were measured using the Mini-IPIP (Donnellan et al., 2006), which is a 20-item short form of the 50-item International Personality Item Pool – five-factor model measure. Each personality trait is measured by four items, using a scale ranging from 1 = *strongly disagree* and 5 = *strongly agree*.

Conceptions of Happiness

The items of the 5-item *fear of happiness scale* (Joshanloo, 2013; Joshanloo et al., 2014) are rated on a 7-point scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. The 4-item

TABLE 1 | The lay conceptions of happiness examined in this article.

Title	Main theme	Definition	Sample item
Eudaimonism	Nature of happiness	That well-being consists of meaningful activity, trying to actualize one's potential, and gaining a rich understanding of the meaning of life rather than happy feelings, enjoyment, and the absence of negative feelings	Having a sense of purpose and direction in life
Inclusive happiness	Nature of happiness	That our happiness depends on the happiness and well-being of other people, animals, and the natural elements	The connection between your personal happiness and that of all human beings on earth
Externality of happiness	Nature of happiness	That one's level of happiness is out of one's control and largely depends on external factors	My happiness is controlled by forces outside my control
Fear of happiness	Value and consequences of happiness	That happiness can cause bad things to happen	Having lots of joy and fun causes bad things to happen
Transformative suffering	Nature and consequences of unhappiness/ill-being	That unhappiness has positive and sometimes transformative powers, and can be an ingredient of well-being	Sometimes sadness and suffering can lead us to happiness
Fragility of happiness	Nature of happiness	That happiness is fleeting and may easily turn into less favorable states	Something might happen at any time and we could easily lose our happiness
Valuing happiness	Value of happiness	That obtaining and maintaining happiness is very important	Feeling happy is extremely important to me
Inflexibility of happiness	Nature of happiness	That one's level of happiness is fixed and unchangeable	Some people are very happy and some aren't. People can't really change how happy they are

TABLE 2 | Cronbach's alphas.

	Korea	Canada
Social well-being	0.813	0.839
Psychological well-being	0.900	0.891
Life satisfaction	0.920	0.911
Negative affect	0.877	0.897
Positive affect	0.924	0.926
Inclusive happiness	0.893	0.883
Externality of happiness	0.802	0.801
Fear of happiness	0.823	0.904
Transformative suffering	0.830	0.819
Fragility of happiness	0.842	0.803
Valuing happiness	0.663	0.729
Inflexibility of happiness	0.686	0.775
Extraversion	0.720	0.804
Agreeableness	0.704	0.771
Conscientiousness	0.732	0.687
Neuroticism	0.645	0.736
Openness	0.746	0.660
Materialism	0.744	0.779

externality of happiness scale (Joshanloo, 2017b), the 4-item *fragility of happiness scale* (Joshanloo et al., 2015), the 5-item *transformative suffering scale* (Joshanloo, 2014), and the 7-item *valuing happiness scale* (Mauss et al., 2011) have a response format identical to that of the fear of happiness scale. The *inflexibility of happiness scale* was developed for this study, based on Dweck's (1999) measures of implicit theories of intelligence, personality, and morality. Four items were selected and the words intelligence, personality, or morality were replaced by the word happiness. The scale and validity evidence are presented in the **Supplementary Material**.

The *eudaimonism and hedonism scale* was developed for the present study. The participants are asked to distribute 100 points among six components of well-being, which are chosen based on the existing empirical and theoretical literature (Ryan and Deci, 2001; Keyes and Annas, 2009; Tiberius and Hall, 2010; Joshanloo, 2016). Three of the components are hedonic and three of them are eudaimonic. Unlike Likert-type rating scales, in this constant-sum scale, a participant's allocated points to a component affects his or her available number of points for other components. A high eudaimonism score necessarily means a low hedonism score, similarly the reverse. In addition, this scale is likely to reduce the influence of social desirability which is likely to occur for all of the six components (given that all of them are favorable aspects of well-being). The scale is provided in the **Supplementary Material**, as are statistical analyses in support of its validity. In the present study, only the eudaimonic well-being score is used and the hedonic well-being score is excluded from the analyses. Including both of the variables in multivariate analyses would be inappropriate given a perfect negative correlation between the two. However, any results obtained with the eudaimonic scores can be reversed to obtain the results for the hedonic well-being. For example, a correlation of 0.2 between eudaimonic well-being and another variable means a correlation of −0.2 between hedonic well-being and that variable.

The *inclusive happiness scale* was developed for the present study. Following a relatively large number of measures in psychology [such as the allo-inclusive identity scale by Leary et al. (2008)] that make use of Venn diagrams, this scale presents seven pairs of circles that range from two non-overlapping circles to circles that are nearly congruent. Each item asks about the perceived overlap between one's happiness and the happiness of a group of people, animals, or plants. The scale and validity evidence for it are presented in the **Supplementary Material**.

RESULTS AND DISCUSSION

In all of the regression tables, standardized coefficients are reported. Multicollinearity was not a concern in any of the analyses. The full regression results (including tolerance values, unstandardized regression coefficients, and confidence intervals) are provided in the **Supplementary Material**.

Conceptions of Happiness Predicting Levels of Well-Being

Ten separate regression analyses were conducted, one for each of the five well-being dimensions in each nation, with the eight conceptions of happiness as predictors. The results are reported in **Table 3**. The conceptions explain between 15.9% (predicting social well-being in Korea) and 30.4% (predicting positive affect in Canada) of the variance in well-being. The conceptions were generally better predictors in Canada than in Korea, and the conceptions were better predictors of hedonic aspects than eudaimonic aspects. Thus, well-being-related beliefs are associated with reported levels of experienced well-being. However, the presence or direction

of causality cannot be inferred from the present cross-sectional results.

The Big Five Predicting Conceptions of Happiness

Sixteen separate regression analyses were performed, one for each of the eight conceptions in each nation, with the Big Five traits as predictors. As shown in **Table 4**, the contribution of the personality traits ranged between 1.4% (predicting transformative suffering in Korea) and 19.9% (predicting fear of happiness in Canada). Personality traits were generally better predictors in Canada than in Korea. With an average contribution of about 7% across the nations, it can be concluded that the personality traits and conceptions of happiness are associated, yet not strongly so.

Incremental Contribution of Conceptions of Happiness to Experienced Well-Being

Ten separate hierarchical regression analyses were performed, one for each component of well-being in each nation. In Step 1, age, gender, and the Big Five were entered, and in

TABLE 3 | Conceptions of happiness predicting levels of well-being (standardized regression coefficients).

	Outcome									
	Social well-being		Psychological well-being		Life satisfaction		Negative affect		Positive affect	
Predictor	Korea	Canada	Korea	Canada	Korea	Canada	Korea	Canada	Korea	Canada
Eudaimonism	0.068*	0.131***	0.077**	0.074*	−0.039	−0.043	0.019	0.012	−0.061*	0.003
Inclusive happiness	0.240***	0.156***	0.176***	0.180***	0.165***	0.163***	−0.048	0.005	0.176***	0.200***
Externality of happiness	−0.129***	−0.080	−0.166***	−0.132**	−0.196***	−0.171***	0.240***	0.160***	−0.187***	−0.212***
Fear of happiness	−0.095**	−0.246***	−0.182***	−0.268***	−0.132***	−0.288***	0.164***	0.248***	−0.181***	−0.324***
Transformative suffering	0.116***	0.077*	0.155***	0.085*	0.164***	0.106**	−0.048	−0.012	0.174***	0.097**
Fragility of happiness	−0.153***	−0.146***	−0.156***	−0.084*	−0.185***	−0.114**	0.126***	0.070	−0.156***	−0.088*
Valuing happiness	0.059*	0.016	0.098**	−0.062	−0.050	−0.091*	0.194***	0.273***	−0.023	−0.094*
Inflexibility of happiness	−0.018	0.126**	0.000	0.062	0.041	0.169***	−0.066*	−0.162***	0.021	0.182***
R^2	0.159	0.178	0.180	0.210	0.179	0.241	0.224	0.288	0.186	0.304

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

TABLE 4 | The Big Five predicting conceptions of happiness (standardized regression coefficients).

	Predictor											
	Extraversion		Agreeableness		Conscientiousness		Neuroticism		Openness		R^2	
Outcome	Korea	Canada	Korea	Canada	Korea	Canada	Korea	Canada	Korea	Canada	Korea	Canada
Eudaimonism	0.047	−0.048	−0.052	0.160***	0.080**	−0.019	−0.092**	−0.049	0.050	0.184***	0.025	0.072
Inclusive happiness	0.020	0.149***	0.093**	0.102*	0.015	−0.064	−0.087**	0.021	0.022	0.103**	0.022	0.058
Externality of happiness	−0.053	−0.169***	−0.077*	−0.131**	−0.031	−0.090*	0.230***	0.170***	−0.068*	−0.067	0.083	0.154
Fear of happiness	−0.032	−0.126**	−0.106**	−0.190***	−0.055	−0.111**	0.141***	0.232***	−0.048	−0.021	0.052	0.199
Transformative suffering	−0.020	−0.008	0.097**	0.127**	0.058	−0.123**	0.055	0.055	−0.048	0.044	0.014	0.032
Fragility of happiness	−0.104**	−0.142***	0.026	0.008	0.034	−0.011	0.158***	0.250***	0.037	−0.043	0.032	0.108
Valuing happiness	0.019	0.037	−0.012	−0.069	0.080**	−0.062	0.265***	0.343***	−0.028	−0.049	0.069	0.151
Inflexibility of happiness	−0.018	−0.012	−0.133***	−0.216***	−0.017	−0.078	−0.008	−0.106*	−0.010	−0.070	0.022	0.071

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

TABLE 5 | Conceptions of happiness predicting levels of well-being and materialism over and above age, gender, and the Big Five (standardized regression coefficients).

	Outcome											
	Social well-being		Psychological well-being		Life satisfaction		Negative affect		Positive affect		Materialism	
Predictor	**Korea**	**Canada**	**Korea**	**Canada**	**Korea**	**Canada**	**Korea**	**Canada**	**Korea**	**Canada**	**Korea**	**Canada**
Age	0.011	0.054	−0.021	0.038	−0.094**	0.026	−0.083**	−0.147***	−0.019	−0.015	−0.236***	−0.291***
Male	0.069**	0.059	−0.034	0.038	−0.053**	−0.033	0.034	−0.096***	−0.016	0.023	−0.023	−0.010
Extraversion	0.214***	0.118**	0.233***	0.173***	0.173***	0.067*	−0.090**	−0.059*	0.250***	0.103**	0.053	0.068
Agreeableness	0.081**	0.140***	0.052	0.152***	0.031	0.082*	0.022	−0.032	−0.017	0.067*	−0.003	−0.074
Conscientiousness	0.030	−0.004	0.132***	0.093**	0.097***	0.047	−0.073**	−0.114***	0.044	0.084**	0.050	0.014
Neuroticism	−0.156***	−0.251***	−0.221***	−0.292***	−0.174***	−0.403***	0.345***	0.466***	−0.192***	−0.472***	0.079**	−0.009
Openness	0.061*	0.064	0.160***	0.042	0.044	−0.037	−0.003	0.067*	0.076**	−0.050	−0.010	−0.038
Eudaimonism	0.042	0.098**	0.035	0.041	−0.054*	−0.057	0.070**	0.014	−0.091***	−0.009	−0.111***	−0.072*
Inclusive happiness	0.212***	0.105**	0.132***	0.117***	0.140***	0.127***	−0.010	0.019	0.147***	0.166***	−0.010	0.023
Externality of happiness	−0.069*	−0.033	−0.094**	−0.063	−0.156***	−0.119**	0.165***	0.114**	−0.132***	−0.146***	0.158***	0.072
Fear of happiness	−0.061	−0.136**	−0.117***	−0.121**	−0.086**	−0.154***	0.135***	0.101**	−0.144***	−0.176***	−0.077*	−0.010
Transformative suffering	0.098**	0.042	0.137***	0.046	0.154***	0.071*	−0.034	−0.004	0.165***	0.058	−0.054	0.015
Fragility of happiness	−0.125***	−0.102**	−0.135***	−0.031	−0.172***	−0.062	0.089***	0.010	−0.130***	−0.023	0.047	0.062
Valuing happiness	0.063*	0.099*	0.119***	0.036	−0.023	0.023	0.141***	0.118***	−0.003	0.033	0.369***	0.292***
Inflexibility of happiness	−0.017	0.081*	−0.001	0.008	0.048	0.093*	−0.026	−0.039	0.016	0.087**	0.017	0.061
Demographics and personality's R^2	0.179	0.243	0.286	0.360	0.162	0.343	0.251	0.543	0.186	0.460	0.114	0.156
Conceptions' incremental R^2	0.090	0.057	0.085	0.035	0.107	0.059	0.110	0.050	0.108	0.074	0.184	0.124

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.
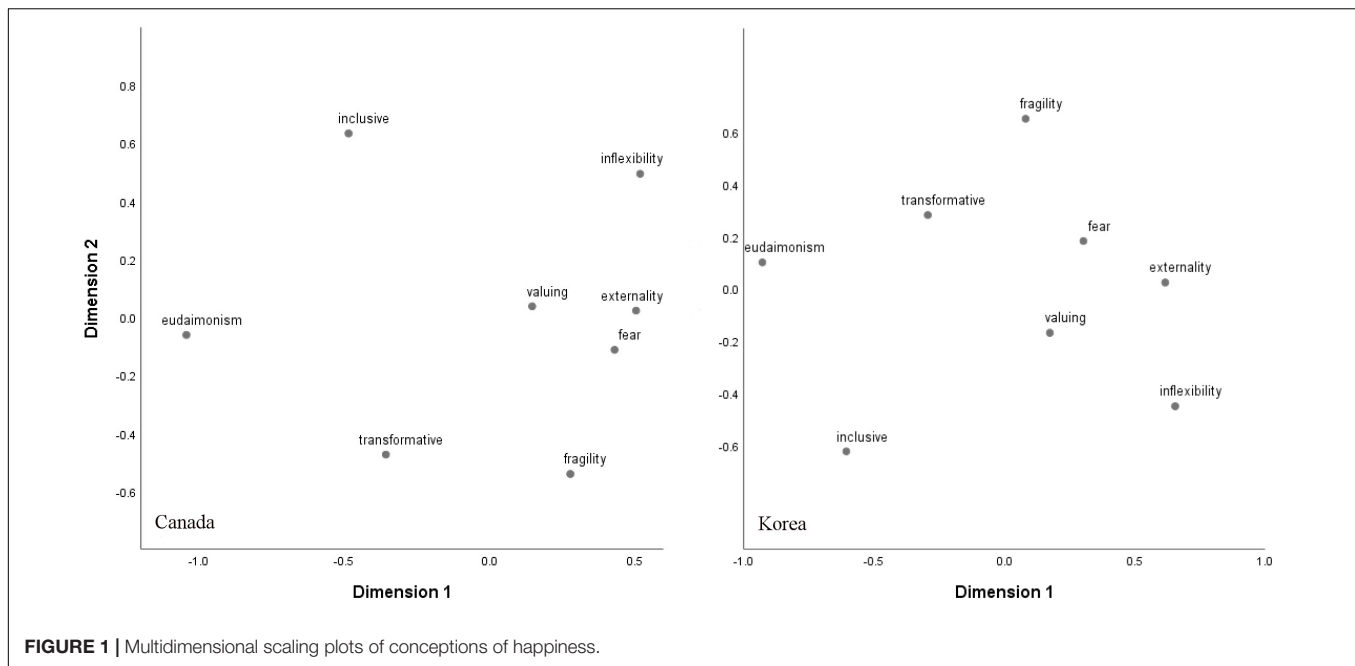
FIGURE 1 | Multidimensional scaling plots of conceptions of happiness.

Step 2, the conceptions were entered. As shown in **Table 5**, the unique contribution of the conceptions ranged between 3.5% (predicting psychological well-being in Canada) and 11% (predicting negative affect in Korea), suggesting that the conceptions contributed a significant amount of variance over and above the demographic and personality characteristics.

Incremental Contribution of Conceptions of Happiness to Materialism

As shown in **Table 5**, the unique contributions of the conceptions beyond personality and demographic variables were about 18% in Korea, and 12% in Canada. In Korea, the unique contribution of the conceptions was larger than the collective contribution of personality and demographic variables (about 11%). The strongest predictors of materialism were found to be age and valuing happiness.

Exploring the Structure of the Conceptions of Happiness

Multidimensional scaling was used to explore the underlying dimensions in the eight conceptions of happiness. The data were analyzed by means of metric PROXSCAL (Commandeur and Heiser, 1993) in SPSS 25. In compliance with the common recommendations for best practice (Davison et al., 2010; Bilsky et al., 2011; Borg et al., 2013), the analysis was based on squared Euclidean distances, and Z transformation, with a Torgerson initial configuration. The analysis was run separately in each nation. The resulting two-dimensional plots are presented in **Figure 1** (Stress-1 = 0.144 and 0.124 in Korea and Canada, respectively). As can be seen, despite the point by point differences between the nations, the general structure of the conceptions is similar. Eudaimonism, transformative suffering, and inclusiveness clustered at the left side of the horizontal axis.

Central to this cluster of variables is an emphasis on personal and social virtues (rather than happy feelings), transcending personal interests, and purpose in life. Thus the three variables tap into a very broad concept that can be titled "effortful virtuosity," which is one way to transcend the active pursuit of or obsession with emotional happiness. On the other hand, externality, inflexibility, fear, valuing, and fragility form the opposite side of this dimension. These variables collectively indicate a hesitation about the value of happiness, doubt about its achievability, but valuing it anyway. Thus the cluster may be broadly titled "doubtful pursuit." The variables constructing effortful virtuosity are generally positively associated with well-being, whereas the variables that make up doubtful pursuit are generally negatively associated with well-being (**Table 3**).

One end of the vertical dimension is occupied by fragility and transformative suffering, whereas the other end is occupied by inflexibility and inclusive happiness. What conceptually connects fragility and transformative suffering is their emphasis on change. Fragility of happiness emphasizes the notion that happiness can be altered, and transformative suffering emphasizes the notion that unhappiness can be altered. Thus both of the factors are about the possibility of change, and the cluster may be titled "malleability." Inflexibility and inclusive happiness, on the other hand, are more about stability. This point is perhaps more obvious for inflexibility of happiness. Yet a central theme to inclusive happiness is the notion that our happiness depends on things other than ourselves, and thus changing our level of happiness would be a collective project which requires the involvement of others. In other words, changing one's level of happiness would depend on the broader context of one's actual and symbolic relationships with the non-self. In essence, inclusive happiness also implies the difficulty of changing personal happiness. Therefore, this cluster may be titled "stability." It should also be noted that the latter cluster also

represents the highly social variable of inclusive happiness as opposed to the malleability cluster which emphasizes personal control over happiness, and thus another underlying theme of this axis is social vs. personal.

Relationships With Age and Gender

The correlations between age and conceptions are shown in **Supplementary Table S5**. The strongest association was −0.175 (between age and valuing in Canada), suggesting that age is not a strong predictor of conceptions, yet the associations are not all trivial. Notably, there are cultural differences in the age differences. For example, transformative suffering is positively correlated with age in Korea, and negatively correlated with age in Canada. Age was a positive correlate of valuing in Korea and a negative correlate in Canada. That conceptions of happiness vary by age is consistent with previous research. For example, Mogilner et al. (2011) report that younger people are more likely to associate happiness with excitement, and older people are more likely to associate happiness with peacefulness. Carlquist et al. (2017) found that older participants were more likely to include external life domains in their descriptions of well-being. Although longitudinal studies are needed for firmer conclusions, these findings do suggest that conceptions of happiness are contingent on one's developmental stage. The present findings highlight the fact that the correlations between age and conceptions are culturally variable, and generalizing from one culture to the other is not warranted without additional analysis.

Sixteen separate t tests were performed to examine gender differences in the eight conceptions in each country. The results for significant gender differences (two in Korea and four in Canada) are shown in **Supplementary Table S6**. As shown, the effect sizes are small to moderate and the only culturally consistent gender difference is fear of happiness on which males scored higher than females in both cultures. Whereas some previous studies have not found any gender differences in conceptions of happiness (e.g., Tafarodi et al., 2012; Carlquist et al., 2017), others have revealed gender differences. For example, Furnham and Cheng (2000) found that females believed more that social support was an important cause of happiness. The present study also suggest that conceptions vary according to gender. Again, the present findings highlight the importance of culture by showing that the relationships between conceptions of happiness and gender are variable across the two countries.

CONCLUSION

This study was the first systematic analysis of conceptions of happiness, their underlying structure, and their associations with personality, demographic variables, levels of well-being, and materialistic values. The results suggest that the two dimensions of effortful virtuosity vs. doubtful pursuit, and malleability vs. stability, can be inferred as two underlying dimensions along which the conceptions of happiness vary. The results also suggest that conceptions of happiness are largely independent of personality, they are associated with hedonic and eudaimonic aspects of well-being and materialism, and they contribute

additional variance to the prediction of the outcomes over and above personality and demographic variables. There are cultural similarities and differences in the results, and thus findings from a single culture cannot be generalized to other cultures without further analysis.

Caution should be used in interpreting these results, however. Three of the scales were developed for this study, and their validity needs to be further investigated in Korea, Canada, and other countries. Findings will need to be replicated in more countries and cultures, with more diverse variables, and using longer scales of personality and eudaimonic well-being. Moreover, the present study inevitably examined a limited number of conceptions of happiness. There are other beliefs surrounding happiness that deserve research attention. For example, some cultures and individuals seem to differ on their views of how spiritual or material happiness is, or some distinguish between earthly and afterlife versions of happiness (Joshanloo, 2014). An interesting avenue for future research is to empirically examine these and other conceptions of happiness. Despite these limitations and the exploratory nature of the findings at this stage, it is hoped that the present study will stimulate further empirical research in this area. Diversification of the methods in this line of research by conducting more longitudinal (including diary studies) and experimental studies would be a necessary next step.

DATA AVAILABILITY STATEMENT

The datasets generated for this study are available on request to the corresponding author.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Keimyung University IRB. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

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The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2019.02377/full#supplementary-material

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Does Neutral Affect Exist? How Challenging Three Beliefs About Neutral Affect Can Advance Affective Research

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Researchers interested in affect have often questioned the existence of neutral affective states. In this paper, we review and challenge three beliefs that researchers might hold about neutral affect. These beliefs are: (1) it is not possible to feel neutral because people are always feeling something, (2) neutrality is not an affective state because affect must be positively or negatively valenced, and (3) neutral affect is unimportant because it does not influence cognition or behavior. We review the reasons these beliefs might exist and provide empirical evidence that questions them. Specifically, we argue that neutral affect is a felt experience that provides important valence-relevant information, which influences cognition and behavior. By dispelling these beliefs about neutral affect, we hope to shine a light on the assumptions that researchers hold about the nature of affect and to provide novel theoretical and methodological perspectives that help advance our understanding of the affective landscape.

Keywords: neutral affect, belief, emotion, affect-as-information, valence

INTRODUCTION

Does neutral affect exist? Researchers interested in affect often do not consider this question because they are focused on understanding the presence of feelings, not the presumed lack of them. Yet, how researchers think about the possibility of a neutral affective state is an interesting exercise because it exposes researchers' fundamental beliefs concerning the nature of affect. This paper challenges three beliefs that researchers might have about the existence of neutral affect. For each belief, we present evidence that questions it and provide a new way to think about the nature of affect. In the last section of the paper, we discuss how these new perspectives could potentially lead to theoretical and methodological innovations.

Prior to discussing what beliefs researchers might hold about whether neutral affect exists, it is necessary to define some terms. Affect is defined as a feeling state (Schimmack and Crites, 2005; Barrett and Bliss-Moreau, 2009). Traditionally, affect possesses at least two key qualities: valence (pleasantness/unpleasantness) and arousal (Wundt, 1897; Clore and Schnall, 2005; Barrett and Bliss-Moreau, 2009). People might experience their affective states as reactions to whatever they are currently thinking about (Clore and Schnall, 2005). For example, positive or negative affect might be experienced as positive or negative evaluations about an object, a person, or a topic (Clore and Schnall, 2005). People also can experience affect as a quality or feature of the stimulus itself, such as when one views a roller coaster as scary. However, as Barrett and Bliss-Moreau (2009) pointed out, what makes the coaster seem scary is not the coaster *per se*, but rather people's experience of it. That is, affect is still being experienced as an indicator

of people's own evaluative reactions to the world. Affect is a general term that encompasses affective traits, moods, and emotions. Moods and emotions are both affective states. Moods, however, are generally less intense states and longer in duration than emotions. Also, unlike emotions, which often have a clear object (e.g., I am anxious when I see a snake), moods typically lack a salient cause (e.g., I woke up feeling a bit anxious; Ekman and Davidson, 1994; Beedie et al., 2005).

We define neutral affect as *feeling* indifferent, nothing in particular, and a lack of preference one way or the other. Note, when we use the term "indifferent," we do not use it to indicate disliking something because that would imply a negative rather than a neutral reaction. It also is important to keep in mind that neutral affect could, theoretically, co-occur with positive and/or negative affect[1]. For example, a parent might be relaxing on the sofa when their child asks if they can go play together in the park. The parent might feel neutral about the prospect, in that they did not particularly want to go to the park, but they also are not against going to the park. Even though the parent feels neutral about going to the park, the parent also might feel happy because their child wants to spend time with them. Neutral affect is thus defined as the presence of neutral affect rather than the absence of, or low levels of, positive and negative affect. In the next sections, we provide additional details about neutrality, including how to conceptualize and measure it.

In this paper, we examine three key beliefs that researchers might hold about the nature of neutral affect. These beliefs are: (1) it is not possible to feel neutral because people are always feeling something; (2) neutrality is not an affective state, because affect must be positively or negatively valenced; and (3) neutral affect is unimportant because it does not influence cognition or behavior. In the process of discussing evidence that questions these beliefs, we shed light on researchers' assumptions about what affect is and provide alternative perspectives that could lead to theoretical and methodological discoveries.

BELIEF: IT IS NOT POSSIBLE TO FEEL NEUTRAL BECAUSE PEOPLE ARE ALWAYS FEELING SOMETHING

The first belief we want to discuss is the notion that neutral affect does not exist because people are always feeling something (Damasio, 2003; Izard, 2007). Damasio (2003) pointed out that, "… all of your experiences occur in an emotion-full world. The point is, we do not live in a neutral world. Our experiences are always emotionally loaded…" (p. 50). Izard (2007) stated, "…there is no such thing as an affectless mind; affect or emotion is always present" (p. 270). Helson (1964) wrote, "All experience is more or less tinged with affect" (p. 341). Because affect is always present, some researchers might believe that it is impossible for people to feel nothing. Therefore, neutral affect does not exist.

A weaker version of this belief is that neutral affect might occur, but it is a rare or fleeting occurrence. For instance, Wundt (1897) acknowledged the existence of neutral affect, but as a rare occurrence, stating "… we are perhaps never in a state entirely free from feeling, although the general nature of feelings demands an indifference-zone." Similarly, Tomkins and McCarter (1964) wrote, "… it is more common for human beings to feel affect than to feel no affect" (p. 150). Brendl and Higgins (1996) reviewed work indicating that the absence of positive is experienced as negative; whereas the absence of negative is experienced as positive. If so, perhaps neutrality might rarely occur. Other researchers question whether neutral moods can ever be created in the lab because what typically is considered a neutral mood often still is valenced. Indeed, Forgas (1999) noted that "…it is not possible to induce experimentally a genuinely neutral mood in participants" (p. 933). Other researchers have called neutral mood manipulations a "misnomer" (Albarracin and Hart, 2011) or a "so-called neutral mood" (Gendolla, 2012), reflecting their skepticism about them.

The belief that neutral affect does not exist or that it is a very rare occurrence might stem from unwarranted assumptions about the nature of neutral affect. First, the belief that neutral affect does not exist because we are always feeling something often stems from the assumption that neutral affect reflects the literal absence of feeling. Indeed, researchers have described their neutral affect conditions as non-affective conditions in which no emotion is elicited (Fredrickson, 1998; Rotteveel et al., 2001; Evers et al., 2009). But what if feeling neutral is not the literal absence of affect, but rather the presence of neutral affect? We argue that neutral affect is not akin to literally feeling nothing, but rather akin to *feeling nothing in particular*.

Second, some researchers assume that if any valenced state is present, then a person is not neutral. Part of the problem with this all-or-none assumption is that people often feel multiple states at once (Roseman, 2011). For instance, even after undergoing a sad mood manipulation, people report experiencing some happiness (Samson et al., 2016). The happiness does not negate the feelings of sadness. Similarly, it might be possible for people to view their experience as neutral, but still report the presence of other affective states.

A third reason why, at first blush, researchers might think that neutral affect does not exist or rarely occurs is that, at least in English, one can easily imagine people saying that they feel "happy," "sad," "mad," and "anxious," but not "neutral." The availability heuristic suggests that if an idea does not easily come to mind, we think it is less likely (Tversky and Kahneman, 1973). Indeed, Watson et al. (1999) argued that one of the reasons they view an activation/arousal dimension within mood research as problematic is that "…it has proven difficult to identify affectively neutral terms that fall directly on the hypothesized Activation axis" (p. 829). The assumption is that if people do not use neutral terms to describe their feelings, then neutral states are neither a common nor important occurrence. Failure to identify appropriate neutral terms might not be indicative of this state rarely occurring, but rather a function of researchers not selecting appropriate terms in the English language. English does have terms to reflect neutral affect,

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[1]To understand how neutrality could be differentiated from positivity or negativity, one interesting method to consider is the semiotic square, which is used in oppositional analysis (see Corso, 2014).

such as when people say that they feel "meh," "so-so," or "nothing in particular." For affectively based evaluations, when people feel neutral about issues, they might say, "I am neutral," but they also say things like "whatever," "it's all the same to me," or "I don't have a preference." People express neutral emotions *via* their facial expressions and even when texting *via* neutral face emojis. Researchers' failure to identify neutral states might stem from them not appropriately assessing it.

A fourth reason why some researchers might not consider neutral affect to be a commonly experienced state stems from culture. Eastern cultures place more importance on affective balance than Western cultures (Sims et al., 2015). This emphasis on balance might be because East Asian cultures, especially those influenced by Confucianism, tend to value balance, moderation, equilibrium, and seeking the "middle-way" (Peng and Nisbett, 1999). If so, neutral affect might be more common in Eastern than Western cultures because it can reflect viewing one's self as feeling nothing in particular. Consistent with this hypothesis, Mesquita and Karasawa (2002) asked American and Japanese college students to complete an emotion questionnaire four times a day. The first question was whether the person had experienced an emotion in the past 3 h. The percentage of students in the American sample and in the Japanese students studying in America that selected that they had not experienced any emotion was 7.5 and 6.67%, respectively. Yet, the percentage increased to 22% when one looked at Japanese students who were studying in Japan. It is important to keep in mind that saying one did not experience an emotion is not necessarily akin to saying that one felt neutral, but it does confirm that cultural expectations might guide the notion that one must feel some emotion rather than no emotion in particular. Thus, cultural practices might result in Western participants reporting less neutral affect compared to some Eastern cultures.

But what is the empirical evidence that people do indeed feel neutral affect? One way to gather these data is to ask respondents to rate the intensity of their neutral feelings. Although this practice is not yet commonplace, when researchers engaged in it, respondents reported experiencing neutral reactions (Storm and Storm, 1987; Zelenski and Larsen, 2000; Tay, 2011; Gasper and Hackenbracht, 2015; Gasper and Danube, 2016; Samson et al., 2016; Gallegos and Gasper, 2018). In general, these data indicated that respondents experience neutral states often and at levels on par with or just below experiences of positive affect (Zelenski and Larsen, 2000; Gallegos and Gasper, 2018). For instance, Gallegos and Gasper (2018) examined whether being socially rejected, accepted, or neither influenced people's feelings of neutrality (assessed by the extent to which people felt indifferent, nothing, emotionless, so-so, did not feel strongly one way or the other, and meh) on a scale ranging from 1 (*not at all*) to 7 (*extremely*). In the control conditions, mean levels of neutral affect (Experiments 1 to 3, respectively: $M = 3.50$, SD = 1.42; $M = 3.02$, SD = 1.12; $M = 3.05$, SD = 1.33) were greater than or not statistically different from mean levels of positive affect ($M = 2.69$, SD = 1.24; $M = 3.31$, SD = 1.15; $M = 3.31$, SD = 1.36; $t(54) = 3.06$, $p = 0.003$; $t(57) = 1.66$, $p = 0.10$; $t(186) = 1.68$, $p = 0.10$). Moreover, if neutral affect does not exist, then it would not be possible to

experimentally induce it in the lab. Yet, the few studies that examined the effectiveness of neutral mood manipulations by directly assessing neutral affect indicate that respondents do indeed report more neutral affect than positive or negative affect after viewing stimuli designed to create neutral moods, such as neutral photos (Gasper and Hackenbracht, 2015) and videos (Samson et al., 2016). Thus, people report experiencing neutral affect at relatively high levels, and it is possible to induce neutral affective states. These data clearly question the belief that neutral affect never or rarely occurs.

Even if neutral affect is frequently reported, what is the evidence that neutral affect is a *felt* experience? Perhaps neutral affect reflects feeling nothing and hence there is no experience. One way to examine whether neutral affect is a felt experience is to investigate to what extent neutral affective reactions occupy working memory capacity. Theories such as the absorption hypothesis (Erber and Tesser, 1992) and the mere resource hypothesis (Van Dillen and Koole, 2007) argue that affective states create affect-related thoughts. These thoughts occupy working memory capacity. If affect needs working memory capacity to be experienced, then the intensity of felt affective reactions could be reduced by asking people to engage in cognitively demanding tasks that would compete for these mental resources (Erber and Tesser, 1992; Rusting and Nolen-Hoeksema, 1998; Gerin et al., 2006; Joormann et al., 2007; Van Dillen and Koole, 2007; Kron et al., 2010). Gasper and Hackenbracht (2015) hypothesized that if neutral affect is felt, then it too should be experienced at a lower intensity when working memory capacity is taxed than when it is not. To test this idea, they asked respondents to view positive, negative, or neutral images, to complete either a cognitively demanding or nondemanding task, and then to rate their positive, negative, and neutral states. Consistent with the hypothesis that neutral affect occupies working memory, respondents who saw neutral photos reported less neutral affect when their working memory was depleted than when it was not. If neutral states were merely feeling nothing, then one would not expect neutral feelings to be influenced by altering mental capacity because there would be no experience to alter. A key implication of this work is that neutral states are felt experiences that need cognitive resources to be sustained.

Additionally, it is important to point out that neutral affect is distinct from other nonvalenced states, such as feeling numb or shocked. Numbness arises when people experience an emotional trauma to help them cope with the pain. Just as people respond to physical pain with bodily numbness, people might respond to psychological pain, such as rejection, with emotional numbness (DeWall and Baumeister, 2006). Neutral affect, which is feeling nothing in particular, should be different from numbness, which is feeling that one cannot respond with emotion. Additionally, shock, which is akin to an extreme form of surprise, arises when an unexpected event happens. Like surprise, shock can be good or bad (e.g., the shock that one is pregnant can be either good or bad depending on the circumstances). Feeling nothing in particular (i.e., neutrality) should differ from shock. Gallegos and Gasper (2018) examined whether neutral affect was distinct from numbness and shock by investigating whether experiences of interpersonal rejection produced numbness, shock,

or neutral reactions. They found that compared to a control condition, rejection resulted in people feeling numb (i.e., numb, unfeeling, detached, insensitive, and emotionally dead, Cohen's $d = 0.33$, 95% CI [0.16, 0.49]) and shocked (i.e., stunned, shocked, dumbfounded, astonished, blown-away, all three experiments, $d = 0.80$, 95% CI [0.62, 0.97]), but did not alter neutral affect (i.e., indifferent, nothing, emotionless, so-so, do not feel strongly one way or the other, and meh, $d = 0.06$, 95% CI [−0.11, 0.22]). This is an important finding, in that researchers should be aware that states that have typically been described as nonvalenced can be distinguished from each another. To group these states together can result in perhaps incorrect conclusions, such as when researchers claim that rejection produces neutral reactions (Blackhart et al., 2009).

In sum, the belief that questions the existence or occurrence of neutral affect might stem from (1) an inaccurate definition that neutral affect is feeling literally nothing, (2) the misconception that neutral affect cannot co-occur with other valenced states, (3) the false assumption that English lacks the vocabulary to directly describe the state of feeling neutral, and (4) cultural differences in expressing emotionality. To demonstrate that these assumptions about neutral affect are unwarranted, we reviewed research indicating that (1) people do feel neutral and the intensity of neutral affect varies, (2) feeling neutral is a felt experience that requires cognitive resources, and (3) neutral affect co-occurs with other affects and is different from other nonvalenced states such as numbness and shock.

BELIEF: NEUTRALITY IS NOT AN AFFECTIVE STATE BECAUSE AFFECT MUST BE POSITIVELY OR NEGATIVELY VALENCED

When discussing affective valence, it is important to be clear how one is using the term. According to Colombetti (2005), among other things, valence could refer to either evaluative valence or affective valence. Evaluative valence refers to how the environment is appraised. For example, a person might appraise the situation as dire, resulting in fear. Affective valence refers to the hedonic quality of the emotional state. For example, fear might be experienced as negative if it prevents a person from giving an effective talk, but it might be experienced as positive if it functions as a motivator. Here, we discuss neutrality both in terms of evaluative and affective valence.

Evaluative Valence
Affect, by definition, is evaluative. The emotional system helps people evaluate the biological significance of the stimuli that they encounter (LeDoux, 1989). Valence is an important component of affect (Russell, 2003; Peters et al., 2006), in that, among other things, affective valence provides critical information concerning whether the environment is experienced as good or bad. Watson et al. (1999) wrote, "Indeed, valence is such a salient aspect of

our appraisal process that humans almost instantaneously evaluate their ongoing state as either pleasant/positive or unpleasant/negative…" (p. 828). Evolutionarily, this hypothesis makes sense in that people need to know if something is a threat or an opportunity so that they can avoid or approach it (Nesse, 2004).

Yet, when thinking about the role of valence within affective research, it is worth keeping in mind the distinction between affect and emotion. Emotions operate as a signaling system, grabbing and diverting attention to what is important (Simon, 1967). Valence is such a key feature of emotions that Ortony and Turner (1990) wrote, "… we assume that being affectively valenced is a necessary condition for a state to be an emotion. Excluded from this view is the possibility that an emotion could be affectively neutral" (p. 317). Similarly, Nesse (2004) wrote, "If a situation contains neither threats nor opportunities it will have no influence on fitness. This is why there are few, if any, neutral emotions" (p. 1338). Thus, some researchers argue that emotions must be valenced because a chief function of emotion is to alert people to potentially important threats and opportunities. Because neutral information is probably not of critical importance, some researchers think that emotions cannot be neutral.

Even though it is possible that *emotions* might not be neutral, we argue that *affect* can be neutral. Emotions operate as an urgent signaling device. Because it is typically not critical to know that a situation is neutral, we acknowledge that neutral emotions might be less likely to occur. But, at this point, we would not go as far as to say that neutral emotions do not exist. For example, neutral emotions might arise in situations where it is critically important to attend to neutrality, such as when one is trying to be fair and impartial. However, we believe that it is problematic if researchers mistakenly extend this reasoning about the possibility of neutral *emotions* to neutral *affect*. Specifically, we think that it is a mistake to assume that because affect provides valenced information about the environment, affect cannot be neutral.

We argue that when people evaluate their environments, they not only want to know what is helpful or hurtful, but also what is neither. People's attention is finite, so just as it is arguably functional to know what is good or bad, it is also functional to know what is neither. It seems like it would be of paramount importance to know what one does not have to concern themselves with. Thus, neutral affect provides information about valence, in that it signals where immediate attention is not needed. Consistent with this view, when discussing how to think about valence, Higgins (2014) wrote "… the nature of valence depended on how neutrality was determined: to understand valence, you need to understand '0'" (p. 429; "0" refers to neutrality). Yet, researchers rarely discuss neutrality as a key element of valence. When assessing neutral affect, neutrality is often merely a point or a small region along a single bipolar or two unipolar valenced dimensions (see Cacioppo et al., 1999; Russell, 2003; Larsen et al., 2009). Neutral affect is rarely conceptualized or assessed independently of positive and negative affect. We think that this approach is problematic. Carver and Scheier (1990) nicely illustrated

our concerns when they argued that the absence of a state does not mean the presence of another. They said:

> …knowing a person is not depressed does not make it reasonable to infer that the person is happy. Knowing a person is not happy does not make it reasonable to infer that the person feels bad. Sometimes, people are affectively neutral (Carver and Scheier, 1990, p. 27).

Similarly, we argue that neutral affect cannot be inferred by the absence of other affects. It should be assessed separately from positive and negative affect. Furthermore, when this is done, neutral affect appears to be a dimension that is somewhat independent of positive and negative affect.

What is the evidence that measures of neutral affect capture unique information that measures of positive and negative affect do not? Recall, we defined neutral affect as the presence of neutral affect, not the absence of positive and negative affect. This definition allows for the possibility that neutral reactions might arise independently of and co-occur with positive and/or negative reactions. It is insufficient to infer neutral affect from the lack of positive and negative affect because neutrality might arise when both are present. Consistent with this view, in studies that examine both evaluative valence and affective valence, neutral affect co-occurs with positive and negative affect (Gasper and Hackenbracht, 2015; Gasper and Danube, 2016; Samson et al., 2016; Gallegos and Gasper, 2018). Moreover, people's self-reports of neutral affect are not highly correlated with reports of positive and negative affect (Gasper and Hackenbracht, 2015; Gasper and Danube, 2016), suggesting that neutral affect is not simply a state that increases when positive/negative affect decreases. Also, in contrast to the hypothesis that the presence of positive or negative affect implies less neutral affect, sometimes these correlations are positive (Gasper and Hackenbracht, 2015; Gasper and Danube, 2016; Gallegos and Gasper, 2018). Factor analyses of affective states reported in five different samples revealed that in addition to positive and negative affect factors, there was a clear and consistent third, neutral affect factor (Gasper and Danube, 2016). Scatter plot data also revealed that some participants report feeling strongly negative, for example, and neutral at the same time (Hu and Gasper, 2019, submitted). Thus, neutral affect might be an independent dimension, one that provides valence-relevant information that cannot be captured by merely assessing positive and negative affect.

In sum, we believe that it might be a mistake to only consider whether stimuli are evaluated as positive or negative. Valence provides people with information that can inform their actions. Thus, it seems important to know what is good, what is bad, and what is neither. Given people's finite cognitive capacity, humans not only need a way to prioritize what is important, but also to be aware of what is not as important. A key implication here is that researchers should consider expanding their view of valence to include evaluations of stimuli as good, bad, and neutral. Indeed, neutrality ratings can occur

independently of positivity and negativity ratings. Therefore, we argue that neutral affect is indeed affect because it provides important, valence-relevant information.

Affective Valence

So far, we have focused on evaluative valence, but what about the hedonic experience of neutral affect? Do people experience neutral affect as neutral, pleasant, or unpleasant? Whether a particular affective state is experienced as hedonically pleasurable or painful depends on the context (Barrett et al., 2007, 2011; Condon et al., 2014). For example, even though happiness is typically thought to be hedonically pleasurable, it need not be (Condon et al., 2014). Given this view, how neutral affect is experienced also could be a matter of intentional focus and interpretation, depending on one's emotional goal and the context in which neutrality arises (Barrett et al., 2007). Below, we review a few ways in which researchers have conceptualized neutral affect with regard to its hedonic valence.

In adaption theories, neutrality reflects people's current adaptation level, in that it is the state that arises when people have adapted to their environment. Adaptation is experienced as neither good nor bad. It serves as a reference point to evaluate other states (Helson, 1964). Enjoyment, for example, does not come from trying to be neutral, but rather from "… disparity between stimulation and prevailing adaptation level" (Helson, 1964, p. 49). Without some type of neutral state, it would be hard to know what joy and sorrow are like for there is no state to compare them to (Lyubomirsky, 2011). Within this view, neutrality is not a hedonically sought out state, but rather the current standard used to evaluate whether an event increases or decreases pleasure or pain.

Just as neutrality can be used as a standard by which to evaluate the hedonic qualities of other affective states, other affective states can potentially determine the hedonic qualities of a neutral state. Neutrality might be experienced as pleasant or unpleasant depending on whether one is experiencing a decrease in pain or pleasure. For instance, going from a painful experience to a neutral one probably feels like an improvement, whereas going from a joyous state to a neutral one might be experienced as a decline. Thus, neutral affect could be either sought out or avoided.

The idea that a situation could alter how seemingly neutral situations are experienced is evident within regulatory focus theory. One might argue that the *status quo* is a neutral experience – nothing has changed, therefore there should be a neutral response. Yet, the meaning of the *status quo* also depends on the situation. In regulatory focus theory, which discusses people's affective reactions to gains and losses, achieving the *status quo* (neither a gain nor a loss) need not be experienced as neutral (Brendl and Higgins, 1996; Higgins, 2014; Higgins and Liberman, 2018). Instead, how the *status quo* is experienced depends on whether the person is promotion focused (focused on obtaining gains) or prevention focused (focused on avoiding losses) and if they experience a non-gain or a non-loss. When a person is promotion focused, they are focused on obtaining something. If they do not gain anything (a non-gain), then they experience

the *status quo* as disappointment because it reflects not getting the gain that they desired. Conversely, when a person is prevention focused, they want to maintain the *status quo* rather than experience a loss. If they do not experience a loss (a non-loss), then they experience the *status quo* as relief because no loss occurred. Thus, *status quo*, which some might view as producing a neutral state because no change in circumstance occurred, could be experienced as disappointment or relief, depending on whether a person is promotion or prevention focused at that point in time.

In addition, people's personal and culturally based theories about the desirability of neutral feelings might shape whether neutral affect is experienced as pleasurable or painful. For instance, websites like Reddit contain questions about what neutral affect is like[2] and whether it is normal[3]. If one's society values feeling positive, then feeling neutral might be experienced as non-normative and hence a negative state relative to the presumed positive norm. However, if one's society values feeling balanced and not overly positive, then neutral affect might be experienced as normative and hence an appropriate reaction. For example, a key element within Buddhism is to practice meditation so that people become aware of their experiences. In Buddhism, people who do not attend to their feelings typically respond to neutral feelings by ignoring them. Buddhist philosophy argues that when people ignore their neutral feelings, they are more likely to experience boredom and ignorance because all feelings, including neutral feelings, should to be attended to (Bodhi, 2000; Kudesia and Nyima, 2015). Dhammadinna, a nun, stated that when people have neutral feelings, ignoring them and not knowing can be painful and unpleasurable, whereas knowing the neutral feeling is pleasant (Anālayo, 2017). Thich Nhat Hanh, a Vietnamese Buddhist monk, went even further saying the following about the practice of mindfulness with regard to neutral feelings:

> In the process of practicing we discover that the neutral feelings are very interesting. As when we sit, there is a sensation that is neutral. When we bring mindfulness to the neutral feeling, you find that it is quite nice. You see that you already have enough conditions for happiness with a neutral feeling. If you look deeply at the neutral feeling you see that it is wonderful. When you see your feelings passing by like a river, you see that 80% of your neutral feelings are quite pleasant. With mindfulness, our neutral feeling is transformed into happiness (Thich, 2011).

Within this view, awareness of and knowledge about neutral feelings, not the feelings themselves, can contribute to happiness and pleasure.

In sum, we argue that neutral feelings can be hedonically experienced as positive, negative, or neutral. This assertion does not mean that neutral affect does not exist, because we similarly

argue, for example, that happiness need not feel positive and fear need not feel negative (Condon et al., 2014). How feelings are experienced depends on the person and context. Neutrality can be a state people use as a reference point, seek out, avoid, or focus on to gain awareness. Neutral states need not be experienced as neutral, but this conclusion does not negate their validity and importance within the affective realm.

BELIEF: NEUTRAL AFFECT IS UNIMPORTANT BECAUSE IT DOES NOT INFLUENCE COGNITION OR BEHAVIOR

Affective states influence behavior. According to the affect-as-information perspective, this might occur because affective states provide people with information or feedback, which can influence how people think or act (for reviews see Clore et al., 2001; Schwarz and Clore, 2003; Gasper and Isbell, 2007; Gasper and Spencer, 2018). Some researchers might believe that neutral affect is not very important because they assume that neutral states are affect free and hence provide little information or feedback. For instance, Cohen and Andrade (2004) discussed neutral affect as being less informative in the evaluative process than other moods. Neutral affect also is used as a control condition, presumably because no affect is present to alter the experiment (Gasper, 2018). These assumptions, however, might be unwarranted. We argue that, like other affective states, neutral affect can influence cognition and behavior because it too provides people with valuable affective information.

So, what type of affective information might neutral affect provide? One key piece of information that neutral states might provide is that they signal one need not attend to the environment because there is nothing particularly noteworthy in it. This view is reflected in a variety of models. For instance, in Buddhism, there are three main modes of feeling: pleasant, painful, and neutral (e.g., De Silva, 1995). Kudesia and Nyima (2015) argued that these pleasant, aversive, and neutral feelings respectively produce "…action tendencies to prolong pleasant perceptions, remove unpleasant perceptions, and disregard the neutral perceptions" (p. 916). That is, because neutral feelings are neither pleasant nor painful, they are often not noticed and people disregard or remain ignorant of these reactions (Bodhi, 2000; Kudesia and Nyima, 2015). Neutral affect signals that the situation does not need to be attended to because it is not noteworthy or important. A similar view occurs within the core affect perspective (Russell, 2003), in that neutral affect might not be consciously experienced, in part, because it fades into the background due to a lack of a need to attend to it.

In addition to neutral affect perhaps signaling that one does not need to attend to the environment, neutral affect also might signal that one understands the environment. In the AREA model of affective adaptation, Wilson and Gilbert (2008) argued:

> People analyze incoming information with two questions in mind: "Is it important to me?" and, "Do I understand it sufficiently?" If the event is deemed to be both self-relevant and unexplained, people allocate attention to

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it, and the event triggers an affective reaction. Conversely, if the event is deemed to be either unimportant or sufficiently explained, people do not allocate attention to it, and the event does not trigger an affective reaction (Wilson and Gilbert, 2008, p. 372).

Thus, like the Buddhist perspective, this view implies that neutral affect might indicate that the event is unimportant. But it also builds upon the Buddhist view, in that neutral affect might signal that one understands, knows, or comprehends the event.

In addition to signaling understanding, neutral affect might signal that a situation is normal. Lyubomirsky and colleagues' view of hedonic adaption argues that adaptation occurs when people's perceptions of something as positive or negative become neutral (Lyubomirsky, 2011; Armenta et al., 2014). Events that are hard to adapt to are those that grab attention, are varied/dynamic, and are novel/surprising, suggesting that neutral events do not grab attention, are not dynamic, and are normative. Brendl and Higgins (1996) also discussed neutrality as potentially reflecting the norm. They wrote, "… normal events should not be perceived as causal, and should therefore be neither supportive nor unsupportive of a goal; that is, they should be appraised as neutral in valence and quality" (Brendl and Higgins, 1996, p. 128). Specifically, using norm theory (Kahneman and Miller, 1986), Brendl and Higgins (1996) argued that objects, attitudes, and events that exemplify the norm produce neutral reactions. Moreover, because the norm easily comes to mind, they also argued that the ease with which knowledge comes to mind might serve as a neutrality cue. For instance, they discussed a study by Ostrom and Upshaw (1968) that examined how easy/difficult it was for people to write down a belief that reflected the various points on an attitudinal scale. Consistent with the notion that neutral affect might reflect something that is easily understood, respondents found it easiest to think of the midpoints and the endpoints. Thus, neutral states might signal that the situation does not need to be attended to because it is not noteworthy, is understood, and is normal.

Lastly, neutrality also might signal that one does not feel one way or the other about the environment. This experience could have a range of potential consequences, including helping people cope. This possibility is nicely illustrated in a parable from another Eastern philosophy/religion, Taoism. In the parable, a farmer's horse runs away. Neighbors comment that this is bad luck, but the farmer replies "maybe." The next day, the horse comes back with three other wild horses. The neighbors comment about how wonderful this new development is. The farmer replies "maybe." The farmer's son then breaks a leg while trying to ride the wild horse. The neighbors offer sympathy for this negative event. In response, the farmer replies "maybe." The story continues, but the critical message within it is that the farmer realizes that we can never really know if the situation will be good or bad. The farmer takes a neutral perspective, because valence is yet to be determined. The story reflects the view that sometimes it is important to be impartial and nonjudgmental.

Currently, there are not many studies that empirically examine whether neutral states indeed signal that the situation need not be attended to, that one understands it, that it is normative,

and that one does not feel one way or the other. Yet, there are a few lines of work which support the hypothesis that neutral affective states can inform cognition and behavior. For example, in Carver and Scheier's (1998) model of self-regulation, neutral affect appears to provide information about what is worthy of action. In the model, positive affect signals that one is approaching their goal at a rate faster than expected; negative affect that one is approaching it slower than expected; and neutral affect indicates that one is approaching their goal at an appropriate rate. Consequently, one does not need to change their goal-relevant behavior. Neutral affect signals that one should stay the course. The idea that neutral affect encourages people to continue doing what they are doing might stem from it signaling that one does not need to give extra attention to one's actions, that one has achieved understanding, or that, because one does not feel one way or the other, no adjustments are needed.

A recent study by Gasper and Danube (2016) also supports the hypothesis that neutral affect signals a lack of preference. They hypothesized that neutral affect signals that one does not feel one way or the other about the object of judgment. Consequently, people might rely on their neutral feelings as a basis for their neutral judgments. In six studies, they found that positive affect accounted for the most variance in positive judgments, negative affect accounted for most of the variance in negative judgments, and neutral affect (not positive, negative, or even ambivalent affects) accounted for most of the variance in neutral judgments. Thus, when it comes to evaluating if someone holds a neutral opinion about an issue, people rely on the information provided by their neutral affect above and beyond that provided by these other affective states. Relatedly, Gasper and Danube (2016) found that neutral, but not negative, attitudes were associated with failing to engage in behaviors that people should do, but often do not do (e.g., eating five daily servings of fruit or vegetables).

In addition to potentially providing information that alters cognition, neutral affect has been hypothesized to have important implications for interpersonal behaviors. In the social-constraints model of mood regulation, Erber and Erber (2001) suggested that neutral states are beneficial in certain situations because of the flexibility they offer. That is, people are sometimes motivated to regulate their affective states toward neutrality to meet specific contingencies. For example, Erber et al. (1996) reasoned that neutral states are most desirable in interacting with strangers because it is uncertain whether such interactions will be positive or negative. Accordingly, people who expect to interact with strangers are likely to down-regulate their current moods, regardless of whether their mood is positive or negative. Similarly, De Silva (1976) conceptualized neutrality as a safeguard against the emergence of sentimental attachments. Along these lines, some organizations have asked their employees to keep their affective experiences at work within a relatively neutral range (e.g., Hochschild, 1983; Judge, 1992; Morris and Feldman, 1996), perhaps because of the idea that a neutral demeanor display promotes a rational work environment. Thus, neutral affect might have important interpersonal consequences, with people regulating their affect to be neutral in order to have better interpersonal interactions.

In sum, neutral affective states might provide people with a variety of information, including that the situation does not

need to be attended to because it is not noteworthy, that it is understood, that it is normal, and that one does not feel one way or the other. Currently, there is little empirical research supporting these assertions, but what research exists suggests that neutral affect can shape cognition and behavior in ways that are unique from positive and negative affective states.

NEW THEORETICAL DIRECTIONS

For too long, researchers interested in affect have ignored neutral states. Perhaps they have done so because it is human nature to focus on what seems noticeable rather than what is not. Yet, noticing what is absent is important. For instance, in the *Hound of the Baskervilles,* Sherlock Holmes solved the mystery by noticing that the dogs did not bark. To understand what affect is and how it functions, it is critical to understand what it means to feel nothing in particular. Toward this end, we sought to understand neutral affect by critically examining three potential beliefs that researchers might have about neutral affect. Specifically, we challenged the following beliefs: (1) it is not possible to feel neutral because people are always feeling something, (2) neutral affect is not an affective state because affect must be positively or negatively valenced, and (3) neutral affect is unimportant because it does not influence cognition or behavior. We believe that setting aside the assumptions behind these beliefs will move theory and methods concerning the nature of affect into new directions.

By considering alternatives to the first belief, there are a few critical ways in which research can move forward. First, for some researchers, it might be a key paradigm shift to think of neutral affect not as the absence of affect, but as the presence of neutral affect. If neutral affect is the presence of an experience, it becomes important to understand what that experience is like and how it functions. Neutral affect now becomes a part of the affective realm rather than a non-affective control condition. Consequently, researchers should acknowledge how neutral affect fits into their theoretical framework and the assumptions that they are making about it. Even if a researcher's model of affect does not include neutral affect, it is important that they at least explain why, instead of simply ignoring the possibility of a neutral state. Considering these issues might result in researchers reframing their questions concerning the nature of affect. For instance, what features do neutral states share with other affective states? What makes neutral affect unique from other affects? Can neutral affect help people cope? Do people differ in their propensity to feel neutral? If so, how might these individual differences shape thought, action, and mental well-being? Additionally, researchers might need to rethink what constitutes an appropriate control condition (see Gasper, 2018), because neutral affect might not always be an appropriate control condition.

Second, if neutral affect exists, it is paramount that researchers develop an appropriate definition of the construct. Once this is established, researchers can work on developing appropriate means to measure it. In this paper, we provided a specific view; however, other researchers might conceptualize neutral affect in different ways (Gasper, 2018; Yih et al., 2019). For instance, a researcher studying emotion regulation might view neutral affect as a person's baseline state. Others might view neutral affect as akin to low-arousal affective terms, such as boredom, relaxation, or being quiet (Zelenski and Larsen, 2000). If so, it becomes paramount to be clear how one is defining neutral affect. It also is important to conduct experiments to ascertain whether these constructs are equivalent to each other or reflect distinct states. Just like numbness can differ from neutral affect, we suspect that feeling typical or feeling low-arousal affective experiences such as boredom or tranquility can differ from feeling neutral (as defined in this paper). We encourage research on this topic, because it is our hope that such work would shed light on the complex range of experiences that make up people's daily, perhaps more mundane, affective experiences.

Third, if neutral states co-occur with positive and negative states, how might they do so? One possibility is that more than one state arises, but they stem from different aspects of the same situation. For instance, a person might describe their feelings of eating lunch with their grandmother as both happy and neutral. The happiness stems from the fact that they enjoy their grandmother's company, whereas the neutrality might reflect the fact that the food was unremarkable. Both states are felt but refer to different aspects of the experience. Interesting questions arise as to when it is best to focus on each element (Grandma or the food) or when it might be best to focus on the combined affective reaction (lunch with Grandma). A second possibility is that instead of each state stemming from different elements in the same experience, the two states might combine to form an independent, unique, affective experience. For example, happiness and neutral affect might be experienced as feeling happy-go-lucky – the situation is appraised as positive and one has no preferences because all is good. Conversely, a negative and neutral state together might be experienced as apathy – the situation is appraised as negative and one has no preferences because it is all bad. A third possibility is to also think about whether neutral states in combination with other states might produce ambivalent reactions. Ambivalence is often thought about in terms of feeling positive and negative at the same time. However, it might be that people experience ambivalence when they feel positive or negative affect with neutral affect Hu and Gasper, 2019, submitted. For example, ambivalence might arise when thinking about lunch with Grandma because it was both positive and neutral. If so, what are the ramifications for how this type of ambivalence plays out to influence thought, action, and psychological well-being?

The second belief we focused on concerned the notion that affect must be valenced. We discussed this belief both in terms of evaluative valence and affective valence. In terms of evaluative valence, a range of questions arise. For instance, do people evaluate novel stimuli not only in terms of whether the stimuli are positive or negative, but also neutral? If positively valenced feelings typically signal approach, and negatively valenced feelings avoidance, do neutral feelings necessarily result in neither? Or is it possible, as in theories like the evaluative space model, that a positivity offset exists in which neutral states promote an approach motivation because otherwise people might miss potential opportunities in their environment (Cacioppo et al., 2012)? If something is evaluated as neutral, how stable or malleable is this experience?

In terms of affective valence, viewing neutral affect as an affective reaction generates many interesting hypotheses concerning the hedonic consequences of feeling neutral. In the United States, happiness is highly valued in that people seek out situations where happiness is likely to occur (Mesquita and Markus, 2004). Indeed, many social contexts in the U.S. promote happiness or positive feelings as their primary purpose, and questions or comments such as "Are you having fun?" and "I'm glad you are happy." are commonplace (Markus and Kitayama, 1994). One consequence of this promotion of happiness might be that some people are concerned when they experience neutral rather than happy feelings. In fact, research suggests that valuing happiness to an extreme degree in US samples can lead to decreased well-being (Mauss et al., 2011), and depression (Ford et al., 2014), as well as increased loneliness and weakness in social connections (Mauss et al., 2012). People might view their neutral feelings as indicating that they have not obtained the ideal of being a happy person. This focus on feeling happy thus might have some negative psychological consequences. Perhaps people might be psychologically healthier if, instead of focusing on happiness and excitement, they also focus on balance and moderation that might arise with neutral affect. If Thich Nhat Hanh is correct, then paying attention to neutral feelings can lead to happiness. Thus, when it comes to practical ramifications, viewing neutral affect as an important daily state might result in acknowledging a different, and potentially more attainable, path toward mental well-being.

The third belief we discussed was that neutral affect is not important because it does not influence thought or action. By signaling nothing in particular, neutral affect might result in one doing nothing in particular. As we noted, neutral affect potentially provides a range of affective information that could shape thought and action. Neutral affect might indicate that attention is not needed, that one understands the situation, that the situation is normal, and that one does not have feelings one way or the other (i.e., no preference). Research needs to be conducted to test these speculations, but they could have interesting implications. If neutral affect signals that attention is not needed, for example, then neutral affect could potentially influence memory. If people do not attend to neutral stimuli, those stimuli might be less likely to be recalled. In addition, neutral affect might signal understanding and, if so, then people who feel neutral might be more likely to interpret their experiences as indicating that they understand complex, novel, or illogical arguments. If neutral affect signals normality, then neutral affective reactions might serve as indicators of prototypicality,

perhaps leading to people being more inclusive in their viewpoints. Lastly, if neutral affect signals no preference, then neutral affect might be an ideal state when impartiality, balance, or fairness is required, such as when serving on a jury. Given the potential information that neutral affect might provide, there are a wealth of questions that future research could address to understand how neutral affect might shape cognition and behavior.

CODA

Researchers have beliefs about what they investigate. It is important to acknowledge these beliefs, examine the rationale behind them, and empirically test them. In this paper, we challenged three beliefs that researchers might have about neutral affect, specifically, that neutral affect does not occur, that affect must be valenced, and that neutral affect is of little importance. In the process, we suggested and provided support for alternative conceptualizations. We acknowledge that research on neutral affective reactions is sparse, but we hope by discussing and dispelling some misconceptions about it that researchers will expand their theorizing, methodology, and practice to include neutral affect. To understand the affective landscape, researchers must pay attention to all states, including what happens when one feels nothing in particular.

DATA AVAILABILITY STATEMENT

The datasets analyzed in this manuscript are not publicly available. Requests to access the datasets should be directed to KG, kxg20@psu.edu.

AUTHOR CONTRIBUTIONS

KG wrote the first draft of the paper and conducted the reanalysis of Gallegos and Gasper, (2018) data. LS and DH revised the first draft. KG, LS, and DH conducted research for the paper, edited the paper, and checked references for accuracy.

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How Well Can We Assess Our Ability to Understand Others' Feelings? Beliefs About Taking Others' Perspectives and Actual Understanding of Others' Emotions

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People vary in their beliefs about their tendency to engage in perspective taking and to understand other's feelings. Often, however, those beliefs are suggested to be poor indicators of actual skills and thus provide an inaccurate reflection of performance. Few studies, however, have examined whether people's beliefs accurately predict their performance on emotion recognition tasks using dynamic or spontaneous emotional expressions. We report six studies (N ranges from 186 to 315; N_{total} = 1,347) testing whether individuals' report of their engagement in perspective taking, as measured by the Interpersonal Reactivity Index (IRI; Davis, 1983), is associated with accurate emotion recognition. In Studies 1–3, emotion recognition performance was assessed using three standard tests of nonverbal emotion recognition. To provide a more naturalistic test, we then assessed performance with a new emotion recognition test in Studies 4–6, using videos of real targets that share their emotional experiences. Participants' multi-scalar ratings of the targets' emotions were compared with the targets' own emotion ratings. Across all studies, we found a modest, yet significant positive relationship: people who believe that they take the other's perspective also perform better in tests of emotion recognition (r = 0.20, p < 0.001). Beliefs about taking others' perspective thus reflect interpersonal reality, but only partially.

Keywords: emotion recognition, empathy, perspective taking, subjective beliefs, accuracy

INTRODUCTION

"The only true discovery, would not be to visit strange lands but to possess other eyes, to behold the universe through the eyes of another".

(Marcel Proust, 1922)

Attempts to understand others by "possessing their eyes" or "stepping into their shoes" are commonly considered an essential component of empathy (e.g., Davis, 1983; Preston and de Waal, 2002). Taking another's perspective is typically deemed foundational for understanding others' emotions (e.g., Batson et al., 2007; Erle and Topolinski, 2017). Previous research,

however, has used different definitions and measures of perspective taking (for relevant discussions see: Keysers and Gazzola, 2014; Olderbak and Wilhelm, 2017; Hall and Schwartz, 2019; Murphy and Lilienfeld, 2019). One pertinent distinction is whether perspective taking is measured by asking people about their beliefs about their engagement in perspective taking, or by measuring skills that are assumed to be the result of the ability to take another's perspective. The question that then arises is whether people's beliefs reflect their actual skills. One reason why beliefs might mismatch skills is that people base their beliefs on subjective evaluation criteria (i.e., self-report) whereas actual skills are based on objective evaluation criteria (i.e., the actual performance). Subjective evaluation is likely to be biased because people show various positive biases when reporting on their own competence, dispositions, or habits; we do not know ourselves well, because we block unwanted feelings and thoughts (e.g., Wilson and Dunn, 2004). Even when we know ourselves, self-reports are biased by factors such as social desirability (Sedikides et al., 2003). On the other hand, in some domains research has shown that subjective measures can be valid and comparable with objective indicators, for example, in the case of well-being (e.g., Sandvik et al., 2009).

In the current paper, we test the relation between subjective beliefs and actual performance in perspective taking. Specifically, we examine the relationship between participants' beliefs about their own propensity to take another's perspective and a wide range of different recognition tasks. These recognition tasks range from tests using static pictures of actors, as have often been utilized in the existing literature, to tests including dynamic posed stimuli, and novel tests showing videos of targets sharing real-life emotional experiences.

PERSPECTIVE TAKING

In the literature, definitions of Perspective Taking (PT) highlight the *propensity* to engage in perspective taking or the *ability* to accurately understand the inner states of others (see Keysers and Gazzola, 2014). For example, Davis (1983) refers to perspective taking as "the tendency to spontaneously adopt the psychological point of view of others in everyday life"; whereas Chrysikou and Thompson (2016) refer to perspective taking as "the ability to shift to another's emotional perspective" (Chrysikou and Thompson, 2016). When perspective taking is operationalized, many studies use self-reports on perspective taking as an indicator of actual perspective taking ability (for reviews see Hall and Schwartz, 2019; Murphy and Lilienfeld, 2019).

There are several reasons why taking another person's perspective may be associated with enhanced interpersonal accuracy. First, shifting attention toward others may increase the richness with which perceivers represent other's states (Zaki, 2014). Second, perspective taking may lead perceivers to focus on expressive cues that communicate information about the feelings of others (e.g., eye region; Cowan et al., 2014). Third, perspective taking can reduce the reliance on known

sources of error (e.g., self-projection; Zhang and Epley, 2009; Yaniv and Choshen-Hillel, 2012).

Several meta-analyses have been conducted to examine whether self-reported empathy accurately predicts interpersonal accuracy, including studies with different types of stimuli and different types of judgments (e.g., Davis and Kraus, 1997; Hall et al., 2009). Davis and Kraus (1997) examined a range of personality measures in their meta-analysis, but did not find dispositional empathy to be a significant predictor of interpersonal accuracy. One reason for the lack of an effect may be that they were unable to generate an accurate estimation of the relationship because many old studies reported imprecise statistical data (i.e., only values of p but not r coefficients)[1]. Moreover, while there is a clear distinction between different facets of empathy (e.g., perspective taking vs. empathic concern vs. personal distress; see discussions by Davis, 1983; Israelashvili and Karniol, 2018), many of the earlier studies in the field averaged all different facets of empathy into a global empathy score.

Recently, Murphy and Lilienfeld (2019) meta-analyzed more recent tests regarding the relation between self-reported perspective taking (i.e., IRI) and different cognitive-behavioral empathy tests. Their analysis showed that only 1% of the variance was explained by self-reported cognitive empathy, and the authors raise concerns with using self-reported empathy as a valid predictor for actual performance. Critically, however, their meta-analysis also showed substantial heterogeneity across findings. The relation between beliefs about engagement in perspective taking and actual performance ranged from a small negative effect ($r = -0.16$) to a strong positive effect ($r = 0.48$). Thus, although their meta-analysis provided a global mean estimation of the beliefs-performance relation ($r = 0.10$; equivalent to 1% explained variance), the high heterogeneity ($I^2 = 63.17$; for interpretation see Higgins et al., 2003) of effects across the meta-analyzed studies violated the null hypothesis that all these effects evaluate the same relation, and consequently, lower the confidence in the averaged effect estimation. One explanation for the heterogeneity of effect sizes in this meta-analysis (see Murphy and Lilienfeld, 2019) may be the heterogeneity of stimuli used in the different tests [i.e., Reading the Mind in the Eyes test (RMET, Baron-Cohen et al., 2001); Profile of Nonverbal Sensitivity (PONS test, Rosenthal et al., 1977); Diagnostic Analysis of Nonverbal Accuracy (DANVA, Nowicki and Duke, 1994)], including static pictures of only the eye region of a single face to pictures of complex interpersonal social situations.

There are other reasons why a correlation between engagement in perspective taking and accurate emotion recognition may be inconsistent. Perspective taking is often a cognitively demanding task that requires time, motivation, and attentional resources to execute (Epley et al., 2004). One implication of engagement in perspective taking could thus be that participants pay less (rather than more) attention to others because they

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[1]As the authors note: "in many cases the findings were reported simply as not-significant and in those instances we assume $r = 0.00$" (Davis and Kraus, 1997, p. 156).

concentrate on their own egocentric experiences (e.g., Epley et al., 2004), which may lead to less accurate emotion recognition (e.g., Eyal et al., 2018). Finally, it is noteworthy that most of the studies that reported a positive relationship between beliefs that one takes others' perspectives and the ability to recognize others' emotions had a relatively large number of participants (see **Figure 1**). This observation may suggest that some of the variability in conclusions reported in the literature may be due to differences in power, with the more highly powered studies indicating a positive (albeit small) relation between propensity and ability to take others' perspective and understand their emotions. Indeed, a power analysis (using G-power) indicates that to detect small to medium correlation ($r = 0.2$, one-tailed) with the standard criteria ($\alpha = 0.05$, $1 - \beta = 0.80$) would require 150 participants. Thus, some previous studies may have been underpowered for detecting the relation if the effect size is relatively small.

FIGURE 1 | Display of effect sizes (i.e., magnitudes of correlations) for the relationship observed between self-reported perspective taking and emotion recognition tests, as observed in previous studies sorted by sample sizes. Note: This visualization was made using data from Murphy and Lilienfeld (2019) (**Supplemental Table 1**).
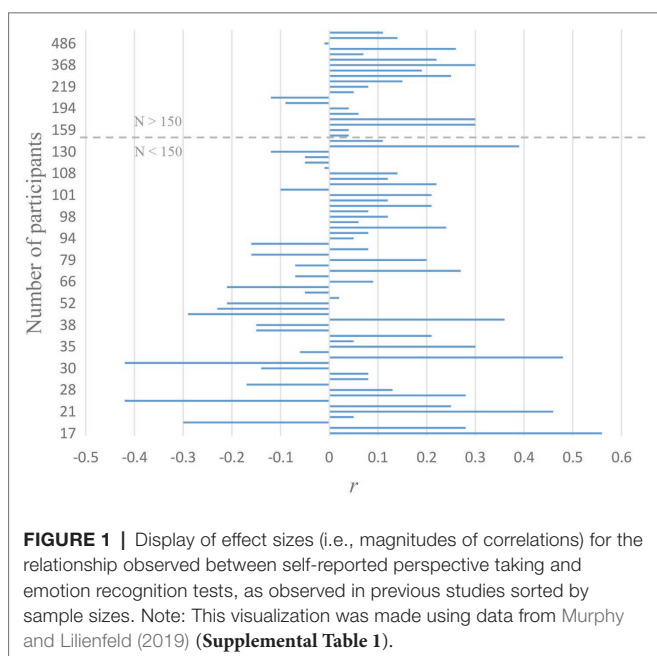
THE PRESENT RESEARCH

The current study sought to examine the relation between perspective taking, as one aspect of empathy, and the performance on emotion recognition tests. Many theorists have claimed that perspective taking ability and emotion recognition should be closely related (e.g., Preston and de Waal, 2002; Epley et al., 2004; Erle and Topolinski, 2017), but as discussed, the evidence for this claim is limited. The goal of the current research was to examine how robust the relation is between individuals' beliefs about their tendency to engage in perspective taking and their actual performance on verbal and nonverbal tests of emotional accuracy. Based on the heterogeneity of findings reported in the literature described above, we did not make any prediction *a priori*. Instead, we used data from six different studies conducted in our lab during the past 2 years (2017–2019), which all included self-reported beliefs about participants' engagement in perspective taking and at least one emotion recognition test (see review in **Table 1**). In these studies, beliefs about engagement in perspective taking, as measured with the IRI, were collected for exploratory reasons, but were not discussed in the publications resulting from that work because they were not directly relevant to the primary research question. By combining different samples and instruments of emotion recognition, we were interested in assessing the generalizability of the beliefs-ability relation and generating a reliable estimation of effect size. Although previous meta-analyses have generated an estimation of the effect ($r = 0.10$), their reliance on static posted expressions may have biased their estimation (Hall et al., 2009; Murphy and Lilienfeld, 2019). In particular, when the recognition task is easy or boring it could produce limited variability in assessment of performance (due to ceiling/floor effects, respectively), which in turn can reduce its correlation with other constructs (e.g., perspective taking). In the current study, we focus on recognition tests with relatively high ecological validity. Rather than relying only on recognition of posed facial expressions by actors and defining accuracy as agreement with theoretically posited configurations, we used dynamic expressions and defined accuracy as perceivers' agreement with the judgments of the individuals who

TABLE 1 | Description of the emotion recognition tasks used in Studies 1–6 and their correlation with perspective taking.

Study	Test#	Task (emotional cue)	Stimuli	Emotional expression	N	%Females	ES	SE
Study 1	1	AERT (face)	Static (picture)	Posed	245	0.53	0.20**	0.06
Study 1	2	RMET (eyes)	Static (picture)	Posed	245	0.53	0.16*	0.06
Study 1	4	GERT (face, posture and voice)	Dynamic (videos)	Posed	245	0.53	0.24***	0.06
Study 2	3	RMET (eyes)	Static (picture)	Posed	186	0.47	0.20**	0.07
Study 3	5	GERT (face, posture and voice)	Dynamic (videos)	Posed	315	0.39	0.17*	0.06
Study 4	6	Novel task (face, voice and words)	Dynamic (videos set #1)	Spontaneous	207	0.49	0.09	0.07
Study 5	7	Novel task (face, voice and words)	Dynamic (videos set #2)	Spontaneous	207	0.41	0.26***	0.07
Study 6	8	Novel task (face, voice and words)	Dynamic (videos set #2)	Spontaneous	187	0.40	0.36***	0.08

*AERT, Amsterdam Emotion Recognition Test; GERT, Geneva Emotion Recognition Test; RMET, Reading the Mind in the Eyes Test; ES, effect size (based on Spearman's correlation); SE, standard error. *p < 0.05; **p < 0.01; ***p < 0.001.*

experienced the actual emotions shared in the videos. To assess individuals' beliefs about their own perspective taking, we used the Perspective Taking (PT) subscale of the Interpersonal Reactivity Index (IRI; Davis, 1983), as this is the most widely used measure of empathic tendencies (Hall and Schwartz, 2019). Individuals' self-report of PT as measured by the IRI (Davis, 1983) has been found to constitute a significant predictor of whether perceivers focus on expressive cues that communicate information about the feelings of others (e.g., eye region; Cowan et al., 2014) and the extent to which perceivers show physiological arousal in response to others' emotional states (e.g., van der Graaff et al., 2016).

To assess accurate emotion recognition, we used three standard tests of nonverbal emotion recognition in Studies 1–3: the Reading the Mind in the Eyes Test (RMET; Baron-Cohen et al., 2001), the Amsterdam Emotion Recognition Task (AERT; Van Der Schalk et al., 2011; Israelashvili et al., 2019), and the Geneva Emotion Recognition Test (GERT; Schlegel et al., 2014). In Studies 4–6, emotion recognition was assessed using a novel paradigm with dynamic videos of targets who share their genuine emotional experiences in a 2-min video. Participants (perceivers) were asked to identify the emotions that the targets expressed in video clips. Using the targets' independent multi-scalar ratings of their own emotions, we calculated emotion recognition accuracy, operationalized as the similarity between each target's and perceiver's emotion ratings (see section "Methods"). With the different instruments and samples included in this analysis, we sought to provide a robust test of the relation between beliefs about taking others' perspectives (i.e., PT) and performance across different emotion recognition tasks.

METHODS

Participants and Procedure

Participants in Studies 1–6 were 1,347 US citizens (*Study 1*: $N = 245$, 53% females, $M_{age} = 37$, $SD_{age} = 12$; *Study 2*: $N = 186$, 46% females, $M_{age} = 37$, $SD_{age} = 12$; *Study 3*: $N = 315$, 39% females; *Study 4*: $N = 207$, 49% females, $M_{age} = 37$, $SD_{age} = 11$; *Study 5*: $N = 201$, 60% females, $M_{age} = 38$, $SD_{age} = 13$; *Study 6*: $N = 187$, 47% females, $M_{age} = 38$, $SD_{age} = 13$)[2], who were recruited *via* Amazon Mechanical Turk (Mturk). We restricted the MTurk sample to individuals with a high reputation (i.e., above 95% approved ratings; see Peer et al., 2014). In addition, we allowed only individuals in the USA to take part because American participants have their worker ID associated with their Social Security Number, which reduces the risk of people taking the same survey multiple times with different identities. The description was identical for all studies: "*View people in various situations and rate their emotions*." Informed consent was obtained from all participants, and the procedure was approved by the Ethics Committee of the University of Amsterdam. Participants completed the IRI questionnaire and

one or more emotion recognition tests as part of a more extensive test session, which addressed several different research questions (i.e., whether interpersonal accuracy relates to individual differences in emotion differentiation ability, relates to the feeling of similarity in experience, or relates to the feeling of concern and distress). Here we only present results on the correlation between PT and accurate emotion recognition. The results for the other measures were discussed in the relevant papers (see Israelashvili et al., 2019; in press). We did not exclude participants from our analyses, except for participants in Study 2, 5, and 6 who failed to answer attention check question correctly (see Israelashvili et al., in press). The number of participants who performed in any recognition test below chance level was minimal (2%), and the pattern of results reported in the paper is identical whether those individuals were excluded or not. A sensitivity analysis conducted in G-power suggested that with the standard criteria ($\alpha = 0.05$), the analysis of correlations has a power of 0.80 to detect a small to medium effect ($r = 0.2$), with each of the samples included in the analysis.

Measures

The Interpersonal Reactivity Index (Studies 1–6)

The IRI is a 28-item self-report scale, tapping four components of dispositional empathy, of which two represent cognitive components (Perspective Taking, Fantasy), and two represent affective components (Empathic Concern, Personal Distress) (Davis, 1983, 1994). Here we focus only on the seven-item subscale of *Perspective Taking* (PT) – a subscale measuring the tendency to imagine other people's points of view (e.g., "I sometimes try to understand my friends better by imagining how things look from their perspective"). Participants rate their agreement with each item on a five-point Likert scale, ranging from 1 = *does not describe me well*, to 5 = *describes me very well*. Cronbach's α reliabilities of the PT subscale in Study 1 were: PT = 0.90, in Study 2: PT = 0.82, in Study 3: PT = 0.88, in Study 4: PT = 0.88, in Study 5: PT = 0.83, and in Study 6: PT = 0.84. The means (and standard deviations) of the PT subscale in Study 1 were: PT = 3.69 (SD = 0.94), in Study 2: PT = 3.51 (SD = 0.78), in Study 3: PT = 3.42 (SD = 0.73), in Study 4: PT = 3.52 (SD = 0.90), in Study 5: PT = 3.29 (SD = 0.86), and in Study 6: PT = 3.53 (SD = 0.90).

Amsterdam Emotion Recognition Test (Study 1)

The AERT comprises 24 photos of four models (two males and two females) who display six negative emotions (anger, fear, sadness, embarrassment, contempt, and disgust) with low intensity (for more details, see Israelashvili et al., 2019). Participants were asked to label the emotion they saw on the face by selecting one of six emotion labels, or "I do not know." Responses were scored as correct (1) or incorrect (0). Accurate emotion recognition was operationalized by calculating the percentage of correct answers across the 24 pictures. This test was used only in Study 1 (reliability Cronbach's $\alpha = 0.70$), and the overall recognition rate was 62% (SD = 16%).

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[2]We report in the main text the rounded values of age and gender. The age of the participants in Study 3 was not saved due to technical problem.

Reading the Mind in the Eyes (Studies 1 and 2)

The RMET comprises 36 photos depicting the eye region of 36 White individuals (Baron-Cohen et al., 2001). Participants are asked to identify the emotional state of a target person, whose eye region is shown in a photograph, by choosing one out of four words that each represents an emotional state (e.g., serious, ashamed, alarmed, or bewildered). Responses are scored as correct (1) or incorrect (0); the RMET score is calculated by summing the correct answers. The performance was determined by calculating the percentage of correct responses. This test was used only in Studies 1 and 2. The reliability (Cronbach's α) of the test in Study 1 was = 0.84, and in Study 2 = 0.88. The average recognition in Study 1 was 73% (SD = 16%) and in Study 2 66% (SD = 20%).

Geneva Emotion Recognition Test (Studies 1 and 3)

We used the short version of the Geneva Emotion Recognition Test (Schlegel et al., 2014). The test consists of 42 short video clips with sound (duration 1–3 s), in which 10 professional White actors (five male and five female) express 14 different positive and negative emotions: joy, amusement, pride, pleasure, relief, interest, surprise, anger, fear, despair, irritation, anxiety, sadness, and disgust. In each video clip, the actor is visible from their upper torso upward (conveying facial and postural/gestural emotional cues) and pronounces a sentence made up of syllables without semantic meaning. After each clip, participants were asked to choose which one out of the 14 emotions best describes the emotion the actor intended to express. Responses were scored as correct (1) or incorrect (0). Similar to RMET and AERT, the final GERT score was calculated as the percentage of accurate recognitions ranging from 0 to 100%. This test was also used only in Studies 1 and 3 (reliability in Study 1: Cronbach's α = 0.78, and in Study 3: Cronbach's α = 0.74), and the average recognition in Study 1 was 55% (SD = 15%) and in Study 3 was 58% (SD = 14%).

Accurate Emotion Recognition (Novel Task; Studies 4–6)

To measure emotion recognition in a way that better approximates real life, we developed a new measure of perceivers' ability to accurately recognize a target's emotional state from video clips. In Studies 4–6, participants watched four video clips in a random order. All videos were between 2 and 3 min long, and each consisted of an English-speaking female in her early 20s freely describing a genuine emotional autobiographical experience. The targets were asked to share an actual emotional experience from their own life that they felt comfortable sharing. The topics of the four videos used in Study 4 were: (1) fear of breakup, (2) signs of a partner cheating, (3) reverse culture shock, and (4) fighting with a parent. The topics of the four videos used in Studies 5–6 were: (1) experience of a parent being ill, (2) a divorced father in a new relationship, (3) emotional distance from family, and (4) problems with an internship. After sharing

the emotional experience, we asked the targets to watch their own video and to rate the emotions that they had felt in that video. Each target watched her video and then rated the intensity with which she experienced each of 10 emotions (anger, rage, disappointment, fear, sadness, worry, confusion, surprise, embarrassment, and guilt). Answers were given on a seven-point Likert scale, ranging from (0) *not at all* to (6) *very much*. In each study, participants were asked to watch the videos and to rate the intensity with which they thought the target experienced each of 10 emotions using the same list of emotions as that used by the targets. Accuracy was calculated based on the absolute difference between participants' ratings and the target's own ratings, across each one of the 10 emotion rating scales (larger absolute differences indicate lower accuracy; for a similar approach see: Zhou et al., 2017; Eyal et al., 2018). We used the average accuracy score across all targets as the unit of analysis, consistent with previous research on empathic accuracy and emotion recognition (e.g., Zaki et al., 2008; Eckland et al., 2018; Mackes et al., 2018), and consistent with the average measure used for other recognition tasks (AERT, RMET, GERT). Finally, to simplify the interpretation of this index, the average absolute difference was reversed (−1* average absolute difference), such that a higher score in this index reflects better accuracy. The average absolute distance in Study 4 was 16.10 (SD = 4.64), in Study 5 was 18.91 (SD = 5.19), and in Study 6 was 18.43 (SD = 5.47).

RESULTS

Meta-Analysis

To try to identify a robust pattern of relations between individuals' self-report of perspective taking and their actual performance on recognition tasks, we conducted a meta-analysis. Since the variables under study were not normally distributed (Shapiro-Wilk >0.96, $p < 0.001$ across all studies), we used Spearman's correlation coefficient as a measure of the relation (though it should be noted that we obtained the same results with Pearson correlations). Because Studies 1–6 used several tests of emotion recognition, we conducted a random-effects meta-analysis, using the JASP 0.9.2 software (JASP Team, 2018). The meta-analysis utilized eight different tests of the relation (Spearman's correlation) between self-reported perspective taking and emotion recognition, based on the tasks reported in **Table 1**. The meta-analysis yielded a positive relationship estimated as 0.20, 95% CI (0.15, 0.24), $Z = 8.782$, $p < 0.001$ (see **Figure 2**). In addition, we calculated the heterogeneity of the observed effect sizes to test whether our estimate of the average effect ($r = 0.2$) can be generalized. Findings indicated that random sampling differences alone can produce the small variance of the observed effect, $Q = 8.03$, $I^2 = 0.07$, df = 7, $p = 0.33$, and thus, that the estimate can be generalized across measures and studies included in the analysis. This finding indicates that individual differences in engagement in perspective taking are positively related to the performance on experimental tasks of emotion recognition.

FIGURE 2 | Forest plot of the effect size of the relation between self-reported Perspective Taking and accuracy estimated using the random effects (RE) model. For each test of the relation, the size of the box represents the mean effect size estimate, which indicates the weight of that study in the meta-analysis. Numerical values in each row indicate the mean and 95% confidence interval of effect size estimates in bootstrapping analyses. AERT, Amsterdam Emotion Recognition Task; GERT, Geneva Emotion Recognition Test; RMET, Reading the Mind in the Eyes Test.

DISCUSSION

In a series of six studies, using classic emotion recognition tests with posed static and dynamic stimuli, as well as spontaneous dynamic stimuli, we examined whether individuals' *beliefs* about their tendency to engage in perspective taking aligns with their actual *performance*. The result from a meta-analysis of our findings indicates that individuals high in self-reported perspective taking also perform better on tests of emotion recognition.

The findings reported here are comparable with findings obtained in previous meta-analyses on the relation between empathy and interpersonal skills (e.g., Hall et al., 2009; Murphy and Lilienfeld, 2019), which show a similar small positive relation between PT and emotion recognition. The focus of previous studies was limited, however, to recognition of static stimuli (i.e., pictures). To our knowledge, the current research is the first to demonstrate a positive relation using dynamic emotion recognition tests. In particular, the current research utilizes both spontaneous and posed dynamic expressions of emotions with verbal as well as nonverbal emotional cues, and thus, arguably has high ecological validity. Thus, the findings reported here and in previous research point to belief about everyday engagement in perspective taking partially reflecting interpersonal reality.

It is worth noting that the observed effect was robust but relatively small in magnitude. Cohen's convention guideline (Cohen, 1992) to interpret the correlation coefficients argues that $r = 0.10$ represents a small effect size, whereas $r = 0.30$ represents a medium effect size. For interpretations of meta-analysis findings, Hemphill (2003) has argued that relationship

of $r = 0.20$ should be interpreted as medium effect size, since only one-third of all correlation coefficients show values higher than $r = 0.30$ according to an analysis of 380 meta-analyses findings in psychology. The observed correlation [$r = 0.20$, 95%CI (0.16, 0.25)] thus indicates a small to medium effect size.

The magnitude of the relation should be interpreted within the range of correlations relevant to the field. A recent meta-analysis of more than 100 samples probing different performance tests of emotion recognition ability showed that performance on different tasks correlates only modestly with one another ($r = 0.29$; Schlegel et al., 2017; Table 5), even though they are believed to assess the same underlying construct (emotion recognition ability). Moreover, performance tests are poor at differentiating between individuals across the theoretical continuum of emotion recognition ability. For example, people diagnosed with autism and a group of healthy matched-IQ controls differ on emotion recognition test only to modest levels (equivalent to r values between 0.17 and 0.27, or 3–8% explained variance; calculations based on the results reported in Jones et al., 2010; Sucksmith et al., 2013). Accordingly, we believe that even an effect that is modest in size (like the $r = 0.20$ in the current findings), in the current field of research, might capture meaningful individual differences.

Importantly, the present meta-analysis is based on emotion recognition of a wide range of stimuli, using minimal emotional cues involving the static expression of only the eyes region as well as multimodal verbal and nonverbal expressions of emotions in dynamic videos. Yet, the heterogeneity of the experimental setting was limited to expressions of emotions in a relatively short time period presented in pictures or videos. It is conceivable that the relationship between individuals' beliefs about their perspective taking propensity and their actual ability to infer how others feel may potentially be stronger in daily life situations, because when people state their everyday engagement in perspective taking, they likely refer to their typical behavior. This typical behavior naturally happens in a social environment that involves others they care about and, consequently, whose perspectives and feelings they care to understand their perspectives and feelings. For example, people wish to understand the emotions of a beloved or influential other because it is relevant for their own life. Thus, what drives people to engage in perspective taking is often related to relational motives and in particular, feeling empathic concern for others (Hodges et al., 2018; see also, Zaki, 2014; Israelashvili and Karniol, 2018; Batson, 2019). In an experimental environment, the content of others' emotions has limited relevance to the perceiver's life, and thus, this context is often characterized by low engagement.

Furthermore, from a methodological perspective, studies of emotion recognition measure how well people perform when asked to perform to the best of their ability (i.e., Maximal behavior) on standardized tests with veridical answers. However, assessment of accuracy based on *Maximal behavior* during test sessions and assessment of beliefs about understanding others based on *typical behavior* relies on different measurement levels (maximal vs. typical behavior, respectively; see discussions by Cronbach, 1949; Olderbak and Wilhelm, 2017). This mismatch

of measurement levels may result in an underestimation of the examined relation compared to when similar levels of measurement are used. In sum, we believe that current research findings of a small to medium effect size might show a smaller relation than the actual size of the relation in real-life (naturalistic situations). Thus, we suggest that the observed positive relation is meaningful.

Unfortunately it is not possible to use participants' self-reported tendencies to engage in perspective taking as a proxy for their actual abilities. Beliefs are subjective features accessed *via* self-report, whereas skills are objective features that require behavioral assessment of actual performance in relevant tasks (see also Davis and Kraus, 1997; Murphy and Lilienfeld, 2019). Given this difference, researchers and clinicians should regard them as *complementary* sources of information. After all, successful social functioning requires both the motivation and the ability to engage in perspective taking and accurately recognize others' feelings (e.g., Carpenter et al., 2016).

One limitation of the current analysis is the use of a correlational design, which does not allow us to address the question of causality. It may be that accurate recognition of emotional cues triggers engagement in perspective taking (e.g., Frith and Frith, 2006), or vice versa. Furthermore, as mentioned above, the investigation of the research question in the current and previous studies was limited to tests with expression of emotions occurring in a relatively short amount of time. Future research is needed to examine the relation in a naturalistic setting.

CONCLUSION

When the Marist Institute for Public Opinion asked a poll of 1,020 Americans what superpower they would most like to have, the ability to read the minds of others was mentioned as one of the two most desired qualities (together with traveling in time; Marist, 2011). This survey suggests that people are aware that their understanding of the thoughts and feelings of others often fail short of perfection. To understand other people better, some individuals tend to engage in spontaneous attempts to understand others' minds by taking their perspective.

Here we report the result of a series of studies that examines whether people's self-reported propensity to take others' perspectives accurately predict their performance on emotion recognition tasks. We found that individuals high in perspective taking also perform better across a broad range of different tasks of emotion recognition. Thus, beliefs about engaging in perspective taking partially reflect interpersonal reality.

DATA AVAILABILITY STATEMENT

The datasets generated for this study are available on request to the corresponding author.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Ethics Committee of the University of Amsterdam. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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Adult Judges Use Heuristics When Categorizing Infants' Naturally Occurring Responses to Others' Emotions

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Inferring the motivations of others is a fundamental aspect of social interaction. However, making such inferences about infants can be challenging. This investigation examined adults' ability to infer the eliciting event of an infant's behavior and what information adults utilize to make such inferences. In Study 1, adult participants viewed recordings of 24-month-old infants responding to an actor's emotional display (joy, sadness, fear, anger, or disgust) toward a broken toy and were asked to infer which emotion the actor expressed using only the infant's behavioral responses. Importantly, videos were blurred and muted to ensure that the only information available regarding the actor's emotion was the infant's reaction. Overall, adults were poor judges of the elicitors of infants' behaviors with accuracy levels below 50%. However, adults' categorizations appeared systematic, suggesting that they may have used consistently miscategorized emotions. To explore this possibility, a second study was conducted in which a separate sample of adults viewed the original recordings and were asked to identify infants' goal-directed behaviors (i.e., security seeking, social avoidance, information seeking, prosocial behavior, exploration, relaxed play). Overall, adults perceived a variety of infant differentiated responses to discrete emotions. Furthermore, infants' goal-directed behaviors were significantly associated with adults' earlier "miscategorizations." Infants who responded with specific behaviors were consistently categorized as having responded to specific emotions, such as prosocial behavior in response to sadnesss. Taken together, these results suggest that when explicit emotion information is unavailable, adults may use heuristics of emotional responsiveness to guide their categorizations of emotion elicitors.

Keywords: emotion, emotion responding, emotion categorization, infant behavior, emotional development

Inferring the motivations of others' behaviors is a fundamental aspect of social interaction. However, making such inferences when observing the behavior of infants can be challenging. This study examined whether adults can infer the eliciting emotional event of an infant's behavior and what information adults may utilize to make such inferences.

Emotions regulate the behavior of the self and social partners toward adaptive goal-directed responses specific to the emotional context (Campos et al., 1989; Walle and Campos, 2012). For example, an adaptive response to a social partner's communication of fear is to avoid, rather than engage with, the fear-inducing referent (Sorce et al., 1985; Martin et al., 2008).

Recent research indicates that even infants respond with functionally distinct behaviors to adult discrete emotional displays (Walle et al., 2017), suggesting that some differentiation in goal-directed responding may be present, though still developing, prior to other emotionally relevant skills, such as adhering to emotion display rules (see Camras and Shutter, 2010) or labeling emotions (see Widen, 2013). Thus, infants' functional behavioral responses may be an essential cue for adults when inferring the eliciting events of infants' behaviors.

One might wonder whether it would be easier to simply assess the infant's facial expression to infer the eliciting event leading to the behavioral response (Izard, 1979). After all, prior research demonstrates that adults can correctly label children's emotional expressions (Felleman et al., 1983; though see Oster et al., 1992). However, recent studies indicate a surprising disconnect between children's emotional states and facial expressions. Specifically, infants do not consistently produce prototypical facial expressions in scenarios commonly associated with specific emotions, and at times even display "atypical" expressions given the context (Camras et al., 2017). Moreover, FACS-trained researchers' assessments of children's facial expressions are often incongruent with children's self-reported emotional experiences (Castro et al., 2018). Thus, while adults have expectations regarding how children should respond in different hypothetical situations, like responding to success with happiness (Zelko et al., 1986; Camras and Allison, 1989), we know of no research that has examined whether adults actively use such assumptions to infer the elicitors of infant behavior.

The above research calls into question whether adults can accurately infer the significant relations that elicit infants' behaviors—a disconcerting conclusion given the need for caregivers to make such determinations in real-time on a daily basis. Furthermore, it reveals an intriguing paradox: adults possess lay theories regarding young children's emotional responsiveness, but whether adults can correctly infer the underlying motivation of children's behavior in emotional contexts is unclear. Thus, this investigation had two primary aims: (1) to investigate whether adults can accurately identify emotional communication eliciting infants' behaviors based on infants' behavioral responses to emotions and (2) to explore whether adults' categorizations are guided by heuristics of emotional responsiveness.

STUDY 1

We first examined whether adults could correctly categorize which emotional communication an infant had observed using only the infant's behavioral response. Previous research indicates that adults have clear behavioral expectations regarding children's responses in hypothetical emotional situations. Thus, we predicted that adults would demonstrate high accuracy in correctly identifying the specific emotion to which the infant responded.

Method
Participants
A total of 214 undergraduate students (154 female; M_{age} = 19.50 years, SD = 1.49) completed the study. The sample was racially diverse, with 102 participants identifying as Hispanic, 58 as Asian, 23 as Caucasian, 13 as African American, 12 as Mixed Race, and 2 as Native Hawaiian or Pacific Islander. Four participants declined to report racial information. Informed consent was obtained from all individual participants included in the study.

Stimuli
Videos of infants responding to discrete emotions were taken from a larger video collection used in previous research (Walle et al., 2017). Each video featured a 24-month-old infant situated between her/his caregiver, an actor, and a basket of age-appropriate toys. Once the infant was within reach of the actor, the actor revealed a plush bunny doll that had previously been intact, but now had one leg ripped off with stuffing spilling out. The actor then expressed facially, posturally, and vocally one of five emotions (joy, sadness, fear, anger, disgust) toward the bunny, and the infant was given 45 s to respond. A hidden camera located behind the actor, facing the infant, captured the events and infants' responses.

A total of 76 videos were used in the present study and included the following number of infants in each condition: joy (n = 17), sadness (n = 13), fear (n = 14), anger (n = 18), and disgust (n = 14). The discrepancy in the number of videos within each emotion condition was the result of not all families providing consent for their video to be used in the present study, and some infants failing to complete the paradigm in the original study by Walle et al. (2017). Each video featured a distinct infant.

Recordings of infant responses were edited using Adobe Premiere to blur and mute the actor so that only the infants' behaviors (e.g., manual actions, movements, sounds) were observable. This step was essential to ensure that participants had no information regarding the eliciting event other than the infant's behavioral response.

Procedure
Participants first completed a demographics questionnaire and a question regarding participants' frequency of direct contact with children. The 76 video stimuli were randomly ordered and separated into blocks consisting of up to 16 videos. Blocks were shown separately to groups of participants (range: 33–41 participants per group) in a campus conference room using a projector and speaker system. Participants were informed that each video would feature an infant responding to an actor who was displaying one of five emotions (joy, sadness, fear, anger, disgust) in response to a broken plush doll, and that all visual and auditory information regarding the actor's emotional reaction had been edited out. Each video was shown twice in succession. Participants were instructed to wait until after the video had been presented before selecting their answer on a response sheet with the following fixed-ordered choices: joy, sadness, fear, anger, disgust. Participants were given approximately 1 min to mark their response. A 3-min break was provided after every five videos to reduce testing fatigue.

A second researcher monitored participants throughout the session to ensure that participants were attentive to the videos

and adhered to the instructions. Two participants were excluded for falling asleep or premature marking of answers. The entire testing session lasted approximately 60 min.

Results

A full confusion matrix of participants' emotion categorizations is presented in **Table 1**. Participants' *accuracy*, operationalized as correctly identifying the emotion displayed by the actor, was analyzed using a generalized linear mixed model specified with a binomial distribution, a compound symmetry covariance structure, and a logit link. Restricted maximum likelihood (REML) was used in the model. Emotion was included as a within-subjects variable. *Post hoc* comparisons were conducted using a Bonferroni correction ($\alpha = 0.005$). Preliminary analyses revealed that participant gender and frequency of direct contact with children (Median = "once a month," range = "less than once a year" to "almost daily") were not related with accuracy; thus, these variables were excluded from subsequent analyses.

Results indicated a main effect of emotion, $F(4, 2,718) = 31.06$, $p < 0.001$, $\eta_p^2 = 0.04$. Pairwise comparisons indicated that participants correctly identified sadness ($M = 47\%$) stimuli more than joy ($M = 32\%$), $t = 4.85$, $p < 0.001$, CI [0.06, 0.23]; anger ($M = 24\%$), $t = 7.89$, $p < 0.001$, CI [0.15, 0.31]; fear ($M = 21\%$), $t = 8.79$, $p < 0.001$, CI [0.18, 0.35]; and disgust stimuli ($M = 18\%$), $t = 10.10$, $p < 0.001$, CI [0.21, 0.37]. Participants also correctly identified joy stimuli more than anger, $t = 3.23$, $p = 0.001$, CI [0.01, 0.15]; fear, $t = 4.37$, $p < 0.001$, CI [0.04, 0.19]; and disgust stimuli, $t = 5.71$, $p < 0.001$, CI [0.07, 0.22]. Accuracy for anger, fear, and disgust stimuli did not differ, p's ≥ 0.008.

Discussion

Participants more accurately inferred infants' behavioral responses to sadness and joy elicitors compared to anger, fear, and disgust elicitors. However, contrary to our predictions, participants overall were largely inaccurate, with no single categorization exceeding 50%. This is in contrast to previous research in which adults more accurately identified emotion elicitors (e.g., 60–85%; Camras and Allison, 1989), though it should be noted that such scenarios were hypothetical.

At least two explanations may explain adults' poor accuracy. First, participants may have categorized emotions randomly, particularly for the anger, fear, and disgust stimuli, which were near chance levels (range: 18–24%). However, the significant

main effect of emotion indicates that participants' responses, though overall incorrect, were systematic, particularly for the sadness and joy stimuli. Thus, a second alternative explanation is that adults systematically made incorrect inferences, perhaps because infants' behavioral responses did not match adults' lay theories of emotional responsiveness. For example, an infant responding to a fear display with approach behaviors (e.g., comforting) may have been misclassified as responding to sadness because the adult heuristic may be that one should respond to sadness with prosocial behavior, whereas one should respond to fear with security seeking (Saarni et al., 2006).

To test this latter explanation, a second study was conducted to examine whether adults' categorizations of infant goal-directed behaviors varied across discrete emotions, and whether such categorizations were associated with the emotional categorizations of stimuli in Study 1.

STUDY 2

Study 2 explored whether adults used heuristics to infer the elicitor of infant behavioral responding. It was predicted that (1) adults would differentially categorize behaviors across emotions, and that (2) these behavioral categorizations would correspond with adults' emotion categorizations from Study 1.

Method

Participants

A total of 199 undergraduate students (136 female, $M_{age} = 19.85$ years, SD = 2.70) completed Study 2. Participants were racially diverse, with 100 participants identifying as Hispanic, 39 as Asian, 19 as Caucasian, 19 as Mixed Race, 11 as African American, 3 as Native Hawaiian or Pacific Islander, and 2 as Native American or Alaskan Native. Six participants declined to report racial information.

Stimuli

The original, unedited recordings of the same infants were included in Study 2.

Goal-Directed Behaviors

Categories of infant behavioral responses were derived from proposed functional affective responses (Walle and Campos, 2012). Specifically, six goal-directed behaviors were used to characterize infant behaviors: (1) seek security, (2) social avoidance, (3) information seeking, (4) prosocial behavior, (5) exploration, and (6) relaxed play. Full descriptions of the behaviors are provided in **Table 2**.

Procedure

The procedures differed from Study 1 in the following ways. Stimuli were separated into blocks consisting of up to 15 videos, and were shown to separate groups of participants (range: 28–36 participants per group). Participants were informed before each video which emotion the adult would be expressing to ensure that all participants were aware of the correct emotional

TABLE 1 | Proportion agreement of emotion categorizations of the elicitors of infants' behavioral responses in Study 1.

| Actual emotion | Emotion categorization | | | | |
	Joy	Sadness	Fear	Anger	Disgust
Joy	0.32	0.37	0.08	0.09	0.15
Sadness	0.11	0.47	0.14	0.09	0.20
Fear	0.17	0.24	0.21	0.19	0.19
Anger	0.13	0.25	0.17	0.25	0.20
Disgust	0.17	0.19	0.27	0.19	0.18

TABLE 2 | Descriptions of goal-directed behavioral codes.

Goal	Definition
Security seeking	Infant sought comfort or security
Social avoidance	Infant avoided engaging with the experimenter in any way
Information seeking	Infant sought more information about the situation
Prosocial behavior	Infant tried to help the experimenter in some way
Exploration	Infant handled the stimulus in order to learn more about it
Relaxed play	Infant engaged in a playful manner with experimenter, or behavior seems unaffected by emotional display

context. A graduate student researcher trained participants to apply behavioral codes to the videos. Training consisted of reviewing detailed explanations of each code (see **Table 2**) and observing the researcher code one example video. Participants then completed two additional practice trials and again reviewed the coding with the researcher to ensure full comprehension of the coding scheme. Participants were instructed to code the goal-directed behavior most prominently displayed by the infant using the collection of infant behaviors (e.g., looking to experimenter, looking to parent, looking to stimulus, facial affect, location in room, vocalizations, gestures). Three participants were excluded for sleepiness or inattentiveness.

Results

We first examined whether adult judgments of infant goal-directed behaviors varied across discrete emotion conditions. Participant classifications of each infant goal-directed behavior were separately analyzed using linear mixed effect models specified with a binomial distribution and a logit link. Restricted maximum likelihood (REML) was used in each model. Emotion was included as a within-subjects variable. *Post hoc* comparisons were conducted using a Bonferroni correction for multiple comparisons ($\alpha = 0.005$). Preliminary analyses revealed that participant gender and frequency of direct contact with children (Median = "once a month," range = "less than once a year" to "almost daily") were not related with infant behavior categorizations. Thus, these variables were excluded from subsequent analyses.

Security Seeking

Results indicated a significant effect of emotion, $F(4, 2,526) = 31.86$, $p < 0.001$, $\eta_p^2 = 0.05$. Pairwise comparisons indicated that adults identified infant security seeking significantly more in disgust ($M = 26\%$), anger ($M = 25\%$), and fear ($M = 24\%$) stimuli than sadness ($M = 6\%$) and joy ($M = 6\%$) stimuli (all p's < 0.001). No other significant differences between emotion conditions were present (p's > 0.58).

Social Avoidance

A significant effect of emotion was present, $F(4, 2,526) = 24.27$, $p < 0.001$, $\eta_p^2 = 0.04$, and subsequent comparisons indicated that adults identified infant social avoidance significantly more in fear ($M = 26\%$), disgust ($M = 23\%$), and anger ($M = 20\%$) stimuli than sadness ($M = 8\%$) and joy ($M = 7\%$) stimuli (all p's < 0.001). There were no other significant differences between emotion conditions (p's > 0.01).

Information Seeking

Analyses did not find a significant effect of emotion, $F(4, 2,526) = 2.27$, $p = 0.06$, $\eta_p^2 = 0.004$. Thus, no pairwise comparisons were conducted.

Prosocial Behavior

Coding of infant prosocial behavior varied significantly as a function of emotion, $F(4, 2,526) = 40.56$, $p < 0.001$, $\eta_p^2 = 0.06$. Pairwise comparisons indicated that adults identified infant prosocial behavior significantly more in sadness ($M = 46\%$) and joy ($M = 36\%$) stimuli than anger ($M = 20\%$), fear ($M = 19\%$), and disgust ($M = 14\%$) stimuli (all p's < 0.001). Differences in prosocial behavior between sadness and joy stimuli were significant ($p = 0.002$). No other significant differences between emotion conditions were present (p's > 0.02).

Exploration

Results indicated a significant effect of emotion, $F(4, 2,526) = 24.59$, $p < 0.001$, $\eta_p^2 = 0.04$. Subsequent comparisons indicated that adults identified infant exploration significantly more in sadness ($M = 21\%$) and joy ($M = 28\%$) stimuli than anger ($M = 10\%$) and fear ($M = 8\%$) stimuli (all p's < 0.001). Adult exploration classifications for disgust stimuli ($M = 15\%$) were significantly more prevalent than fear and significantly less prevalent than joy stimuli (p's ≤ 0.001). Differences between the remaining emotion conditions were not significant (p's > 0.01).

Relaxed Play

Results indicated a significant effect of emotion, $F(4, 2,526) = 7.29$, $p < 0.001$, $\eta_p^2 = 0.01$. Pairwise comparisons indicated that adults identified infant relaxed play significantly more in joy ($M = 9\%$) videos than fear ($M = 4\%$) and sadness (1%) videos (p's < 0.001). Additionally, adults' relaxed play classifications for anger ($M = 5\%$), disgust ($M = 5\%$), and fear videos were significantly more prevalent than sadness (p's ≤ 0.001). There were no other significant differences between emotion conditions (p's > 0.01).

Infant Goal-Directed Behaviors and Adult Emotion Categorizations

We next examined the possibility that infants' behaviors were associated with adults' emotion inferences from Study 1. Bivariate correlations revealed several significant associations (see **Table 3**). Infants categorized as responding to joy were positively associated with relaxed play and exploration, and negatively associated with security seeking. Sadness categorizations were highly correlated with prosocial behavior and exploration, and negatively correlated with security seeking and social avoidance. Infants labeled as responding to fear were associated with increased levels of security seeking and social avoidance and decreased concentrations of prosocial behavior, exploration, and relaxed play. Anger categorizations were associated with high levels of security seeking and social avoidance as well as low levels of prosocial behavior and exploration. Infants characterized as responding to disgust were positively correlated with social avoidance and negatively associated with exploration.

TABLE 3 | Bivariate correlations of proportions of goal-directed behavior ratings and emotion categorizations.

Emotion categorization	Goal-directed behavior					
	Security seeking	Social avoidance	Information seeking	Prosocial behavior	Exploration	Relaxed play
Joy	−0.29[*]	−0.15	−0.05	0.05	0.32[**]	0.42[**]
Sadness	−0.48[**]	−0.34[**]	0.18	0.53[**]	0.26[*]	−0.16
Fear	0.76[**]	0.27[*]	−0.19	−0.44[**]	−0.44[**]	−0.28[*]
Anger	0.55[**]	0.26[*]	−0.17	−0.39[**]	−0.31[**]	−0.12
Disgust	−0.02	0.32[**]	0.17	−0.15	−0.25[*]	−0.04

[*]$p < 0.05$; [**]$p < 0.01$.

Discussion

Study 2 provides evidence that non-expert adults view infants as engaging in differentiated behavioral responses to discrete emotions. In particular, infants were categorized as responding with prosocial behavior most often in the sadness condition, and relaxed play most often in the joy condition. Although other goal-directed behaviors were less differentiated between emotions, they did differ systematically between prototypically "avoid" type emotions (anger, fear, disgust) and "approach" type emotions (joy, sadness; Walle and Campos, 2012). For instance, adults categorized infants as responding with security seeking and social avoidance most in the anger, fear, and disgust conditions, and exploration most in the sadness and joy conditions. Comparison of these results with findings from previous studies is provided in the section "General Discussion."

Interestingly, infants' goal-directed behaviors were associated with adults' emotional inferences from Study 1, supporting a possibility that adults guided their emotional inferences using heuristics about responding to emotions. For example, when observing an infant display prosocial behavior, regardless of the experimenter's emotion, adults were more likely to categorize the infant as having responded to sadness than fear or anger. Additionally, adults categorized infants engaging in relaxed play as responding to joy more than all other emotions. It is possible that adults' folk psychology presumes a strict correspondence between specific events and behavioral responses to those events (Frijda et al., 1989; Saarni et al., 2006). Alternatively, adults may have used a more flexible heuristic to categorize infants' responses, but appeared to be inaccurate due to infant still-developing behavioral responses to discrete emotions (see Walle et al., 2017). These two possible explanations are further elaborated upon below.

GENERAL DISCUSSION

Inferring the eliciting events of infants' behavior is a complex process involving the interaction of multiple processes. Of particular interest in the present investigation is how adults infer the elicitors of infants' behavior. Although adults appeared inaccurate in categorizing the elicitor of infants' behavioral responses to emotions, adult "miscategorizations" varied systematically as a function of infant goal-directed behaviors. This suggests that adults used a heuristic to categorize the elicitor of infants' behavior.

For example, infants demonstrating security seeking were more likely to be categorized as responding to fear or anger than joy or sadness, regardless of the emotion the infant actually observed. Thus, this pattern of findings suggests that adults attempted to perceive the significant relation between the infant and the environment, but were unable to do so accurately.

At least two theoretical explanations hold important implications for adult lay understanding of infant behavior. First, it is possible that adults view specific behaviors as diagnostic for specific emotional responses, such as seeking security in response to anger or fear, or engaging in relaxed play in response to joy. Indeed, emotion researchers have historically sought similar 1:1 mappings for discrete emotions, such as a physiological response (Levenson, 1992) or an appraisal pattern (Roseman, 1984). However, emotion responding is an equipotential process in which multiple behaviors can be adaptive for a given emotional context (Campos et al., 2004). Thus, such rigidity in appreciating goal-directed behavior could be maladaptive in interpersonal contexts, where constant variation of context and relational significance necessitates flexibility in evaluating and responding. It is also possible that the forced-choice design may have suggested that participants apply a rigid heuristic. Additional research using an open-response format would be necessary to rule out this possibility.

Alternatively, adults may possess valid heuristics of emotional responsiveness, but appear "inaccurate" due to infants' under-developed responses to discrete emotions. Thus, while previous research indicates that infants engage in increasingly differentiated behaviors in response to discrete emotions (Walle and Campos, 2012), such differentiation is likely still developing and may hamper adults' abilities to infer the eliciting event. Closer examination of developmental trajectories of infant responding to discrete emotions and adults' interpretations of such responses is needed to clarify such explanations.

FURTHER CONSIDERATIONS

These findings provide important considerations for research examining infant and adult behavioral responding in relational contexts. First, these results complement previous work examining adults' emotional judgments of hypothetical situations (e.g., Zelko et al., 1986; Camras and Allison, 1989), as well as recent studies indicating that children often do not display emotions

matching their emotional state (Camras et al., 2017). However, further research of adult judgments of infant behavioral responses in additional contexts is needed to examine consistency in such findings.

Additionally, just as infants are likely still developing differentiated behavioral responses, adult heuristics for interpreting infants' behaviors likely vary across individuals due to differences in past experience, anticipation, and observational learning. This investigation indicates that non-expert adults with relatively infrequent experience with children perceive a variety of infant goal-directed behaviors in response to discrete emotions, which supports previous research using expert judges (Walle et al., 2017) and is consistent with theoretical work relating to functionalist emotion theory (Saarni et al., 2006). Future research comparing caregiver judgments of their own child's goal-directed behaviors with judgments from non-caregiver adults could address how experience interacting with infants facilitates such judgments. The present sample of undergraduate students reported relatively little experience interacting with infants, which may have precluded any meaningful interpretation of this individual difference measure. Furthermore, studying how parents encourage infant behavioral responses in real-time (e.g., Hornik and Gunnar, 1988; Castro et al., 2015) or recall interpersonal contexts (e.g., Beeghly et al., 1986; Lagattuta and Wellman, 2002) could illuminate how such behaviors are socialized and refined across development.

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DATA AVAILABILITY STATEMENT

The datasets generated for this study are available on request to the corresponding author.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by UC Merced Institutional Review Board. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

PR designed the study, collected the data, and analyzed the data. PR and EW wrote the manuscript.

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Beliefs About Emotion Are Tied to Beliefs About Gender: The Case of Men's Crying in Competitive Sports

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Gender and emotion stereotypes suggest that men do not and should not cry, yet men's crying seems to be particularly prominent in contexts such as competitive sports. In two studies, I investigated the possibility that men's crying is more frequent and seen as more acceptable in these settings because such contexts are perceived to be highly masculine, and can buffer men from the negative consequences associated with violating gender stereotypes. Specifically, I tested the hypotheses that (a) observers would perceive men's crying more positively in a masculine-stereotyped than a feminine-stereotyped setting, and following from this, (b) men would report being more likely to shed tears in a stereotypically masculine than a stereotypically feminine setting. To test these predictions, I conducted two between-subjects experiments in which participants (N = 250; N = 192), read a vignette about a man or a woman crying in either a stereotypically masculine (firefighting, weightlifting) or stereotypically feminine (nursing, figure skating) setting, and then rated the target on several emotion-related dependent variables. In line with predictions, results of Study 1 indicated that participants rated crying male firefighters as more emotionally appropriate, emotionally strong, and as higher in workplace status than crying male nurses, and that these effects were mediated by perceptions of the target's masculinity and femininity. Study 2 replicated these effects using sports-related vignettes, and showed that male participants reported being more likely to shed tears after losing a competition in weightlifting than in figure-skating. Taken together, these findings suggest that men who are perceived to embody cultural ideals of masculinity may be given more room to cry than those who are perceived as less stereotypically masculine.

Keywords: emotion, adult tears and crying, gender, masculinity, femininity, competitive sports

INTRODUCTION

Previous research has demonstrated that gender plays an important role in people's beliefs about emotion. People believe, for instance, that women express emotion more frequently and with greater intensity than men do (Fabes and Martin, 1991; Fischer, 1993). Women are also believed to experience and express a wider range of emotions than men, with almost all emotions being more readily associated with women than men (Plant et al., 2000). Crying, an expression than can be associated with multiple emotions (sadness, anger, frustration, overwhelm, feeling "moved"), has been characterized as an expression of "powerless" feelings because of its tendency to arise when

other forms of action or change are not possible (Cretser et al., 1982; Vingerhoets et al., 2001). For this reason, crying has also been stereotyped as feminine, and young boys are often taught from an early age to restrain from shedding tears or showing other forms of "feminine" emotional expression (Fivush et al., 2000; Oransky and Marecek, 2009).

At the same time as tears are stereotyped as feminine and discouraged in boys and men, there are certain contexts that seem to allow men more freedom to cry without being socially penalized. One context in which it seems to be particularly acceptable for men to cry is competitive sports, where male athletes regularly shed tears after major losses, defeats, retirements, injuries, and other important moments on and off the field (Fox, 2004; Wong et al., 2011). Fox (2004) showed, for example, that sports was one of the few contexts in which men reported crying as much as women in the United Kingdom, and Wong et al.'s survey of male college football players showed that these players considered it relatively normal and acceptable to shed tears on the field. Indeed, sports appear to be a context in which men can express a range of emotions and behaviors that might otherwise be viewed as off-limits, including joy, hugging, and close physical contact with other men (Nelson, 1994; Kneidinger et al., 2001; Walton et al., 2004).

The prominence and acceptance of tears in men's competitive sports may seem surprising, even counter-intuitive, given the historical association of sports with dominant forms of masculinity (e.g., Messner, 1992). Indeed, numerous studies have shown that male athletes are regarded as heroic representations of ideal manhood (e.g., Goodman et al., 2002; Connell and Messerschmidt, 2005), and that attributes seen as important in sports, such as competitiveness, aggression, physical strength, and stoicism, are also those perceived to be crucial in enacting Western conceptions of masculinity (Messner, 1992; Mahalik et al., 2003; Wong et al., 2011). Given this association of men's competitive sports with masculinity, toughness, and aggression, it might be expected that stereotypical expectations for the expression of emotion would be even more strictly enforced in this context than in other areas of everyday life.

Drawing from theory in feminist masculinity studies, however, I suggest here (as elsewhere, see MacArthur and Shields, 2015; MacArthur and Shields, in press), that men's crying may be particularly prominent and public in competitive sports precisely *because* sports are perceived as highly masculine. More specifically, Connell (1995) argues that relationships among men are ordered hierarchically, with those who represent hegemonic forms of masculinity (e.g., those espousing current cultural ideals) maintaining power and dominance over men who represent subordinate forms of masculinity (e.g., those seen to be aligned with women and femininity). Although claiming membership in the privileged group affords men increased power and social status, especially over women (Schrock and Schwalbe, 2009), enacting characteristics associated with the devalued group (women) may result in particularly harsh social punishment, as evidenced by numerous studies showing that boys and men who violate gender stereotypes are punished more harshly than girls and women who do (e.g., Levy et al., 1995; Sirin et al., 2004). Consistent with these ideas, the precarious

manhood hypothesis (Vandello and Bosson, 2013) posits that because manhood is a valued social status, it is also viewed as one that must be earned through consistent manhood acts, whereas womanhood is ascribed and viewed as a biological inevitability (Vandello and Bosson, 2013).

Given these perspectives on masculinity and the importance for men of earning one's place within the hierarchy, I predict that crying will be viewed most positively when enacted by men who, by virtue of their success in masculine domains that require characteristics such as strength, are seen as having earned their manhood. In other words, to the extent that a man is perceived as strong and stereotypically masculine, he may be allowed to express emotion that would otherwise be deemed as weak or feminine. Further, given the often heroic status of men who are seen to embody hegemonic ideals (Goodman et al., 2002), tears shed by such men may not only be tolerated, but perhaps even interpreted as a sign of strength (Lutz, 1999). It also follows that, if observers view men's tears more favorably when shed in a highly masculine context, perhaps men might also feel more comfortable shedding tears themselves in such a context.

In the two studies presented below, I tested the hypothesis that men's crying would be deemed most acceptable in contexts that are perceived as masculine (Study 1), and that men would report greater likelihood of crying in a stereotypically masculine than in a stereotypically feminine setting (Study 2). In both studies, I also wanted to examine whether men's crying would be evaluated differently than women's crying in stereotypically masculine and stereotypically feminine contexts. Previous research comparing perceptions of women's and men's crying has shown mixed results, with some studies finding that men's tears are judged more favorably than women's (Labott et al., 1991; Warner and Shields, 2007), others showing the opposite pattern (e.g., Fischer and Manstead, 1998; Fischer, 2006, as cited in Cretser et al., 1982; Fischer et al., 2004), and still others showing no differences (Hendriks et al., 2008; Brooks, 2011; Zawadzki et al., 2013). Given these inconsistent findings, I wanted to examine the perceived masculinity and femininity of the context as a potential moderator of how men's and women's tears are viewed.

STUDY 1

In Study 1, I examined observers' perceptions of crying targets in a stereotypically masculine (firefighting) versus stereotypically feminine (nursing) occupational context. I began with these two occupations because they are both clear-cut examples of stereotypically feminine and masculine jobs: nursing employs primarily women and is perceived to be feminine (e.g., Liben and Bigler, 2002; O'Connor, 2015), while firefighting employs primarily men and is thought to have a highly masculine culture (e.g., Hall et al., 2007; Khan et al., 2017). At the same time, firefighting and nursing are comparable because they are both helping occupations that involve medical intervention, and sociological research has shown that they are viewed similarly in terms of their occupational prestige (Smith and Son, 2014). In Study 1, then, participants read a vignette about a male or female protagonist crying in the context of either firefighting

or nursing, and rated the protagonist on a number of emotion-related variables.

Hypotheses

Hypothesis 1: Effect of Occupation

In Hypothesis 1, I predicted that participants would perceive crying firefighters more favorably (e.g., as more emotionally appropriate and emotionally strong) than crying nurses overall. I expected, however, that this effect would be driven by ratings of male targets, whose crying would be seen more favorably when enacted by men perceived to have earned a high degree of masculine status (firefighters) than when enacted by men perceived to have earned less masculine status (nurses). I describe this occupation by target gender interaction below.

Hypothesis 2: Occupation by Target Gender

The research cited above on the precarious manhood hypothesis suggests that men may be both uniquely rewarded for enacting masculine expectations and uniquely punished for failing to enact these expectations, while women are more automatically afforded status as women. Therefore, I predicted that participants' perceptions of crying firefighters and nurses would differ based on target gender. Specifically in Hypothesis 2a, I predicted that because masculinity is culturally valued (Connell, 1995), and because male firefighters are seen as heroes and exemplars of idealized masculinity in North American society (e.g., Tracy and Scott, 2006; Hall et al., 2007), crying male firefighters would be rated more favorably than both crying male nurses and crying female firefighters across the dependent variables. Similarly, given that femininity is culturally devalued, particularly in men (Connell, 1995), I predicted in Hypothesis 2b that a crying male nurse would be rated more negatively than both crying male firefighters and crying female nurses across the dependent variables.

As an exploratory analysis, I also wanted to examine whether participants would perceive female firefighters and female nurses differently across the DVs. Given that women are sometimes punished for violating gender roles and other times rewarded for enacting masculine characteristics (e.g., Glick et al., 1988; Dodge et al., 1995; Heilman et al., 1995; Rudman and Phelan, 2008), I did not make specific predictions about whether crying female firefighters or nurses would be rated most favorably on the emotions-related dependent variables.

Hypothesis 3: Mediation

In Hypothesis 3, I predicted that perceptions of the crying individual's masculinity and femininity would mediate the relationship observed between occupation (firefighting/nursing) and the dependent variables (e.g., emotional appropriateness) when participants rated male vignette targets.

Specifically, in Hypothesis 3a, I predicted that male firefighters would be perceived as more masculine than male nurses, and that these ratings of the target's masculinity would in turn predict participants' ratings on the dependent variables, such that male targets rated as more masculine would be perceived as more emotionally appropriate, emotionally strong, etc.

Similarly, in Hypothesis 3b, I predicated that femininity would mediate the relationship in the opposite direction: I expected that male firefighters would be perceived as less feminine than male nurses, and that the male target's perceived femininity would negatively predict ratings of the target on the dependent variables.

As an exploratory analysis, I also wanted to examine whether this relationship would be present when participants rated female targets. If present, I predicted in Hypothesis 3c that this indirect relationship would be stronger when participants rated crying male targets than when they rated crying female targets.

Method

Participants and Design

To determine how emotion is perceived when expressed by women and men in different occupational contexts, I conducted a 2 [occupation: masculine (firefighting)/feminine (nursing)] $\times$ 2 (target gender: female/male) between-subjects experiment. After receiving IRB approval for the project, participants ($N = 255$) were recruited from the psychology participant pool at a large public university in the northeastern United States, and received course credit for their participation. Sample size was based on an *a priori* power analysis using G*Power 3 (Faul et al., 2007), with power set at 0.8 and alpha set at 0.05. Because no published studies had examined perceptions of men's and women's crying in different contexts at the time that the research was conducted, I conservatively estimated based on my own past research on gender that effect sizes would fall in the medium-small range, and set effect size at $\eta_p^2 = 0.03$ (small). The power analysis revealed that a sample size of 256 would be adequate to test the anticipated effects.

Given that the meaning of emotions and emotion-related words may differ across cultures and languages (e.g., Becht and Vingerhoets, 2002), recruitment was limited to United States citizens who spoke English as a first language. Five participants were excluded for failing two or more of three attention checks that asked them to select a particular response (e.g., "for this question, please select 7"). The final sample consisted of 250 participants (52% female, 48% male), who identified primarily as White (83.6%), followed by Asian (6.4%), mixed race (4.0%) Black or African American (2.4%), and Latino/a (1.2%), other (1.2%), and Middle Eastern or Arab (0.8%).

Procedure

Participants recruited to take part in the study were directed to an online Qualtrics survey. After providing informed consent and being told that they were participating in a study about students' perceptions of people in difficult situations, they read one of four randomly assigned vignettes describing a male or female firefighter or nurse, who cried over an injured child encountered on the job (see **Appendix A** for full wording). Because race can intersect with gender in the stereotypes ascribed to women's and men's emotion (e.g., Donovan, 2011), and that most research on sadness and crying stereotypes has been conducted with white women and men (MacArthur and Shields, in press), I manipulated gender using the names Dan (male target) and Jessica (female target), which pilot testing ($N = 12$) by Dicicco (2013) showed to be perceived unanimously as white. After

reading the assigned vignette, participants responded to the measures described below, provided some basic demographic information, and were debriefed.

Measures

As mentioned above, sadness and tears are viewed as "weak" emotional expressions (e.g., Cretser et al., 1982; Vingerhoets et al., 2001). Therefore, I measured dependent variables that I believed most likely to be affected by this perception: judgments of a crier's emotional appropriateness, emotional strength, and status in the workplace. I also wanted to assess the possibility that participants would ascribe some men (and potentially women) more of the positive characteristics associated with tears (particularly when shed on behalf of a child), such as warmth and communality. I describe each of these measures in more detail below.

Emotional appropriateness

Perceptions of the appropriateness of the target's emotion (e.g., "Jessica's expression of emotion was appropriate in this situation") were measured using four items from the perceived appropriateness subscale of Wong et al.'s (2011) Evaluations of Emotional Behaviors Questionnaire (EEBQ). Items were measured on a 7-point Likert scale ranging from "Strongly disagree" to "Strongly agree." All items were summed and averaged to create a single emotional appropriateness variable ($\alpha = 0.81$), in which higher scores represented greater perceived emotional appropriateness.

Emotional strength

This *ad hoc* measure consisted of three items that tap into how mentally and emotionally strong a target is perceived to be. These were, "How strong is Jessica, mentally and emotionally?," "How tough is Jessica, mentally and emotionally," and "How weak is Jessica, mentally and emotionally" (reverse scored). All items were measured on a 7-point Likert scale ranging from "Not at all" to "Extremely." Items were summed and averaged to create a single emotional strength variable ($\alpha = 0.87$), in which higher scores represented greater perceived emotional strength.

Workplace status

Workplace status was a three-item *ad hoc* measure that assessed how good the target was perceived to be at their job, and how much status they were imagined to hold in the eyes of their coworkers. The three items included: "How good do you think Jessica is at her job?," "In general, how respected do you think Jessica is within her job?," and "How much authority and status do you think Jessica has in the eyes of her coworkers?." All items were measured on a 7-point Likert scale ranging from "Not at all/none" to "Extremely/a great deal." Items were summed and averaged to create a single workplace status variable ($\alpha = 0.87$), in which higher scores represented greater perceived workplace status.

Warmth

Perceptions of the target's warmth were measured using six items from Fiske et al. (2002), which asked participants to rate the target on how warm, good-natured, sincere, unfriendly (reverse coded), trustworthy, and nice they were perceived to be. All items were measured on a 7-point Likert scale ranging from "Not at all" to "Very much." Items were summed and averaged to create a single warmth variable ($\alpha = 0.88$), in which higher scores represented greater perceived warmth.

Communalism

The target's perceived communalism (e.g., the extent to which they are seen as carding and concerned with the welfare of others) was measured using four items from Heilman and Okimoto (2007), which asked participants to rate the target on how supportive, sensitive, understanding, and uncaring (reverse coded) they were perceived to be. All items were measured on a 7-point Likert scale ranging from "Not at all" to "Very much." Initial reliability analysis showed poor reliability ($\alpha = 0.54$); further analysis revealed that the reverse coded item (uncaring) was largely responsible for the low alpha. After excluding this item, reliability increased to 0.74.

Masculinity and femininity

The perceived masculinity and femininity of the target were measured using one item for each construct: "Overall, how masculine is Dan?" and "Overall, how feminine is Dan?" For male (Dan) and female (Jessica) targets, participants were asked to rate both perceived masculinity and femininity. Both items were measured on a 7-point Likert scale ranging from "Not at all masculine/feminine" to "Extremely masculine/feminine."

Results

Means and standard deviations for each of the main dependent variables, separated by occupation condition, are presented in **Table 1**. Correlations among the dependent variables are presented in **Table 2**, and full data for Study 1 are available as a supplement (see **Supplementary Table S1**). To evaluate my hypotheses, I conducted a two-way ANOVA on each dependent

TABLE 1 | Study 1 means and standard deviations separated by occupation.

	Mean (SD)		
	Overall (*N* = 250)	Firefighting (*n* = 124)	Nursing (*n* = 126)
Emotional Appropriateness	5.64	5.80 (1.13)	5.48 (1.15)
Emotional Strength	4.39	4.60 (1.24)	4.22 (1.09)
Workplace Status	5.10	5.34 (1.20)	4.86 (1.07)
Warmth	6.08	6.15 (0.72)	6.00 (0.78)
Communalism	5.89	5.91 (0.83)	5.74 (0.85)

TABLE 2 | Correlations among dependent variables in Study 1.

	Correlations				
	1	2	3	4	5
(1) Emotional Appropriateness	–				
(2) Emotional Strength	0.34**	–			
(3) Workplace Status	0.44**	0.54**	–		
(4) Warmth	0.20**	0.05	0.28**	–	
(5) Communalism	0.12	−0.01	0.14*	0.69**	

*$p < 0.05$ and **$p < 0.01$.

variable, using target occupation and target gender as between-subjects factors in the analysis.

Effect of Occupation

In Hypothesis 1, I predicted that crying firefighters would be rated more positively (e.g., as more emotionally appropriate, emotionally strong, warm, communal, and higher in workplace status) than crying nurses across the dependent variables. ANOVA results largely supported this hypothesis: firefighters were rated significantly higher than nurses on emotional appropriateness, $F(1,246) = 5.39$, $p = 0.021$, $\eta_p^2 = 0.021$, emotional strength, $F(1,243) = 6.01$, $p = 0.015$, $\eta_p^2 = 0.024$, and workplace competence, $F(1,246) = 10.92$, $p = 0.001$, $\eta_p^2 = 0.042$. No significant main effect of occupation was found for warmth, $F(1,243) = 2.29$, $p = 0.132$, $\eta_p^2 = 0.009$ or communalism, $F(1,246) = 0.01$, $p = 0.943$, $\eta_p^2 < 0.000$.

Occupation × Target Gender

In Hypothesis 2, I predicted an occupation by target gender interaction. Specifically, I expected in Hypothesis 2a that participants would rate a crying male firefighter more positively than both a crying male nurse and a crying female firefighter, and in Hypothesis 2b that participants would rate a crying male nurse more negatively than both a crying male firefighter and a crying female nurse. ANOVA results, however, did not support this hypothesis, as no interaction emerged between occupation and target gender for any of the DVs, all p's > 0.05.

Although the interaction between occupation and target gender was not significant, as an exploratory analysis, I conducted *post hoc* tests to determine whether differences in participants' judgments of firefighters and nurses (e.g., the main effect of occupation) held true for both male and female targets. Results indicated that while male firefighters were judged as more emotionally appropriate, $F(1,246) = 5.27$, $p = 0.023$, $\eta^2 = 0.021$, more emotionally strong, $F(1,243) = 6.19$, $p = 0.014$, $\eta^2 = 0.025$, and higher in workplace status, $F(1,246) = 13.99$, $p < 0.001$, $\eta^2 = 0.054$, than male nurses, female firefighters did not significantly differ from female nurses on ratings of emotional appropriateness, $F(1,246) = 1.02$, $p = 0.314$; $\eta^2 = 0.004$, emotional strength, $F(1,243) = 1.01$, $p = 0.315$, $\eta^2 = 0.004$, or workplace status, $F(1,246) = 0.95$, $p = 0.330$, $\eta^2 = 0.004$.

Mediation

In Hypothesis 3, I predicted that perceptions of the target's masculinity (Hypothesis 3a) and femininity (Hypothesis 3b) would mediate the relationship between occupation and the dependent variables, particularly when participants rated male targets. To test the hypothesized models, I used the PROCESS macro for SPSS (Hayes, 2012). I entered occupation (nursing = 0, firefighting = 1) as the predictor variable, perceived masculinity and femininity (in turn) as the mediators, and emotional appropriateness, emotional strength, and workplace status (in turn) as outcome variables. Given that there was no significant main effect of occupation on warmth or communalism, these variables were not included in the analyses. To determine whether masculinity and femininity mediated the relationship between occupation and the DVs differentially for male and
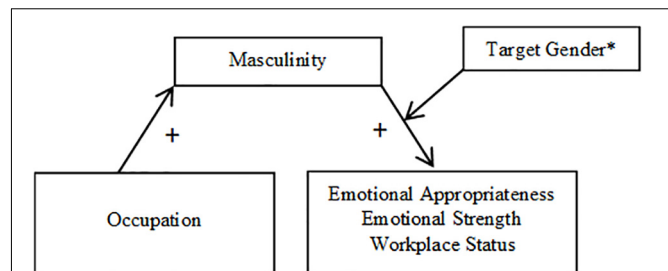
FIGURE 1 | Mediation model using masculinity as a mediator (Study 1). *Indicates that the pathway between masculinity and the DVs was either significant only when participants rated male targets (emotional appropriateness, workplace status), or the relationship was stronger when participants rated male targets than when they rated female targets (emotional strength).
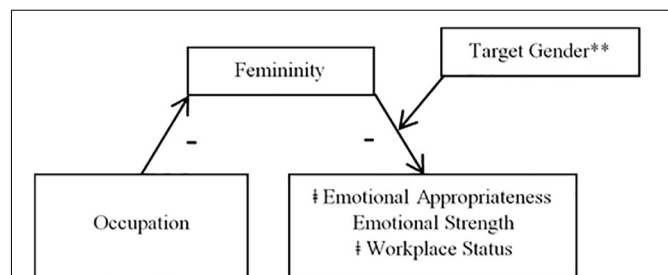
FIGURE 2 | Mediation model using femininity as a mediator (Study 1). **Indicates that the pathway between femininity and the DVs was significant only when participants rated male targets and not female targets. ‡Indicates that the effect of occupation was still significant after the interaction between femininity and target gender was included in the model (partial mediation).

female vignette targets (Hypothesis 3c), I selected Model 14 (moderated mediation; see **Figures 1**, **2**) and used 5000 bootstrap samples.

Masculinity

For analyses of Hypothesis 3a with masculinity as a mediator, indices of moderated mediation using Model 14 were significant for emotional appropriateness (CI = 0.04,0.45), emotional strength (CI = 0.08,0.54), and workplace status (CI = 0.03,0.47). Occupation significantly predicted the perceived masculinity of the target, $F(1,248) = 11.25$, $p = 0.001$, such that firefighters ($M = 4.12$, $SD = 1.71$) were perceived to be significantly more masculine than nurses ($M = 3.42$, $SD = 1.59$). An interaction between masculinity and target gender significantly predicted all three outcome variables: emotional appropriateness, $t(1,245) = 2.79$, $p = 0.006$, emotional strength, $t(1,242) = 3.71$, $p < 0.001$, and workplace status, $t(1,245) = 2.94$, $p = 0.004$. For emotional appropriateness and workplace status, the nature of this interaction was such that the indirect effect of occupation through perceived masculinity was significant only for participants rating male targets, and not those rating female targets. For male targets, those perceived to be more masculine were also rated higher on emotional appropriateness and workplace competence, whereas masculinity did not

significantly predict emotional appropriateness or workplace status for female targets. Specifically, for ratings of male targets, the 95% confidence interval for emotional appropriateness (CI = 0.07,0.41) and workplace status (CI = 0.10,0.56) did not include zero, whereas for ratings female targets, the 95% confidence interval for emotional appropriateness (CI = −0.12,0.13) and workplace status (CI = −0.02,0.24) did contain zero.

For emotional strength, the interaction revealed that masculinity was a significant mediator of the relationship between occupation and emotional strength when participants rated both male (CI = 0.15,0.67) and female targets (CI = 0.01,0.27), such that both male and female targets were rated as more emotionally strong when they were seen as more masculine. However, this indirect effect was stronger when participants rated male targets than when they rated female targets.

The direct effect of occupation was no longer significant once the interaction between masculinity and target gender was accounted for in all three models: emotional appropriateness, $t(1,245) = 1.46$, $p = 0.144$, workplace status, $t(1,245) = 1.85$, $p = 0.066$, and emotional strength, $t(1,242) = 0.65$, $p = 0.518$. Thus, masculinity fully mediated the effects of occupation on all three variables.

Femininity

Results of analyses of Hypothesis 3b using femininity as a mediator indicated that moderated mediation effects were significant only for emotional appropriateness (CI = 0.02,0.43). The pathway from occupation to perceived femininity was significant, $F(1,248) = 7.23$, $p = 0.008$, such that nurses ($M = 4.49$, $SD = 1.68$) were rated as significantly more feminine than firefighters ($M = 3.91$, $SD = 1.73$). An interaction between femininity and target gender then significantly predicted emotional appropriateness, $t(1,245) = −2.88$, $p = 0.005$, such that the indirect effect through perceived femininity was significant only for participants rating male targets (CI = 0.01,0.26) and not those rating female targets (CI = −0.23,0.03). That is, to the extent that male targets were perceived as feminine, they were also rated as less emotionally appropriate, whereas the relationship between femininity and emotional appropriateness was non-significant when participants rated female targets. The direct effect of occupation was still significant after the interaction between femininity and target gender was accounted for in the model, $t(1,245) = 2.30$, $p = 0.023$, indicating that femininity was a partial mediator of the relationship between occupation and emotional appropriateness.

For workplace status, although the index of moderated mediation was not significant (CI = −0.05,0.31), indicating that the indirect effect of occupation through perceived femininity was not significantly different for female and male vignette targets, analyses nevertheless revealed that the moderated mediation model was significant for male targets (CI = 0.03,0.33), but not female targets (CI = −0.07,0.20). Similar to emotional appropriateness, this meant that to the extent crying male targets, but not female targets, were seen as feminine, they were also seen as having less status in their jobs. The effect of occupation

remained significant after femininity was included in the model, $t(1,245) = 2.54$, $p = 0.012$, indicating a partial mediation effect.

Analyses for emotional strength revealed that perceived femininity functioned as a significant mediator for participants rating both male (CI = 0.03,0.32) and female targets (CI = 0.02,0.31); therefore I ran a simple mediation analysis using Process model 4. This analysis revealed a significant indirect effect of occupation on emotional strength through perceived femininity (CI = 0.01,0.17). Occupation significantly predicted femininity, $F(1,245) = −2.55$, $p = 0.011$, femininity significantly predicted emotional strength, $t(1,2245) = −3.42$, $p = 0.001$, such that targets rated as more feminine were also rated as less emotionally strong, and occupation was no longer a significant predictor of emotional strength once femininity was included in the model, $t(1,245) = 1.96$, $p = 0.051$. Thus, perceived femininity fully mediated the effect of occupation on emotional strength for both male and female targets.

Mediation results are depicted in **Figures 1**, **2** (broken down by mediator), as well as **Figures 3**, **4** (broken down by target gender).

Discussion

Results of Study 1 showed that while there were no differences in how participants viewed women's crying as compared to men's crying overall, crying firefighters were perceived as more emotionally appropriate, more emotionally strong, and as having higher workplace status than crying nurses. However, exploratory analyses indicated that these results were primarily driven by participants' ratings of male targets: male firefighters were seen as more emotionally appropriate, emotionally strong, and as having higher workplace status than male nurses, while there were no significant differences by occupation for female targets. Mediation analyses showed that the effect of occupation on the dependent variables was fully explained by how masculine participants perceived the crier to be. Crying firefighters were perceived to be more masculine than crying nurses; masculinity in turn predicted how emotionally appropriate (male targets only), emotionally strong (male targets to a greater degree than female targets), and high in workplace status (male targets only) the vignette targets were perceived to be. Perceptions

FIGURE 3 | Mediation model for male targets (Study 1). ‡Indicates that femininity was a partial mediator of the relationship between occupation and emotional appropriateness and between occupation and workplace status.

FIGURE 4 | Mediation model for female targets (Study 1).
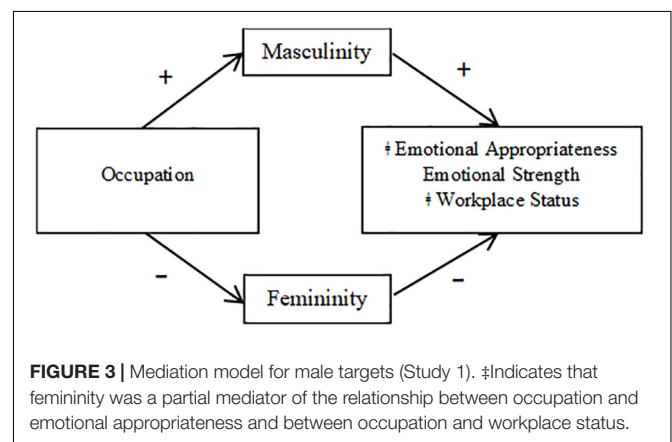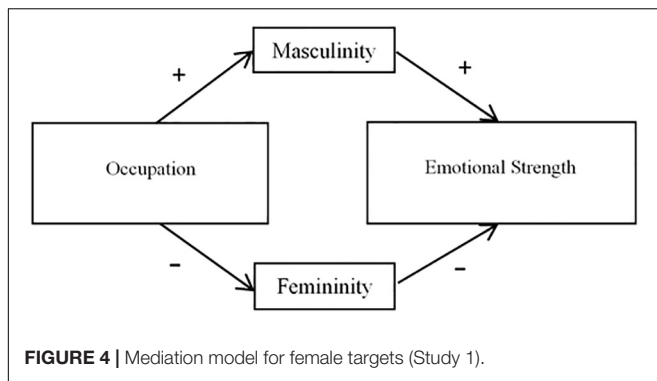
of the target's femininity also partially explained the results in the opposite direction: crying firefighters were perceived as less feminine than nurses, and therefore were seen as more emotionally appropriate (male targets only), more emotionally strong, and as having higher status at work (male targets only).

Overall, these results support my initial hypothesis that observers would view men's crying more favorably when that crying occurred in a stereotypically masculine rather than stereotypically feminine context: to the extent that a man is perceived as more masculine and less feminine due to his occupational role, perceivers will also rate his tears as more appropriate and acceptable. Such results align with previous theoretical and empirical work suggesting that masculinity (to a greater degree than femininity) is structured hierarchically, with dominant forms being granted more freedom and access to power than more subordinate types (Connell, 1995; Connell and Messerschmidt, 2005; de Boise, 2015).

The results are also consistent with research on the backlash effects associated with stereotype violation. Although most studies investigating stereotype violation have focused on the consequences for women, research on backlash in men has shown that men are penalized for displaying modesty in the workplace (Moss-Racusin et al., 2010), achieving success in feminine domains (Heilman and Wallen, 2010), and requesting family leave (Rudman and Mescher, 2013), to name a few examples. It is unclear, however, whether the present Study's findings pertaining to female firefighters and nurses are consistent with this literature. That is, although female firefighters are also role violators, they do not appear to have been penalized for this in the present research. In fact, examination of means shows that female firefighters were generally viewed slightly more favorably (although not significantly so) than female nurses, and mediation analyses showed that crying women were judged as emotionally strong to the extent that they were seen as more masculine and less feminine. Perhaps this was because their tears (which are stereotype-consistent) overrode their occupational role in the eyes of participants. Regardless, findings indicate that emotional expression may be judged according to masculine standards to some degree for both men and women, and indicate that more research is needed to understand when immediate behavior (e.g., emotional expression) becomes more important than social roles in observers' perceptions, as well as to understand the conditions in which women will be judged positively or negatively for violating gender stereotypes.

Given that no differences were found in participants' evaluations of men's and women's crying in the present study, the results also align with previous research showing that men's and women's tears are evaluated similarly (e.g., Hendriks et al., 2008; Brooks, 2011; Zawadzki et al., 2013). Although the present study cannot explain why conflicting results have been found previously in the literature comparing perceptions of women and men's tears, research by Fischer et al. (2013) suggests that context may play a role. In their study, crying men were seen as less competent than crying women when the crying occurred in the workplace, but there were no differences when the crying occurred in a relationship scenario. Therefore, it may be that relative to women's crying, men's crying is seen similarly or more positively when it occurs in a context that is generally deemed appropriate for tears (e.g., highly emotional workplace situations like tending to a seriously injured child; highly emotional personal and relationship situations), while men's crying is downgraded relative to women's when it occurs in contexts that are seen as less appropriate for tears (e.g., more everyday workplace events). Future research should investigate this possibility with further empirical comparisons of women's and men's crying in different settings.

Although the results of Study 1 provide initial evidence to suggest that men's crying may be judged most favorably when performed in contexts and by individuals who are perceived as highly masculine, I wanted to test whether these findings would hold true when using a different vignette setting and reason for crying, and when using a non-university participant sample. Given the research cited earlier (e.g., Fox, 2004; Wong et al., 2011) suggesting that men may be particularly likely to cry in athletic contexts, I decided to use competitive sports as the setting for Study 2. To determine whether the findings of Study 1 would hold across crying scenarios, targets in Study 2 were described as crying for a self-interested reason (losing a sports competition) rather than a selfless reason (an injured child). Furthermore, to ensure that Study 1 results were not influenced by the names chosen for the vignette targets, I manipulated gender using different male and female names in Study 2.

Since results of Study 1 revealed that crying men in particular are judged for their emotional displays according to how masculine and feminine they are perceived to be, in Study 2, I wanted to extend these findings by examining whether male participants would indicate being less likely to cry in a stereotypically feminine rather than stereotypically masculine context. That is, if men in particular are likely to be judged more negatively for crying in a stereotypically feminine context, might they be inclined to keep their crying to themselves in such a setting (e.g., one that might make them appear feminine)?

STUDY 2

In Study 2, I investigated how observers perceive women's and men's crying in a competitive sports context. I hypothesized that, as in Study 1, crying athletes would be rated more favorably

in a stereotypically masculine sport (weightlifting) than in a stereotypically feminine sport (figure skating), and that these effects would be mediated by the perceived masculinity and femininity of the crying vignette target. I also hypothesized that male participants would report less likelihood of crying themselves in a figure skating versus weightlifting context, whereas the type of sport would not matter in female participants' assessments of their likelihood of crying.

Method

Participants and Design

To test my hypotheses about observers' perceptions of crying in a sports context, I conducted a 2 [sport: masculine (weightlifting)/feminine (figure skating)] × 2 (target gender: female/male) × 2 (participant gender: female/male) between-subjects experiment. The project was IRB approved, and United States American English-speaking participants (N = 194) were recruited from Amazon's Mechanical Turk. Participants were paid $0.30 for completing the survey, which took approximately 5 min. Two participants were excluded for failing an attention check that asked them to select a particular response (e.g., "for this question, please select 7"). The final sample consisted of 192 participants (52% female, 47% male). Sample size for Study 2, which was conducted when the author was a graduate student, was based on available funding for the research. A sensitivity analysis using G*Power 3 (Faul et al., 2007), with power set at 0.80 and alpha set at 0.05, revealed that a sample of 192 would be sensitive enough to detect partial eta squared effect sizes equal to or greater than 0.04 (i.e., in the small effect size range). Although two of the observed effect sizes in Study 1 were smaller than this threshold, research indicates that men typically *overestimate* the extent to which others expect masculine behavior from them (Vandello et al., 2008, 2009). Therefore, a sample size of 192 was considered adequate to test the effect of my main hypothesis around men's likelihood of refraining from feminine-stereotyped behavior in different contexts.

Female and male participants were relatively evenly split across the four vignette conditions: female figure skater (55% female, 45% male), male figure skater (45% female, 53% male), female weightlifter (58% female, 42% male), and male weightlifter (50% female, 50% male). One participant in the male figure skater condition did not indicate a gender; their data was included when analyzing participant perceptions of the vignette targets, but left out of analyses that examined the effect of participant gender on one's own imagined reactions to the vignette scenario. The mean age of the sample was 37.61, and most participants identified as White (74%), followed by Black or African American (9.9%), Asian (7.3%), Latino/a (5.7%), Native American or Alaska Native (1.6%), and mixed race (1.6%).

Procedure

Participants recruited to take part in the study were directed to an online Qualtrics survey. After providing informed consent and being told that they were participating in a study about perceptions of athletes participating in various competition scenarios, they read one of four randomly assigned vignettes describing a male (Jonathan) or female (Jennifer) athlete crying

over a loss in either a stereotypically masculine (weightlifting) or stereotypically feminine (figure skating) sport (see **Appendix A** for full vignette wording). In addition to both being individual sports, pretesting (N = 43) indicated that while weightlifting was perceived as significantly more masculine than figure skating, $t(82) = 15.56$, $p < 0.001$, there was no significant difference in how valued the two were perceived to be in American society, $t(82) = 0.18$, $p = 0.858$. Thus, these two sports provided ideal contexts in which to assess perceptions of athletes' crying. After reading the vignette, participants responded to the dependent measures, provided some brief demographic information, and were debriefed.

Measures

Measures for Study 2 included the same scales of emotional appropriateness (α = 0.87) and emotional strength (α = 0.89) as used in Study 1. Given that the setting of Study 2 was sports rather than the workplace, and that more objective information about status was given to participants about targets in Study 2 (e.g., that they were high-level athletes competing in a national championship), workplace status was not included as a measure in Study 2. Similarly, given that no significant effects were found for warmth and communalism in Study 1, they were not included as dependent variables in Study 2. To test hypotheses about how likely participants would be to cry themselves in sports-related scenarios, a measure of emotional conformity was also included, as described below.

Emotional conformity

The emotional conformity measure assessed how likely participants would be to express emotion as the target did if they found themselves in a similar situation (e.g., "If I were in Jonathan's situation, I would be likely to express emotion the way he did"). To measure this construct, I used 4 items from the emotional conformity subscale of Wong et al.'s (2011) EEBQ. Items were measured on a 7-point Likert scale ranging from "Strongly disagree" to "Strongly agree." Items were summed and averaged to create a single emotional conformity variable (α = 0.90), in which higher scores represented greater emotional conformity, or likelihood of crying.

Results

Means and standard deviations for each of the main dependent variables, separated by sport condition, are presented in **Table 3**, and correlations among the dependent variables are presented in **Table 4**. Full data for Study 2 are available as a supplement (see **Supplementary Table S2**). To evaluate my hypotheses,

TABLE 3 | Study 2 means and standard deviations separated by sport.

	Mean (SD)		
	Overall (N = 192)	Weightlifting (n = 98)	Figure skating (n = 94)
Emotional Appropriateness	5.67	5.63 (1.09)	5.71 (1.15)
Emotional Conformity	4.56	4.90 (1.33)	4.20 (1.79)
Emotional Strength	4.67	4.91 (1.21)	4.43 (1.29)

	Correlations			
	1	**2**	**3**	**4**
(1) Emotional Appropriateness	–			
(2) Emotional Conformity	0.57**	–		
(3) Emotional Strength	0.49**	0.48**	–	

**p < 0.01.*

I conducted a three-way ANOVA on each of the dependent variables, using sport, target gender, and participant gender as between-subjects factors.

Effect of Sport

As in Study 1, I expected crying weightlifters to be rated more positively across the DVs than crying figure skaters. Replicating Study 1, ANOVA results showed that crying weightlifters were rated by participants as more emotionally strong, $F_{(1,183)} = 6.45$, $p = 0.012$, $\eta_p^2 = 0.034$, than figure skaters, and also reported being more likely to express their own emotions like weightlifters rather than figure skaters (emotional conformity), $F_{(1,183)} = 10.25$, $p = 0.002$, $\eta_p^2 = 0.053$. There was no significant main effect of sport on emotional appropriateness, $F_{(1,183)} = 0.318$, $p = 0.573$, $\eta_p^2 = 0.002$.

Sport by Target Gender

As in Study 1, no significant interactions emerged between sport and target gender on any of the DVs, all p's < 0.05. Although the interaction between target gender and occupation was not significant, I once again conducted exploratory *post hoc* analyses to determine whether differences in judgments of weightlifters and figure skaters held true for both male and female targets. Results indicated that participants reported being more likely to express their emotions like weightlifters than like figure skaters when they read about both a male, $F_{(1,183)} = 4.30$, $p = 0.040$, and a female vignette target, $F_{(1,183)} = 6.03$, $p = 0.015$. When the effect of sport on emotional strength was broken down by target gender, results became non-significant for both male, $F_{(1,183)} = 3.73$, $p = 0.055$, $\eta_p^2 = 0.02$, and female, $F_{(1,183)} = 2.75$, $p = 0.099$, $\eta_p^2 = 0.015$, targets. Thus, results indicated that the marginal finding for male targets was likely driving the main effect of occupation observed for emotional strength.

Sport by Participant Gender

As discussed in the introduction to Study 2, I predicted a sport by participant gender interaction on emotional conformity, such that male participants would report being more likely to express their emotion as the target did when they viewed a weightlifting rather than a figure skating vignette. In contrast, I predicted that there would be no difference in female participants' ratings of emotional conformity based on sport condition. Consistent with these predictions, ANOVA results showed a significant interaction between sport and participant gender, $F_{(1,183)} = 4.82$, $p = 0.029$, $\eta_p^2 = 0.026$. Pairwise comparisons showed that while there was no difference for female participants in how likely they would be to cry in

weightlifting versus figure skating, $F_{(1,183)} = 0.528$, $p = 0.468$, $\eta_p^2 = 0.003$, male participants were significantly more likely to say they would cry in weightlifting than in figure skating, $F_{(1,183)} = 13.957$, $p < 0.001$, $\eta_p^2 = 0.071$. Similarly, while there was no difference in how likely male and female participants were to say they would cry in weightlifting, $F_{(1,183)} = 1.81$, $p = 0.181$, $\eta_p^2 = 0.010$, female participants were significantly more likely than male participants to say they would cry in figure skating, $F_{(1,183)} = 19.18$, $p < 0.001$, $\eta_p^2 = 0.095$. A graph of this interaction is depicted in **Figure 5**. No significant interaction between sport and participant gender emerged for emotional appropriateness, $F_{(1,183)} = 1.81$, $p = 0.181$, $\eta_p^2 = 0.010$, or emotional strength, $F_{(1,183)} = 1.81$, $p = 0.181$, $\eta_p^2 = 0.010$.

Mediation

As in Study 1, I predicted that perceptions of the target's masculinity and femininity would mediate the relationship between sport and the dependent variables, especially when participants rated male targets. Using PROCESS (Hayes, 2012) model 14 with 5000 bootstrap samples, I entered sport (figure skating = 0, weightlifting = 1) as the predictor variable, perceived masculinity and femininity (in turn) as mediators, and emotional strength and emotional conformity (in turn) as the outcome variables.

Masculinity

Results of analyses using masculinity as a mediator revealed that indices of moderated mediation were significant for both emotional strength (CI = 0.45, 1.19) and emotional conformity (CI = 0.19, 1.08). The pathway from sport to perceived masculinity was significant, $F_{(1,190)} = 44.85$, $p < 0.001$, such that weightlifters were perceived to be more masculine than figure skaters, and an interaction between masculinity and target gender significantly predicted emotional strength, $t_{(1,187)} = -5.37$, $p < 0.001$, and emotional conformity, $t_{(1,187)} = -3.06$, $p = 0.003$. The nature of both interactions was such that the indirect effect through perceived masculinity was significant only for participants rating male targets, and not those rating female targets. To the extent that male targets were rated as masculine, they were also rated higher on emotional strength and emotional conformity, whereas masculinity was
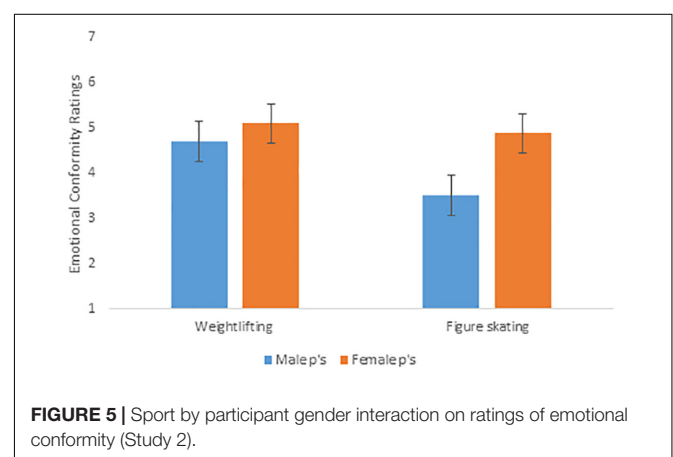
FIGURE 5 | Sport by participant gender interaction on ratings of emotional conformity (Study 2).

not a significant predictor of emotional strength or emotional conformity for female targets. Specifically, for ratings of male targets, the 95% confidence interval for emotional strength (CI = 0.50,0.82) and emotional conformity (CI = 0.35,0.80) did not include zero, whereas for ratings of female targets, the 95% confidence interval for emotional strength (CI = −0.06,0.25) and emotional conformity (CI = −0.07,0.34) did contain zero. The direct effects of occupation were no longer significant once the interaction between target gender and the target's perceived masculinity was accounted for in the models for emotional strength, $t(1,190) = 0.10$, $p = 0.923$, and emotional conformity, $t(1,190) = 0.94$, $p = 0.348$, indicating that the target's perceived masculinity fully mediated the effects of occupation on both variables.

Femininity

Results using femininity as a mediator indicated that the index of moderated mediation was significant for both emotional strength (CI = 0.33,1.09) and emotional conformity (CI = 0.01,0.82). The pathway from sport to perceived femininity was significant, $F(1,189) = 22.13$, $p < 0.001$, such that figure skaters were perceived to be significantly more feminine than weightlifters, and an interaction between femininity and target gender significantly predicted emotional strength, $t(1,186) = 5.06$, $p < 0.001$, and emotional conformity, $t(1,186) = 2.19$, $p = 0.03$. The nature of this interaction was such that the indirect effect through perceived femininity was significant only for participants rating male targets, and not those rating female targets. Specifically, male targets who were seen as more feminine were also rated lower on emotional strength and emotional conformity, whereas femininity did not significantly predict emotional strength or emotional conformity for female targets. For male targets, the 95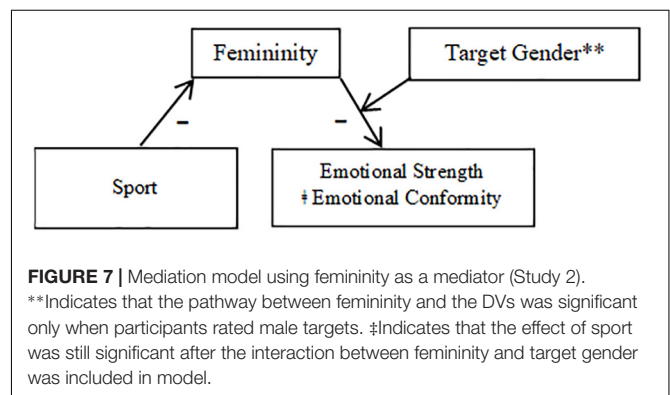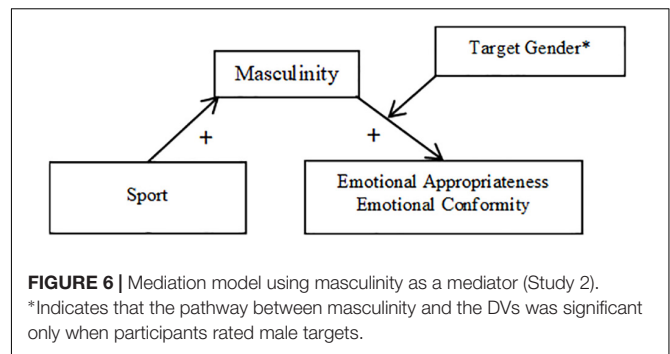% confidence interval for emotional strength (CI = −0.65,−0.32) and emotional conformity (CI = −0.61,−0.18) did not include zero, whereas for female targets, the 95% confidence interval for emotional strength (CI = −0.07,0.32) and emotional conformity (CI = −0.30,0.22) did contain zero. For emotional strength, the direct effect of occupation was no longer significant once the interaction between target gender and the target's perceived femininity was accounted for in the model, $t(1,189) = −1.89$, $p = 0.060$, indicating that the target's perceived femininity fully mediated the effects of occupation on emotional strength. The direct effect for emotional conformity, however, was still significant after the interaction was included in the model, $t(1,186) = −2.09$, $p = 0.038$, indicating that femininity was a partial mediator of the relationship between sport and emotional conformity.

Overall, mediation analyses using both masculinity and femininity as mediators were significant only for male and not for female targets; therefore, models are presented in **Figures 6, 7**, separated only by mediator (masculinity and femininity).

Discussion

In Study 2, I replicated the finding from Study 1 that targets crying in stereotypically masculine settings are generally viewed more positively than those crying in stereotypically feminine

FIGURE 6 | Mediation model using masculinity as a mediator (Study 2). *Indicates that the pathway between masculinity and the DVs was significant only when participants rated male targets.

FIGURE 7 | Mediation model using femininity as a mediator (Study 2). **Indicates that the pathway between femininity and the DVs was significant only when participants rated male targets. ‡Indicates that the effect of sport was still significant after the interaction between femininity and target gender was included in model.

settings. As in Study 1, exploratory analyses showed that these effects were largely driven by participants' ratings of male criers. Although participants indicated greater likelihood of crying themselves (emotional conformity) when they read about a female target crying in a weightlifting rather than figure skating context, because participants were asked to imagine how they *themselves* would behave in the competition scenario, their own gender may explain this finding more than the gender of the vignette target. This interpretation is supported by the interaction that was found between sport and participant gender on emotional conformity: male participants but not female participants indicated being less likely to cry in a figure skating rather than weightlifting context, regardless of whether the vignette target they read about was a male or female athlete. Also similar to Study 1, all effects in Study 2 were mediated by perceptions of the target's masculinity and femininity: crying male athletes in particular were viewed positively to the extent that they were also perceived as more masculine and less feminine. Thus, Study 2 findings provide further evidence that people judge men's crying according to how masculine and feminine they perceive those men to be, and extend the results of Study 1 by showing that men themselves report being more inclined to cry in a context that is perceived as masculine. Indeed, findings for emotional conformity suggest that men may be (consciously or unconsciously) aware of observers' tendency to rate their emotional displays according to beliefs about gender, and regulate their own displays (or reports of their imagined displays) accordingly, in this case

by indicating less likelihood of crying in a stereotypically feminine context.

One difference between the results of Study 1 and Study 2 involved the fact that, in Study 1, a main effect of occupation was observed on emotional appropriateness, such that the crying of firefighters was rated as significantly more emotionally appropriate than the crying of nurses. In Study 2, however, no significant main effect of the context was found for this DV. Since vignettes in both studies depicted scenarios in which there seemed to be a valid reason for the protagonist's tears (an injured child; loss of a national competition), it is not clear why this finding did not replicate in Study 2. One possibility is that a larger sample size was needed to capture differences in perceived appropriateness; therefore, future research using a larger sample should follow up on these conflicting findings to determine when judgments of emotional appropriateness might be affected (or not) by the context in which crying occurs.

Overall, findings of Study 2 are consistent with research cited previously showing that male athletes in stereotypically masculine sports seem to have increased freedom to display emotions that might be seen as "unmasculine" in other settings (Wong et al., 2011; MacArthur and Shields, 2015). No research to my knowledge has investigated expressions of emotion, or attitudes toward it, in sports considered less stereotypically masculine (e.g., swimming, figure skating, badminton). Thus, one interesting direction for future research would be to examine actual displays of emotion by both women and men in different sports. Given that beliefs about gender impact not only our judgments about the emotional expression of others, but also beliefs about our own expression, such a study would reveal whether such beliefs extend their influence to observable emotional behavior.

GENERAL DISCUSSION

Across two studies using different samples, vignette contexts, and reasons for crying, the present research showed that criers (particularly men) are seen more positively in stereotypically masculine contexts than in stereotypically feminine contexts, and that for male targets (and to a lesser extent, female targets), this effect is largely due to the fact that they are perceived as being more masculine and less feminine than those who cry in stereotypically feminine contexts. In addition, Study 2 revealed that men may be aware of the advantages of crying in a stereotypially masculine setting, in reporting that they would be more likely to cry in a stereotypically masculine versus feminine setting; no difference emerged for female targets. Overall, the results shed light on why men's crying may be particularly prominent in settings that are perceived to be highly masculine, such as men's competitive sports (MacArthur and Shields, 2015). Results also highlight that beliefs about emotion are fundamentally tied to beliefs about gender, both in our perceptions of others' displays of emotion and in judgments about our own.

Taken together, the set of studies described here add to a growing body of feminist research (e.g.,

Warner and Shields, 2007; Wong et al., 2011; Zawadzki et al., 2013) that challenges predominant stereotypes about men's emotional behavior. Indeed, the present research shows that popular ideas about men's emotional inexpressiveness are misguided in both a descriptive and prescriptive sense: men do cry and can be perceived positively for it. For example, Study 2 revealed that in a weightlifting context, female and male participants were equally likely to report that they would cry after losing an important competition; only in figure skating did gender differences in crying likelihood emerge. And across both studies, mean appropriateness ratings for both women's and men's crying were all well above scale mid-points. Such results highlight that men's emotional expression, and observers' responses to it, are certainly more complex than popular stereotypes would suggest.

However, at the same time that the results challenge predominant stereotypes about men's crying, the findings also highlight the continued importance of dominant frameworks of masculinity in people's judgments of emotion, and in men's reports of how likely they would be to visibly express sadness in particular contexts. That is, the results of Studies 1 and 2 suggest that while it is seen as okay for men to cry in certain (stereotypically masculine) contexts, they must also be careful to display their tears in what is perceived to be a non-feminine way. For example, Study 1 showed that participants rated crying men as more emotionally appropriate, more emotionally strong, and as having more status in the workplace to the extent that they also perceived those men as masculine. The message that men must "do" tears correctly does not seem to be lost on men themselves, as reflected in the finding from Study 2 that male participants report greater likelihood of crying themselves in weightlifting as compared to figure skating. Overall, then, the results highlight a continued and troubling social hierarchy in which femininity in men is devalued, and in which men who are most closely associated with femininity face social penalties not experienced by men perceived to be more stereotypically masculine.

Given that the results of my studies highlight both, (1) a greater tolerance for men's stereotypically feminine expressions of emotion than popular stereotypes would suggest, and (2) the continued importance for men of expressing this emotion in a "non-feminine" way, it is clear that more complex and nuanced constructions of men's emotionality are needed. Such accounts should recognize that men are emotional and expressive beings, while simultaneously acknowledging men's negotiation of emotional norms within a culture that devalues feminine emotionality.

Limitations and Directions for Future Research

Although the studies presented here provide an initial test of the idea that men's crying (and to a lesser extent, women's) may be viewed most favorably in stereotypically masculine contexts, there remain many important questions to be addressed around this issue. For example, although crying can occur as the result of many different emotions, including sadness, joy, fear, anger,

and being "moved" (Vingerhoets, 2013; Zickfeld et al., 2018), the present studies addressed participants' responses only to sad crying scenarios. Given that most research on tears and crying has focused on perceptions of sad tears, little is known about how tears brought about by other emotions are perceived by observers (see MacArthur and Shields, in press). Therefore, future research should investigate whether similar results would be found if vignette targets were displaying tears of anger, joy, or other tear-eliciting emotions.

Similarly, the present research examined perceptions of crying in scenarios only in relatively serious situations where crying was likely to be seen as warranted (losing an important competition, helping a seriously injured child); therefore, it is also important for future research to investigate whether similar results would be found if the crying scenarios were perceived to be more trivial (e.g,. losing in a non-elimination round of a sports competition).

Another limitation of the present research is that participants' perceptions of tears in stereotypically masculine settings were compared only to tears in stereotypically feminine settings, and not to a control condition in which the target did not cry. Therefore, the current studies do not tell us whether men in stereotypically masculine contexts are perceived *more* positively when they cry in emotional situations than had they not cried at all, or whether crying in stereotypically feminine settings results in men being downgraded for their tears relative to a situation in which they did not cry (or whether both may be true). Furthermore, although mediation analyses indicated that perceptions of the target's masculinity were responsible for the results of both studies, these analyses do not rule out the possibility that other factors that vary systematically with masculinity (e.g., degree of physicality) could (at least partially) account for the findings. Therefore, continuing to manipulate masculinity in different ways, as well as determining whether tears have a boosting or buffering effect in stereotypically masculine and stereotypically feminine settings, will be important areas for future research.

Finally, it must be acknowledged that the present research was conducted primarily with White, English-speaking American participants, and using target names that were likely perceived by participants as white. Therefore, it is not known whether results would apply in other racial or cultural contexts. The emotion stereotypes applied to men and women of color are grossly under-researched, but existing work on the "angry black woman" stereotype suggests that tears and crying may be viewed as less typical of women in other racial groups than of white women. For this reason, a critical next step in this research will be to determine existing intersectional stereotypes around tears and crying, as well as how these might inform the results of the present study and crying research in general.

CONCLUSION

The present research investigated observers' perceptions of crying in stereotypically masculine and feminine contexts, and found

that men's (and to a lesser extent, women's) crying was perceived most favorably in stereotypically masculine contexts, and when coming from individuals perceived to be masculine. Results also showed that men themselves indicated being less likely to cry in a stereotypically feminine versus masculine setting, and that findings that were mediated by perceptions of the vignette target's masculinity and femininity. Such results align with previous work on masculinity (e.g., Thompson and Pleck, 1986; Connell, 1995), which has suggested that a key way for men to enact masculinity is to avoid behaviors that might be interpreted as feminine. Thus, while the results highlight that stereotypes about men's relative lack of emotionality are inadequate to capture the reality of men's tears and crying (and others' responses to it), they also indicate that cultural expectations for masculinity continue to require men to express emotion in ways that clearly demarcate them from women and femininity. Overall, more nuanced understandings of men's emotion are needed to account for the complexity of men's emotional lives.

DATA AVAILABILITY STATEMENT

The datasets generated for these studies can be found in the **Supplementary Material** associated with this report.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by The Pennsylvania State University Institutional Review Board. Written informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements.

AUTHOR CONTRIBUTIONS

HM was responsible for the design and conception of the project, the implementation of data collection, the statistical analyses, and the drafting and revision of the manuscript.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2019. 02765/full#supplementary-material

TABLE S1 | Full data set for Study 1. For the variable JobIV, 0 = nursing and 1 = firefighting. For the variable GenderIV, 0 = female target and 1 = male target.

TABLE S2 | Full data set for Study 2. For the variable Sport, 0 = figure skating and 1 = weightlifting. For the variable TargetGender, 0 = female target and 1 = male target.

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APPENDIX A: VIGNETTES

Nurse Vignette

Jessica works as a nurse in the emergency room of a major city in the U.S. One day when Jessica is on duty, she is told that there's been a car accident on a road near the hospital, and that a family involved in the accident has arrived at the ER. Jessica meets the ambulance and is the first to attend to a child who is badly injured. Jessica works hard to stabilize the child, who is still breathing and has a heartbeat when she hands him off to the surgical team at the hospital. As she walks back to her nursing station, Jessica feels sad and begins to tear up. Visibly crying, she tells the other nurses, "He's just a kid."

Firefighter Vignette

Jessica works in the fire department of a major city in the U.S. One day when Jessica's team is on duty, a call comes through the radio that there's been a car accident on a road near the fire station. Jessica's team is first on the scene, and Jessica sees that a child in the back seat of one of the cars involved in the accident is badly injured. Jessica works hard to stabilize the child, who is still breathing and has a heartbeat when she hands him off to the paramedics who have arrived on the scene. As she walks back to the fire truck, Jessica feels sad and begins to tear up. Visibly crying, she tells the other firefighters, "He's just a kid."

Sports Vignette

Jennifer/Jonathan is competing in a national __figure skating/weightlifting__ championship. No one from her/his state has won the competition in over 5 years, and she/he is competing against several of her/his biggest rivals for the title. Throughout the competition, Jennifer/Jonathan performs several successful __routines/lifts__, and feels good about her/his performance as she/he leaves the __ice/floor__ following her final __skate/lift__. Unfortunately, several other __skaters/weightlifters__ score higher than Jennifer/Jonathan in the last round, and when the final results are announced to the crowded arena, she/he does not place in the top three. As she/he reflects on the significance of the championship, Jennifer/Jonathan begins to shed tears. As she/he cries, she/he says, "I really wanted to win."

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Beliefs About Children's Emotions in Chile

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To learn more about Chilean emotional beliefs related to emotion development, 271 Mapuche and non-Mapuche parents and teachers in urban and rural settings reported their emotion beliefs using a questionnaire invariant in the Chilean context (Riquelme et al., in press). Included are six beliefs previously found to resonate across three United States cultures (i.e., beliefs about the value and cost of certain emotions; control of emotion; knowledge of children's emotion; manipulation of emotion; and emotional autonomy), and five others distinctive to the indigenous people of this region (i.e., value of being calm; controlling fear specifically; interpersonality of emotion; learning about emotion from adults; and regulation through nature). MANOVAs were conducted to examine these beliefs across culture (Mapuche, non-Mapuche), role (parent, teacher), and geographical location (rural, urban). For United States-derived beliefs, there were no main effects, although two interactions with culture by role and location were significant. For all five Mapuche-generated beliefs, there were significant main effects for culture, role, and location. Results highlight both similarities and differences in beliefs across cultures, roles, and geographical location. Implications for the Chilean context include the importance of non-Mapuche teachers' sensitivity to the values and emotion-related beliefs of Mapuche families. Implications for the global context include an expanded view of emotion-related beliefs, including beliefs that children can control fear and be calm, that emotion-related values include attending to the needs of others, and that two ways of controlling emotion are through learning by listening to/watching elders, and by being in nature.

Keywords: emotion beliefs, Mapuche, Chile, teacher beliefs, parent, emotion regulation, nature, fear

INTRODUCTION

Beliefs about emotions are thought to be important in influencing individuals' own behaviors and how they respond to others (Gottman et al., 1996; Halberstadt et al., 2013; Tamir and Bigman, 2018; Ford and Gross, 2019). By beliefs we rely on Goodenough (1963) and McGillicuddy-De Lisi and Sigel (1995) who describe beliefs as propositional statements about the world assumed to be valid or true. As with other beliefs, beliefs about emotions serve as guides for decision-making and evaluating behaviors of self and others, and are sometimes so strongly accepted as fact that their true nature as personal belief is not noted (McGillicuddy-De Lisi and Sigel, 1995; Richardson, 1996). A number of emotion beliefs have been identified, including whether emotions are of value, adults should guide emotions or give autonomy to children to figure out their own emotional lives, emotions are authentic or manipulative, emotional behavior is contagious or residue, children can control their

emotions, and emotions are (are not) interrelated with learning (Hyson and Lee, 1996; Dunsmore et al., 2009; Parker et al., 2012; Swartz and McElwain, 2012; Halberstadt et al., 2013; Bächler and Pozo, 2016; Di Giunta et al., 2017; Hart and DiPerna, 2017; Hagan et al., 2020).

The origin of emotion beliefs is most likely situated in the cultural context (Mesquita and Frijda, 1992; Cole and Tan, 2007; Mesquita and Albert, 2007; Dunsmore and Halberstadt, 2009; Harkness et al., 2011), and as evidence, emotion beliefs often vary by culture. Importantly, they almost always reflect and maintain the existing values, norms, and customs of that community of people (Harkness and Super, 1992; Friedlmeier et al., 2015; Tamir et al., 2016; Raval and Walker, 2019). Because beliefs often guide behaviors (Dennis and Halberstadt, 2012; Lozada et al., 2016; Hagan et al., 2020), the everyday beliefs that people hold can help us to understand more about similarities and differences in emotion socialization across cultures.

Differences can also occur for cultures co-existing within a region. For example, in Nepal, the Tamang participate in Tibetan Buddhism, with its relatively egalitarian orientation, emphasis on compassion, and willingness to share with others. When socializing children, they tend to ignore/minimize reasons for anger, and instead discuss and nurture children's experiences of shame. In this way, they promote their ideal of socially graceful, non-angry children. In contrast, the Brahman, with their hierarchically privileged position in the Hindu caste system, tend to nurture anger while ignoring shame in their socialization practices (Cole et al., 2006). Thus, for cultures that appear initially similar (i.e., values or location), some degree of difference can emerge, and these differences may influence children's outcomes.

Studying emotion beliefs across cultures not only informs us about other cultures but also gives us insight into our own cultural beliefs and values, as well as the opportunity to reflect on or change the beliefs and values we want to inculcate in our young. Recognizing the connections from particular beliefs to behavior, and then to outcome, allows adults to better consider how to socialize toward compassion or power in the young of their own cultures (Tamir et al., 2016).

Although emotion-related beliefs have been investigated in the United States, Europe, and Asia, the study of culture and emotion is still incipient in South America with its heterogenous cultures, and the meeting of various original and dominant occidental cultures. Our work answers the call to investigate more of the cultural possibilities in emotion-related values and experiences across the world (Raval and Walker, 2019), and to expand our understanding of the role of different adults and geographies in the development of emotion-related beliefs. We were particularly interested in exploring both similarities and differences across cultures, and we had the opportunity to include one of the oldest original cultures in the Americas, which is also a culture that has retained many of its customs and beliefs. For this study, we examined two cultures living side-by-side in Chile and their beliefs about children's emotions. Our goals in doing so were to explore similarities or differences in beliefs across the Americas, within cultures co-existing within a region, and by role (parent vs. teacher) and geography (rural vs. urban). We begin by

describing the Mapuche briefly and why the study of their beliefs is so compelling.

The Mapuche

The Mapuche are the original people living in Southern Chile and Argentina (Mapuche means "people of the land"). They have managed to live continuously in their region, having withstood attempted invasions by the Incas and holding off Spanish invaders for over 300 years. When the newly formed countries of Chile and Argentina joined forces, they were able to finally subdue the Mapuche. Relations between the Mapuche and the Chilean state since then have been characterized by a latent conflict marked by the struggle for recovery and protection of the territories known to the Mapuche as well as recognition in social and educational domains. Despite or perhaps because of these tensions, the Mapuche have been able to maintain a good portion of their customs and cultural beliefs, particularly in the rural areas, without becoming fully assimilated into mainstream Chilean society.

A deep respect for the environment as the good way to live ("*Küme Mongen*" in Mapuzungun; de la Cuadra, 2015) is part of a central belief in the oneness of all things. The Mapuche believe that they and nature are part of the same whole (Mariqueo and Calbucura, 2016). The strong sense of responsibility for nature is evident in the Mapuche fight to protect the land in various ways for over 400 years, including today, as the Mapuche continue to resist the subjugation of their culture and the land (Brady, 2018; Youkee, 2018).

The current emotion-related beliefs of the Mapuche likely emerge from their ancestral knowledge, culture, and history. In addition to the centrality of nature and its protection, or perhaps because of it, Mapuche history has been intricately intertwined with war for many centuries now. The feature of fearlessness may have enabled the Mapuche to withstand both Inca and Spanish encroachment over the centuries, or may have resulted from the absolute need to protect and defend the land (Oertwig et al., 2019). Additionally, the well-established vertical hierarchy of the Mapuche supports the passing down of traditional, emotional beliefs through the values of respect for and learning from elders, as is true for other societies that focus on power as an important socially relevant dimension (Matsumoto, 1996; Triandis and Gelfand, 1998; Hofstede, 2001). In these ways, Mapuche values are likely to vary from, and, indeed, may clash with the values expressed (implicit or explicitly) in non-Mapuche Chilean culture, which tends to be more based in occidental, Western-dominated values.

However, some Mapuche have succumbed to the devaluation and discrimination imposed by Chilean dominant culture (largely Spanish and German origin in this region) and the adoption of North American economic principles, and have chosen to assimilate into the wider culture. Inevitably, as the cultures have lived in some proximity over the centuries, beliefs have been shared and have intermingled. Thus, although we focus on differentiating Mapuche beliefs and non-Mapuche beliefs, partly in order to highlight the value of these oppressed people's beliefs, it is important to note that the two cultures may have moved toward each other in various beliefs over time.

Parent and Teacher Roles

Parents are important in guiding emotion-related values and beliefs in many cultures, and do so via multiple behavioral pathways (Dunsmore and Halberstadt, 1997; Eisenberg et al., 1998a,b). Empirical evidence is abundant. For example, parents who believe that emotions are dangerous or problematic are more likely to mask their emotional expressions so that their children do not assume that expressiveness is appropriate or imitate such expressions themselves (Halberstadt et al., 2008; Dunsmore et al., 2009), compared with parents who do not have this view of emotion. Additionally, parents seeking to cultivate the emotion of gratitude are more likely to place their children in social niches that support experiencing gratitude (Rothenberg et al., 2017).

Teachers are also powerful socializers and important to children who spend over 1000 h per year in school. The student-teacher relationship greatly impacts a student's school experience (Garner and Mahatmya, 2015) and is best fostered through the student's adherence to teacher expectations (Lane et al., 2004). Because the school context necessarily involves many children and few adults, teacher beliefs might vary from parents, for example, regarding children's ability to control their emotion, importance of controlling their emotion, and ways in which emotions might support or deter knowledge acquisition (Bächler and Pozo, 2016).

A lack of congruence between Mapuche parent and non-Mapuche teacher beliefs has also been thought to be responsible for some of the problematic outcomes for Mapuche children in school (Riquelme et al., 2016, 2017). First, more occidentally trained, western-centered teachers may privilege a curriculum that focuses on learning by reading and writing, and through children's active, emotional participation, whereas Mapuche culture emphasizes learning in and from the natural world, and values children quietly listening and observing adults as the appropriate way to learn forms of knowledge that cannot be directly experienced (Quilaqueo and Torres, 2013). Second, teachers learn and are certified within majority-culture training programs with a dominant set of expectations about behavior, which can create invisible disadvantages for minority children. Such beliefs about children's emotions may be implicit (i.e., fall into the hidden curriculum), with teachers expecting behaviors they have learned to identify in their programs, and problematizing behaviors that might only reflect minority values. For example, Mapuche children learn not to talk to adults but to listen to them, and also rural children rarely encounter strangers, with whom they would talk with even less. Thus, they often fail language assessments with strange testers. In this way, they are frequently but falsely diagnosed with emotional and behavioral disorders (Gutierrez Saldivia, 2018), suggesting that disproportionality may start in our beliefs and practices rather than in the children (Riquelme et al., 2017).

Geography

Geographic location affects how people relate to their environment, and indeed, influences their communities, cultures, and economies, as well as interpersonal relations with and across space and place (Davidson et al., 2005). Given the centrality of nature in Mapuche thinking, we thought that the geographical locations in which the Mapuche live may be particularly relevant for maintaining their emotion-related beliefs. The urban-rural location is an important distinction because where people live affects whether family members spend a lot of time outdoors or find themselves together in a small (or large) dwelling, and socialize with others who are strangers or known others. The type of terrain also influences how time is spent (e.g., collecting food from fields or in an money-based economy, with a grocery store nearby or far away, with few or many hazards to navigate though), types of work (e.g., agriculture versus trade, commerce, or service) and forms of recreation (e.g., playing in fields or woods versus reading a book, engaging in technology, or team sports). Geography has implications for family harmony, children's independence, responsibility, and proximity to nature, and all of these cultural patterns can, in turn, influence groups' emotional patterns (Harkness and Super, 1992; Herron and Skinner, 2012).

Although the effects of geography on emotion-related beliefs have not been well-explored, it is easy to imagine that a rural, agrarian lifestyle with small homes, well-spaced so as to support cultivating animals and crops, might be emotionally different than city life, with apartments close together, children having less independence or responsibility outside their homes, and more asphalt, cars, people, and traffic. We thought that rural Mapuche living in traditional, agrarian communities might have more connection to the land and their source of spirituality and wholeness, particularly for beliefs embedded in the particularities of a geographical location. In contrast, we thought that urban Mapuche living in cities, with exposure to the diverse beliefs of others, might have difficulty holding onto ancestral cultural beliefs as well as their connection to the land.

The Current Study

Our goals were to explore the similarities and distinctiveness in socialization beliefs about emotion. We had three aims. First, we wanted to learn whether beliefs identified in three cultures within the United States would be relevant in another county and in a culture distinctive from the cultures in which the scales originated. Although (or because) there are many countries, geographically separating the United States and Chile, which were created with different European influences, similarities would help inform us regarding the widespread relevance of these beliefs across the Americas. Second, we wanted to learn more about the emotion-related beliefs in the distinctive culture of the Mapuche, and to introduce Mapuche beliefs to other cultures, because these beliefs, once articulated, could be meaningful for other South or North American cultures and, indeed, worldwide. Third, because "culture" involves many components, we wanted to explore culture as (a) the different groups of a region, focusing on Mapuche versus non-Mapuche as one distinction that the people in Chile find meaningful, (b) the defining roles of the participants, focusing on whether participants are parents or teachers, which implies different responsibilities with children and engagement with the dominant ideology regarding educating children, and (c) geography, focusing on the rural versus urban

location of the participants, which reflects a host of physical and community influences.

To examine Chilean emotional beliefs about children, 271 Mapuche and non-Mapuche parents and teachers completed a questionnaire (Riquelme et al., in press). The questionnaire includes six subscales derived from the PBACE Questionnaire (Halberstadt et al., 2013) and five new subscales derived from Mapuche values (Quilaqueo, 2006; Oertwig et al., 2019). Following best practices for cross-cultural measurement, we chose a questionnaire that had achieved configural, metric, and at least partial scalar invariance across Mapuche and non-Mapuche participants (Riquelme et al., in press).

Although cross-cultural work often focuses on finding differences, we felt it would be presumptuous to assume differences in the six subscales from the United States, as any hypotheses would not be theoretically derived. We did, however, hypothesize significant cultural differences between the Mapuche and non-Mapuche Chileans for the Mapuche-derived beliefs. We thought that parents' beliefs would be more differentiated across cultures than teachers, because the dominant educational ideology might have influenced teachers' beliefs to be more similar across cultures. We also thought that rural participants might be more differentiated than city participants for two reasons. In the city, the constant engagement with heterogeneity of beliefs might ultimately lead to greater homogeneity in mean scores across the cultures, as the populations assimilate toward each other. Additionally, rural participants might more successfully retain the beliefs of their heritage, particularly the beliefs that are embedded in interconnections to nature and place, which are more present in rural life. To assess these general research questions and hypotheses, we analyzed beliefs using MANOVAs that included culture (Mapuche, non-Mapuche), role (parent, teacher), and geography (urban, rural).

MATERIALS AND METHODS

Participants

The 271 participants included 106 Mapuche adults (77 parents and 29 teachers [82.1% female; $M = 33.64$ years, $SD = 8.53$, range = 18–57]) and 165 non-Mapuche adults (92 parents and 73 teachers [86.1% female; 38.7% teachers; $M = 34.70$ years, $SD = 10.45$, range = 19–62]), living in the Araucanía region in Chile.

As the largest of the original populations of Chile, the Mapuche comprise almost 13% of Chileans, but 34.3% of the people living in the Araucania region (Instituto Nacional de Estadísticas, 2018). Araucanía is a relatively southern part of Chile known for its lakes, rolling hills, temperate rainforest, and active volcanoes. The region spans the width of Chile, from the Pacific coast to the Andes Mountains. In recent years the Chilean population, like much of the world, is migrating to urban centers, however, the Mapuche are resisting this pattern more so then their non-Mapuche neighbors. In this sample, 60.6% of Mapuche and 12.5% non-Mapuche were living in rural sectors (e.g., farms or small towns near farms).

Procedure

This study was carried out in accordance with APA recommendations of standards for research and was approved by the research ethics committee of Universidad Católica de Temuco. All participants gave written informed consent in accordance with the Declaration of Helsinki. A team of prospective and current teachers, including many who were first generation in college, recruited teachers from the schools where they had taught or with whom they had contacts, and also parents via the same type of snowball sampling. Because few Mapuche speak Mapuzungun in daily life (e.g., Oertwig et al., 2019 report that all 22 of their informants preferred Spanish when given the choice, although they often referred to concepts specific to Mapuche life in Mapuzungun), the questionnaire was provided in Spanish. We note that although illiteracy is about twice as frequent among indigenous versus non-indigenous adults in Chile, rates are dropping dramatically with each age group; less than 3% Mapuche in the participating age groups are unable to read Spanish (Ministerio de Desarrollo Social y Familia, Encuesta CASEN, 2017). Data were collected in 2016 when there was some tension surrounding land practices, but comparative peace relative to the stressors engendered by events between 2018 and the present.

Measures

Cree-Emociones Cuestionario (Riquelme et al., in press)

This questionnaire includes 11 scales assessing emotion-related beliefs. All scales demonstrate configural, metric, and at least partial scalar invariance with Mapuche and non-Mapuche Chilean participants. **Table 1** includes scale names and item examples; the full questionnaire and scoring can be found in the **Supplementary Materials**.

In this questionnaire, items representing six beliefs from the Parents' Beliefs about Children's Emotions (PBACE, Halberstadt et al., 2013) had been translated into Chilean Spanish and back-translated into English, and revised until translators were satisfied that the Spanish items maintained the deep structure of the original items. The word *parents* was replaced with *adults*, with one exception, so as to be appropriate for both parents and educators. PBACE beliefs were: Value of Anger, Positivity is Costly, Children can Control (their emotions), (children's) Emotions are Manipulative, Know Children's Feelings, and Autonomy.

Five beliefs identified within the Mapuche Chilean context had also been identified from semi-structured interviews with Mapuche mothers and elders about their emotion-related values and experiences of children in schools as well as general cultural knowledge (Quilaqueo and Torres, 2013; Oertwig et al., 2019). Items representing these beliefs were reviewed by Chilean parents and teachers for appropriate comprehension following within-language back-translation techniques (Halberstadt et al., 2013; Riquelme et al., in press). These beliefs are: (importance of) Controlling Fear, (importance of) Being Calm, (importance of) Kumeche, Emotion through Observation, and Regulation through Nature. *Kumeche* is a central way of being with

Beliefs	# of items	Examples		α
		Spanish	English Translation	
United States-generated				
Value of anger	3	Es útil para los niños sentir enojo a veces	It is useful for children to feel angry sometimes	0.50
Positivity is costly	4	Cuando los niños están muy felices, pueden salirse de control	When children are too happy, they can get out of control	0.65
Children can control	5	Los niños pueden controlar lo que muestran en sus rostros	Children can control what they show on their faces	0.70
Emotions are manipulative	4	Los niños a veces actúan tristes solo para obtener atención	Children often cry just to get attention	0.74
Know children's feelings	3	Los padres deberían alentar a sus niños a decirles todo lo que están sintiendo	Parents (teachers) should encourage their children to tell them everything they are feeling	0.71
Autonomy	3	Usualmente es mejor dejar al niño que maneje sus sentimientos negativos por sí solo	It's usually best to let a child work through their negative feelings on their own	0.56
Mapuche-generated				
Control of fear	6	Parte del crecimiento es aprender a no sentir miedo	Part of growing up is learning not to be afraid	0.76
Calm child	7	Estar tranquilo es clave para el control de las emociones.	Being calm is key to the control of emotions	0.79
Kumeche	4	Los niños deben estar atento a las necesidades de los otros	Children must be attentive to the needs of others	0.68
Emotion through observation	4	Los niños aprenden a regularse emocionalmente escuchando a los adultos	Children learn to regulate their emotions by listening to adults	0.71
Regulation through nature	8	La naturaleza puede ayudar a los niños regular sus expresiones emocionales	Nature can help children to regulate their emotional expressions	0.87

and respecting others in Mapuche thinking and can best be described as solidarity, and being attentive, kind, compassionate, and empathetic with others (Quilaqueo, 2006). In some ways, Kumeche represents the emotion ideals organized around being a "good" person in relation to the community. Thus, Kumeche is an interpersonal way of being that supports harmonious interactions.

For all items, participants were asked to choose the item that best fit what they thought, using a scale from one (completely disagree) to six (completely agree).

RESULTS

Beliefs From the United States

A three-way MANOVA was run with three independent variables – culture, role, and geography- and six dependent variables (i.e., beliefs). There were no significant main effects on the combined dependent variables (**Table 2**). There was, however, an interaction between culture and role ($F(6,265) = 2.29$, $p < 0.05$, $\eta^2 = 0.053$). Follow-up analyses of the six beliefs revealed only one significant interaction; this was for beliefs about children's abilities to control their emotions. When comparing across culture, Mapuche parents ($M = 3.58$) believed more strongly than non-Mapuche parents ($M = 2.95$) that children can control their emotions, 0.63 (95% CI 0.22 to 1.04) $p = 0.003$, whereas Mapuche and non-Mapuche teachers were in relative agreement ($Ms = 2.77$, 3.15, respectively) with non-significant mean score differences, 0.38 (95% CI −0.41 to 1.16) $p = 0.350$. When

comparing across role, Mapuche parents ($M = 3.58$) believed more strongly than Mapuche teachers ($M = 2.77$) that children can control their emotions, 0.81 (95% CI 0.27 to 1.35), $p = 0.003$; non-Mapuche parents and teachers ($Ms = 2.95$, 3.15, respectively) were in relative agreement, 0.20 (95% CI −0.51 to 0.90), $p = 0.580$ (**Figure 1**).

There was also a significant interaction between culture and location ($F(6,265) = 2.45$, $p < 0.05$, $\eta^2 = 0.056$). Follow-up analyses revealed only one significant interaction; this was for the importance of knowing children's feelings. When comparing cultures, Mapuche and non-Mapuche city-dwellers ($Ms = 5.17$, 5.31, respectively) shared relatively similar beliefs, 1.28 (95% CI

FIGURE 1 | Culture, role, and belief about whether children can control their emotions. $F(1,270) = 4.98$, $p < 0.05$, partial $\eta^2 = 0.019$. *$p < 0.01$.

−0.26 to 0.54) p = 0.48, whereas rural Mapuche (M = 5.22), and non-Mapuche (M = 3.93) differed in importance of knowing children's feelings, 1.27 (95% CI 0.49 to 2.09) p = 0.002. When comparing geography, urban and rural Mapuche (Ms = 5.17, 5.22, respectively) shared similar beliefs, 0.05 (95% CI −0.50 to 0.59), but urban non-Mapuche (M = 5.31) and rural non-Mapuche (M = 3.93) differed, yielding a mean difference of 1.38 (95% CI 0.67 to 2.09), p < 0.001 (**Figure 2**).
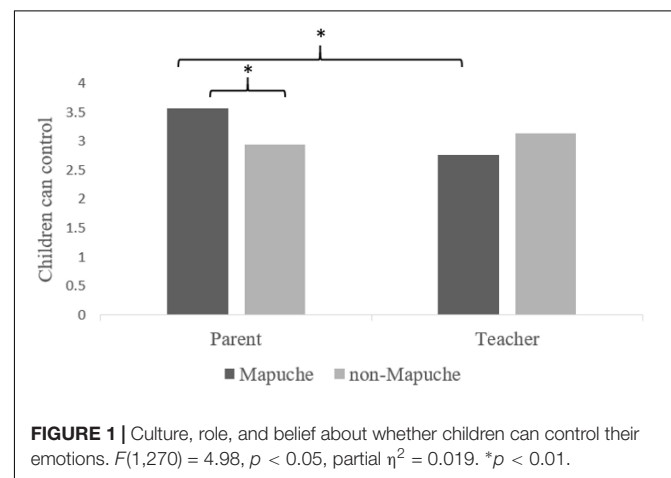
New Identified Beliefs From the Mapuche

A three-way MANOVA was run with three independent variables – culture, role, and geography – and five dependent variables (i.e., beliefs). The main effects on the combined dependent variables for culture, role, and geography were all significant; these were not qualified by 2- or 3-way interactions (**Table 3**). As predicted, all five beliefs were significantly stronger for Mapuche than non-Mapuche participants. Only one belief was significantly different for role: parents valued a calm child significantly more than teachers. Two beliefs were significantly different for location. Surprisingly, those in urban settings believed in the importance of Kumeche and nature as a regulator significantly more than those who dwell in rural areas.
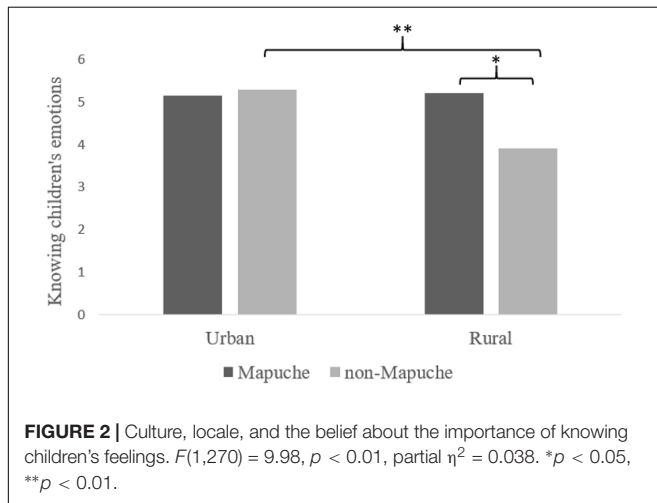

FIGURE 2 | Culture, locale, and the belief about the importance of knowing children's feelings. $F(1,270)$ = 9.98, p < 0.01, partial η^2 = 0.038. *p < 0.05, **p < 0.01.

TABLE 2 | Univariate comparisons for the United States-generated beliefs.

Culture (combined effect)	M (SD)	
	Mapuche	Non-Mapuche
Value of anger	4.13 (1.14)	3.79 (1.13)
Positivity costly	3.51 (1.30)	3.26 (1.12)
Children can control	3.22 (1.24)	3.00 (1.04)
Emotions are Manipulative	3.46 (1.30)	3.25 (1.30)
Know children's feelings	5.09 (1.18)	5.19 (1.11)
Autonomy	2.93 (1.16)	2.66 (1.12)

Participants responded to items using a Likert scale ranging from one (totally disagree) to six (totally agree). The main effect for culture was non-significant; $F(6,265)$ = 2.09, p = 0.06, η^2 = 0.05. Because we had no hypotheses and the sample was reasonably large, we could not justify the risk of Type 1 errors incurred by further analyses.

TABLE 3 | Univariate comparisons, significant effects, and combined effects for the Mapuche-generated scales.

Culture (combined effect)	M (SD)		df	F	Partial η^2
	Mapuche	Non-Mapuche	5, 266	2.41*	0.049
Control of fear	4.13 (1.14)	3.79 (1.13)	1, 270	7.08**	0.027
Being a calm child	4.07 (1.17)	3.82 (0.98)	1, 270	7.47**	0.029
Kumeche	4.22 (1.30)	4.18 (1.01)	1, 270	6.60*	0.025
Learning through observation	4.57 (1.24)	4.33 (0.95)	1, 270	7.89**	0.030
Regulation through nature	4.57 (1.30)	4.31 (1.12)	1, 270	9.40**	0.036
Role	**Parent**	**Teacher**	**5, 266**	**2.79***	**0.053**
Being a calm child	4.03 (1.09)	3.72 (0.98)	1, 270	5.73**	0.022
Location	**Urban**	**Rural**	**5, 266**	**2.56***	**0.049**
Kumeche	4.32 (1.01)	3.97 (1.35)	1, 270	7.57**	0.026
Regulation through nature	4.47 (1.10)	4.29 (1.44)	1, 270	5.00*	0.019

*Participants responded to items using a Likert scale ranging from one (totally disagree) to six (totally agree). Pillai's Trace reported. *p < 0.05, **p < 0.01.*

DISCUSSION

Overall, we found similarities across cultures as well as differences in emotional beliefs about children embedded within cultural norms and values. Similarities across Mapuche and non-Mapuche parents and teachers were found for beliefs about children's emotional autonomy and efficacy in controlling and regulating emotion, and the belief that when emotions are not in check, even positive emotions can have costly consequences.

Differences in emotion beliefs were shown by the stronger belief of the Mapuche compared to non-Mapuche that children can and should outgrow feeling fear and should also be calm, quiet children, themes which are consistent with previous findings using very different methodologies (Oertwig et al., 2019). These consistent findings from both qualitative interviews and explicit measurement via questionnaires, as in the present study, fit well with the unique history of the Mapuche. We also note that, although the differences are significant, they are not starkly different, suggesting cross-fertilization of beliefs across the culturally different communities that have integrated somewhat over time.

With regard to the emotion socialization pathways supported by these beliefs, two findings can be highlighted: Mapuche traditions of listening to elders' storytelling and watching elders may be important to distinguish from the greater emphasis on verbal discussion that seems to characterize United States cultural contexts or by "observing and pitching in" in Central American cultural contexts (Rogoff, 2014). Another important contribution from the Mapuche tradition is the belief that nature provides an important way of regulating children's emotions; environmental psychology research demonstrates that this belief is well-warranted (Bowler et al., 2010; Kondo et al., 2018;

Pasanen et al., 2018). Learning about the beliefs that specific cultures convey regarding emotion regulation can enlarge the emotion socialization toolbox for all, and suggest specific and important additions to the four basic strategies suggested 20 years ago (Eisenberg et al., 1998a).

Parental and teacher beliefs were very similar, showing only two differences: Mapuche parents reported believing that children can control emotions more than Mapuche teachers, and parents in general more strongly valued a calm child compared to teachers. These findings do support the notion that Mapuche teachers have more of an occidental, Eurocentric perspective similar to non-Mapuche teachers and compared to Mapuche parents. They also will have had greater familiarity with non-Mapuche children who are not socialized with the same values for being calm (as shown in our data), and are also in classrooms with many children who thus have increased opportunities for emotional contagion.

Geographical location appeared important in three ways. The interaction with culture and location suggested that the Mapuche, whether rural or urban, do value knowing what their children are feeling, but rural non-Mapuche had less belief that it was important to know children's feelings. Perhaps the dangers associated with living in a city may lead urban participants to feel the need to know more about children's lives, regardless of their cultural background. Additionally, those in urban settings believed in the importance of Kumeche (attentiveness, compassion, kindness) and nature as a regulator significantly more than those in rural areas. These main effects were surprising to us. It may be that life without much support for solidarity and community structure and lack of nature constantly surrounding the family may be missed by urban families. At the same time, rural families may not hold such strong beliefs for what is present in their lives and may take for granted the importance of nature as an emotion regulator.

We also found that the differences between the Mapuche and non-Mapuche for emotion beliefs generated by the Mapuche, although significant, were not as great as we expected. We note the challenge of questionnaire research in populations which are not that familiar with questionnaire assessment and who come from more of a conversational, story-telling tradition. In this way, our results may be more conservative than true to the differences across the cultures. Alternatively, that many Mapuche and non-Mapuche live in the same communities, and have for some time, may suggest cross-fertilization of thinking as well as continued variation in the depth of acceptance of these beliefs.

Because most children in Chile are taught by non-Mapuche teachers, results highlight some of the challenges facing children being taught by non-culturally connected teachers. For example, non-Mapuche teachers might think that quiet, calm children are not showing sufficient enthusiasm or are not paying attention to lessons. Further, when Mapuche children need to calm themselves, their teachers may not perceive the importance of letting children spend time outside in nature. These results also suggest new, distinctive beliefs about emotion, which, now that they have been identified, can be assessed in other countries as well. This is important in that ideas about emotion "residue" found in Indian culture were also surprisingly prevalent in the

United States once researchers thought to study them in the United States (Savani et al., 2011). In the same way, beliefs about the value of nature may be more prevalent in the United States than previously imagined. Studying socializers' attention to different emotional beliefs, such as the value and ability to be unafraid; to be attentive to others, and to watch and listen to elders (thereby showing respect for others); and to be in nature, with its perceived centrality for emotion regulation, may all be useful in enlarging socializers' perspectives regarding the beliefs that they want to inculcate in the young of their own cultures.

Finally, we note some of the limitations of the study. First, the Mapuche and non-Mapuche participants were recruited via a snowball method, and so may be more highly educated and/or economically privileged than their counterparts who did not have a college student in their friendship or family networks. We do not know if this would increase or decrease the strength of our findings, but we do note the problem. We also measured beliefs via questionnaires, which is one of many methods, and requires participants to fit their beliefs into explicitly stated questions which might not have sufficient precision to their own unique beliefs, or might make them wonder what the "right" answer might be. However, a strength of the study is that the beliefs we asked were initially generated from long conversations in which implicit as well as explicit beliefs could be revealed, and these were utilized in questionnaire construction. Further, we note that for both the United States- and the Mapuche-generated beliefs, the mean scores hover slightly above the middle for most scales, indicating mild agreement with the beliefs. Exceptions were the relatively high agreement with the importance of knowing what children are feeling (except for rural, non-Mapuche), and the relatively low agreement regarding children being autonomous. There was also good variability for all beliefs. These results, along with the internal reliability indices, suggest that the beliefs we included are recognized and have meaning for the people responding to them. We also do not know the degree to which participants resonated with these beliefs in principle, but not in actuality. That is, there is a potentially large difference between what people say they believe and then demonstrate in their actions.

Of course, there are many emotion-related beliefs, and this set of 11 beliefs is just a subset of what is possible to explore. Nevertheless, we hope that by identifying both similarities and differences between the cultures, we have highlighted particular beliefs worth exploring in these cultural contexts as well as others.

DATA AVAILABILITY STATEMENT

The datasets generated for this study are available on request to the corresponding author.

ETHICS STATEMENT

The study was reviewed and approved by the Comité de Ética de la Investigación de la, Universidad Católica de Temuco.

The participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

Based on qualitative interviews: AH and ER wrote items for the Mapuche-generated scales. AH advised ER re: PBACE scales and items, supervised the analyses, and wrote and edited much of the manuscript. DO analyzed the data, wrote the "Results" section, created the tables, and contributed to the "Introduction," "Materials and Methods," and "Discussion." ER developed the relationships with Mapuche that enabled us to collect the data, conceptualized the study, wrote items for the Mapuche-generated scales (with AH), supervised the translation process (both within Spanish and across to English), supervised the data collection, wrote the portions of the "Materials and Methods" and "Introduction' sections, and helped to revise the "Discussion" section.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2020.00034/full#supplementary-material

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The Impact of Non-normative Displays of Emotion in the Workplace: How Inappropriateness Shapes the Interpersonal Outcomes of Emotional Displays

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When it comes to evaluating emotions as either "good" or "bad," everyday beliefs regarding emotions rely mostly on their hedonic features—does the emotion *feel* good to the person experiencing the emotion? However, emotions are not only felt inwardly; they are also displayed outwardly, and others' responses to an emotional display can produce asymmetric outcomes (i.e., even emotions that feel good to the displayer can lead to negative outcomes for the displayer and others). Focusing on organizational settings, this manuscript reviews the literature on the outcomes of emotional expressions and argues that the evidence points to perceived (in)appropriateness of emotional displays as key to their consequences: emotional displays that are deemed inappropriate generate disadvantageous outcomes for the displayer, and at times also the organization. Drawing on relevant theoretical models [Emotions as Social Information (EASI) theory, the Dual Threshold Model of Anger, and Asymmetrical Outcomes of Emotions], the paper highlights three broad and interrelated reasons why emotion displays could be deemed unfitting and inappropriate: (1) characteristics of the displayer (e.g., status, gender); (2) characteristics of the display (e.g., intensity, mode); and (3) characteristics of the context (e.g., national or organizational culture, topic of interaction). The review focuses on three different emotions—anger, sadness, and happiness—which differ in their valence based on how they feel to the displayer, but can yield different interpersonal outcomes. In conclusion, the paper argues that inappropriateness must be judged separately from whether an emotional display is civil (i.e., polite and courteous) or uncivil (i.e., rude, discourteous, and offensive). Testable propositions are presented, as well as suggested future research directions.

Keywords: emotion display, interpersonal effects of emotion, social influence of emotion, inappropriateness, incivility

People tend to think of emotions as either positive or negative. Likewise, valence—whether an emotion is experienced as positive or negative—is a fundamental basis for classifying emotions in the literature on emotion (e.g., Russell, 1980). Much of this literature is concerned with the antecedents and consequences of valence for the person *experiencing* an emotion—i.e., whether a given emotion is experienced as pleasant or unpleasant. When *expressed* emotions are examined in the context of interpersonal interactions, an interesting and complex dynamic comes into play,

in which the effects of an emotional display are shaped not only by the emotion's valence but also by its (in)appropriateness for the situation. Inappropriateness entails a mismatch between what is perceived as normative in a particular context and what is actually displayed (Ekman, 1993; Shields, 2005; Geddes and Callister, 2007). Thus, even a positively valenced emotion such as happiness could have adverse outcomes for the displayer and other parties (including the organization) if the happiness is perceived as being displayed in an inappropriate manner (e.g., when a service provider smiles happily in response to a customer's complaint about poor service).

Taking an organizational perspective, the present study reviews recent findings on the interpersonal dynamics of emotion in the workplace (e.g., van Kleef et al., 2016) and, in particular, findings on how inappropriateness in an emotional display affects outcomes for both the displayer and the organization. This work builds on and extends recent research into the asymmetrical effects of emotion, when so-called positive emotions lead to negative outcomes and vice versa (Lindebaum and Jordan, 2011, 2014; van Kleef, 2014). In addition, the review draws on two other theoretical frameworks: Emotions as Social Information (EASI) theory (van Kleef, 2010, 2016; van Kleef et al., 2012) and the Dual Threshold Model of Anger (Geddes and Callister, 2007).

Perceptions of (in)appropriateness are informed by prevailing norms and expectations concerning emotional expressions, which are referred to as display rules (e.g., Ekman, 1993; Shields, 2005). Display rules dictate emotion display expectations for a particular role or status and/or a given context (Matsumoto, 1990; Shields, 2005; Diefendorff et al., 2010; Moran et al., 2013). Such rules determine what is considered appropriate in terms of the valence of the emotion(s) displayed (positive or negative) as well as other aspects of the display (e.g., its intensity and duration), usually with reference to specific discrete emotions. Various elements of the display can combine to shape perceived inappropriateness, including characteristics of the displayer, such as status or gender; characteristics of the display, such as its intensity or display mode (e.g., face-to-face vs. computer-mediated communication); and characteristics of the context, whether broad (e.g., culture) or specific (e.g., the nature of the task or issue at hand).

To allow for an in-depth look at the interplay between valence and inappropriateness on the effects of emotional displays in the workplace, this paper examines work on three emotions—anger, sadness, and happiness. These emotions are interesting because while they are basic, "core" emotions with defined valences (negative for anger and sadness, positive for happiness; e.g., Russell, 1980), their effects may differ depending on whether one takes an intrapersonal or interpersonal perspective. For instance, while *experiencing* sadness is unpleasant (negative valence), *displaying* sadness may lead to the positive experience of receiving comfort from others (a positive outcome) (Hendriks et al., 2008). At the same time, discrete emotions allow for a clean and unclouded examination of whether a given emotional display is inappropriate—i.e., the degree to which it violates accepted norms and rules—and, therefore, the degree to which inappropriateness impacts the response to (i.e., outcome of)

an emotional display.[1] The literature provides mixed findings regarding the outcomes of emotional displays involving anger, sadness, and even happiness. There are times where such displays lead to positive outcomes for the displayer and/or the organization, while at other times they lead to negative outcomes. Displays of anger, for example, have been found to benefit the displayer in negotiation settings (van Kleef et al., 2004), but Lewis (2000) found that leaders displaying anger were assessed as less effective. In accordance with Lewis's findings, Madera and Smith (2009) found that leaders who displayed sadness in times of crisis were assessed more favorably than those that displayed anger. However, medical students who displayed deep sadness (by crying) were ridiculed and deemed unprofessional (Wagner et al., 1997). As for happiness, smiling service providers have more satisfied customers (Barger and Grandey, 2006); yet, in another study, individuals who appeared (too) happy were assessed as more gullible and were exploited (Barasch et al., 2016). Thus, there seem to be no clear patterns for the outcomes of emotional displays (interpersonal impact) based solely on the valence experienced (intrapersonal impact).

One conclusion that arises even from this very brief survey is that, as noted by Lindebaum and Jordan (2014), there are times when feeling bad is good, and feeling good is bad. They call for greater study of asymmetric relationships between emotions and their consequences. Building upon this argument and that of Lindebaum et al. (2016) that the outcomes of anger expressions are determined in part by the (in)appropriateness of the display, this review extends this line of thought to include other emotions (happiness and sadness), highlighting inappropriateness as a central determinant of the outcome (positive or negative).

More precisely, the present theoretical article is prompted partly by burgeoning interest in how anger displays can have contradictory outcomes based on whether or not they are perceived as appropriate (e.g., Geddes and Callister, 2007; van Kleef and Côté, 2007; Adam et al., 2010; Lindebaum et al., 2016; Stickney and Geddes, 2016; Callister et al., 2017; Glikson et al., 2019). This review also builds on an established body of work showing that happiness is seen as the only emotion appropriate for display by service providers (e.g., Hochschild, 1983; Rafaeli and Sutton, 1987; Grandey et al., 2015; Sayre et al., 2019). Yet, despite its obvious presence in the workplace, sadness has received relatively less attention. One goal of this work is to highlight the commonalities in how perceived (in)appropriateness of an emotional display affects individual and organizational outcomes, whether the emotion at issue is anger, happiness, or sadness.

This paper proceeds as follows. The next few sections provide background and define relevant terms. This is followed by a review and a proposed model. In the course of the review, seven testable propositions are presented. The paper concludes with a claim that inappropriateness has two different forms that dictate the process of the response to the emotional display.

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[1] It is important to note that, in some situations, failing to display an emotion could be deemed an inappropriate reaction (Warner and Shields, 2009a). Such situations are beyond the scope of the present study, which focuses on actual interpersonal displays of happiness, sadness, and anger.

INAPPROPRIATENESS

Human beings experience emotions not only directly but also through a meta-emotional lens (Lundh et al., 2002; Shields, 2005). That is, people do not merely experience emotions, but evaluate emotions' social impact, including assessing whether a given emotion is appropriate to display in a particular situation. To put it differently, people develop norms and expectations for emotional displays, and as such, to be socially competent means adhering to these norms and expectations (Zawadzki et al., 2013). These meta-emotional evaluations of the (in)appropriateness of emotions occur both on an individual, intrapersonal level, and on a social, interpersonal level. For example, someone who expressed anger in an inappropriate manner might later, while assessing the incident, feel guilt or shame for crossing the line (Gottman et al., 1997). The present paper is not concerned with such intrapersonal responses, but only with interpersonal judgments as to whether an emotional display is normative or deviant—including both the antecedents of inappropriateness (i.e., what determines whether another's emotion display is perceived as inappropriate) and the consequences of this meta-emotional evaluation for the displayer and for the organization.

Jaggar (1989) referred to individuals who display emotions that are inappropriate or atypical as "emotional outlaws." And indeed, individuals who display emotions in a way that deviates from the norm may be treated like outlaws, for instance being shunned, stigmatized, or marginalized (Thoits, 1985, 2004; Clark, 1987).[2] Shields (2005) points out that appropriateness in emotional displays is judged by (1) qualitative fit—whether the correct emotion is displayed; (2) quantitative fit—whether the intensity or magnitude of the emotion displayed is both necessary (not too high) and sufficient (not too low); and (3) compatibility with existing standards—whether the display is in tension with expectations about the emotional experiences and expressions suitable for a given person or situation. Shields also notes that all discussions of appropriateness in emotional displays are political, in the sense that it is usually groups with more political power that dictate what is normative. For example, because the business world is male-dominated, emotional expressions in the business world reflect traditionally masculine perceptions and expectations, and women in such contexts may need at times to mask their true feelings so as to match the emotional norm. The model presented in this manuscript is based on these insights and builds on them to further understand the role of inappropriateness in emotional displays and their consequences in the workplace.

One emotion theory that deals directly with issues of appropriateness is the Dual Threshold Model of Anger (Geddes and Callister, 2007). This model suggests two thresholds, or boundaries, which define when expressions of anger are regarded as acceptable: the *expression threshold*, below which anger is suppressed and not displayed to others, and the *impropriety threshold*, above which the display is considered improper.

According to the model, only anger displays between the expression threshold and the impropriety threshold are thought to be appropriate and normative. These anger displays serve a purpose (e.g., informing people that an apparent injustice has been committed or that a goal has been frustrated), and they should yield positive outcomes—including, in the best case, a resolution of the problem that caused the anger. In contrast, anger that crosses the impropriety threshold is likely to yield negative outcomes for the displayer, and to leave the problem that caused the anger unaddressed. The current theoretical paper builds on the Dual Threshold Model of Anger and suggests that the logic regarding the impropriety threshold applies not only to anger, but to all emotional displays.

Another theory on which the current model is based is the Emotion as Social Information (EASI) theory (van Kleef, 2010, 2016). EASI suggests two routes by which displayed emotions influence those who observe them—the *affective route* and the *inferential route*. The affective route concerns the impact of displayed emotions on the emotions of others and includes processes such as emotional contagion (e.g., Barsade, 2002; Cheshin et al., 2011) and emotional response (e.g., Hareli and Rafaeli, 2008). The inferential route concerns the impact of displayed emotions on others' constructed evaluations or appraisals regarding the situation or the displayer (e.g., Hareli and Hess, 2010). Both the affective and the inferential routes impact behaviors or responses to emotional displays among targets or observers of the emotion. EASI postulates that emotional expressions may have disadvantageous consequences for the expresser to the degree that they are perceived as inappropriate for the context and that this process occurs primarily via the affective route. Specifically, the EASI model argues that inappropriate displays elicit mainly negative affective responses (van Kleef et al., 2012; van Kleef, 2014). The present work suggests that *inferential* processes are also impacted by the (in)appropriateness of emotional displays, and that inferences drawn from the emotional display serve alongside emotions elicited by the display to determine the difference between a positive and negative response.

Display Rules—Delimiting Appropriate Emotion Expression at Work

In the organizational context, emotion display rules refer to expectations regarding appropriate emotional expressions at work, including what emotions should be expressed, how, and when (Rafaeli and Sutton, 1987; Morris and Feldman, 1996; Grandey and Gabriel, 2015). As such, display rules are similar to etiquette—a set of conventions or codes dictating how one should behave in social interactions (Friedman and Miller-Herringer, 1991). Adhering to display rules is considered a specific in-role expectation (Diefendorff et al., 2006). Display rules have been tied mostly to service work (Hochschild, 1983), but specific display rules have been found across a range of professions—from funeral directors (e.g., Ashforth and Humphrey, 1993) to flight attendants (e.g., Hochschild, 1983), bill collectors (e.g., Rafaeli and Sutton, 1991), convenience store clerks (Rafaeli, 1989), and contestants in beauty pageants (e.g., DePaulo, 1992).

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[2] According to Thoits (2004), however, such emotional deviants may become agents for social change. The present paper does not concern itself with such possible long-term outcomes.

Worldwide, display rules in service jobs tend to demand that employees show positive emotions—"service with a smile"—and hide negative ones (Wharton and Erickson, 1993; Grandey et al., 2010). However, the prevailing norm in organizations (at least in Western societies) is to keep even positive emotions in check and relatively controlled (Kramer and Hess, 2002). Failure to adhere to such display rules is considered unprofessional.

Display rules are there for a purpose. They have been shown to improve the satisfaction of target customers or audiences, and help in creating a desired emotional climate (Gabriel et al., 2016). For employees, the need to constantly display positive emotions regardless of what one is feeling can be a strain, requiring the employee to invest effort in emotion regulation or what has been termed emotional labor (e.g., Hochschild, 1983; Diefendorff and Gosserand, 2003; Grandey, 2015). However, even when emotions are manipulated and not necessarily authentic, they can yield positive outcomes for the displayer as long as they are deemed to be the appropriate emotions for the situation (e.g., Clark and Taraban, 1991; Cheshin et al., 2018).

REVIEW AND MODEL OVERVIEW

This paper focuses on research dealing with displayed emotions in organizational settings. The criteria for inclusion in the review were 2-fold: reviewed papers (1) dealt with the (in)appropriateness of emotional displays at work, and (2) focused on anger, happiness, and/or sadness. The proposed model draws on this literature and, in particular, on three existing theoretical frameworks: The Dual Threshold Model of Anger, the EASI model, and the asymmetrical outcomes of emotion displays. The goal of the model is to describe the characteristics of inappropriateness and how they shape the outcomes of emotional displays at work for (1) the displayer and (2) the organization. The theoretical model is presented in **Figure 1**.

The sections below provide a general discussion of emotion displays and describe what is meant by outcomes. They are followed by the heart of this paper: three sections dealing with the characteristics of inappropriateness—(1) the display, (2) the displayer, and (3) the context. This discussion leads to seven testable propositions.

Emotion Displays

Emotions are outwardly displayed in numerous ways, including facial expressions (e.g., Ekman and Friesen, 1976; van der Schalk et al., 2011; Jack et al., 2016), gestures and body language (e.g., Atkinson et al., 2004; Dael et al., 2012; de Gelder et al., 2015), and attributes of the voice (e.g., Banse and Scherer, 1996; Sauter et al., 2010; Cowen and Elfenbein, 2018). Emotions can also be conveyed textually, without the presence of the person experiencing the emotion (e.g., Dresner and Herring, 2010; Cheshin et al., 2011; Gettinger and Koeszegi, 2015). These expressions and displays are recognized cross-culturally (e.g., Elfenbein and Ambady, 2002). Importantly, the social effect of these various modes of emotion displays is considered functionally equivalent, meaning that an emotion display will be perceived as representing the same emotion whether it is

displayed via the face, body, tone of voice, textually, or with symbols such as emojis, and will have the same interpersonal effect[3] (van Kleef et al., 2012; van Kleef, 2017). Yet, the outcomes for these displays will be governed by whether or not they are judged as (in)appropriate.

With respect to the interpersonal nature of emotion displays, the question of authenticity must be mentioned. It is well-established that displays of emotion may not be authentic representations of the displayer's feelings, but a modulated response or surface act (e.g., Gross, 1998; Grandey and Sayre, 2019). It has also been shown that observers can generally distinguish between real and manipulated or fake emotion displays (Okubo et al., 2012; Côté et al., 2013; Hideg and van Kleef, 2017). These questions, while important, are not of concern in the present paper, where at issue is the response to inappropriate displays of emotion and not the authenticity of the display. That is, this review assumes that even a fake, inauthentic emotion display, regardless of its valence, will also be judged as to whether or not it is inappropriate.

Outcomes of Inappropriate Emotional Displays

The interpersonal outcomes of emotional displays are far-reaching. They can include outcomes not only for the displayer but also for the relationship between the displayer and the target, or for the organization. The end result of the EASI model is a response to an emotional display of another person. For example, one possible outcome could be forfeiting or giving in to an opponent in a negotiation (van Kleef et al., 2004). In the present work, a broad view is taken, considering not only outcomes that manifest as behavior but also outcomes that remain at the level of attitudes toward or assessments of the displayer (inferences in the terminology of EASI), or emotional effects in the target or observer (affective responses in EASI's terms), as well as the implications for the organization. Here, I take my cues from the Dual Threshold Model of Anger (Geddes and Callister, 2007), which is concerned with how an emotional display helps or hinders the goals of a team or organization. Since the issue here is inappropriate displays of emotion, outcomes for both the individual and the organization are mostly negative. This leads to the main argument of this article:

> Proposition 1: Displays of emotion, when deemed inappropriate, will lead to a negative outcome for the displayer and the organization.

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[3]This is by no means a claim that the communication medium or the expression form has no impact on inappropriateness. On the contrary, the communication medium is one of the characteristics of the display that impact inappropriateness as well as the expression form. The point is that an emotional display attempts to convey the same meaning to others regardless of the manner in which it is displayed, and if deemed appropriate, the display represents the same emotion and, as such, will be assessed in a similar manner and will lead to a similar outcome. For example, displaying anger via tone of voice or by facial displays would lead to similar outcomes when they are displayed appropriately, however, when the anger displayed is deemed inappropriate, the response would be different. The same goes for a smiley; if it is perceived as appropriate, it should have a functionally equivalent outcome to a display of happiness via body, tone of voice, face, or text.

FIGURE 1 | Theoretical model.
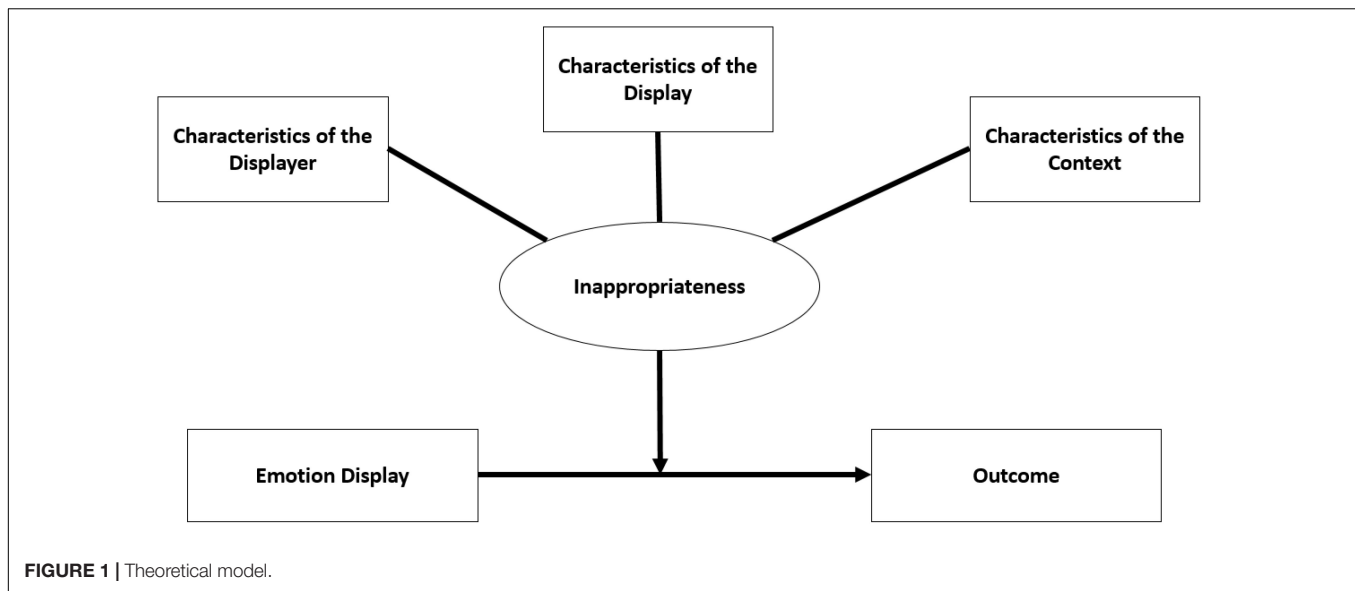
CHARACTERISTICS OF INAPPROPRIATENESS

Three broad elements of an emotional display can combine to shape perceived inappropriateness. These are (1) characteristics of the displayer, such as status or gender; (2) characteristics of the display, such as its intensity or mode; and (3) characteristics of the context, whether narrow, such as the topic of the interaction, or broader, such as organizational or national culture. Clearly, these are interrelated and overlapping (e.g., characteristics of the displayer may interact with characteristics of the display to determine its inappropriateness in a given context), yet for simplicity and clarity, I will discuss each one separately. The three sections that follow do not claim to delineate each element clearly and cleanly, but rather use each one in turn as a lens through which to examine the question at hand.

CHARACTERISTICS OF THE DISPLAYER

Displayer characteristics can lead to differing expectations regarding emotion displays. For example, people may have different sets of expectations for emotional expressions by a boss or political leader compared with a worker of lower status. These expectations shape evaluations as to when an emotional display is or is not appropriate for a person in a specific role or status. Much of the literature on how characteristics of the displayer affect the perceived inappropriateness of emotional displays focuses on two such attributes: status and gender. This section summarizes the main findings of that literature.

Status

From an organizational perspective, status is a person's position in the organizational hierarchy. With higher status come "emotional privileges" (Averill, 1982; Geddes et al., 2019), meaning that individuals with higher status in the organization

are afforded more freedom in some aspects of emotional expression. That is, emotion displays that might be deemed inappropriate for a subordinate may be regarded as appropriate for a superior. For example, it has been shown that despite feeling and experiencing more anger in the workplace, lower-status workers are less likely to express anger (Sloan, 2004). Likewise, Callister et al. (2017) found that supervisors have more "space" between the expression threshold and the impropriety threshold "to express anger without being labeled as, or sanctioned for, deviant, inappropriate anger expression. Subordinates, on the other hand, with lower status, do not share this same emotional privilege, have less space between thresholds, and are more likely to be sanctioned when expressing anger, especially to their boss" (p. 70). For their part, individuals in high-status positions are likely to justify their own displays of anger on the grounds that these are good for the organization as a whole and therefore are not only appropriate, but are also warranted (Fitness, 2000; Callister et al., 2017).

Because higher-status individuals are granted greater leeway to express anger, anger expressions also provide cues regarding status. Tiedens (2001) showed that when other information was not available, job candidates, co-workers, and politicians were deemed of higher status when they displayed anger. Other scholars have also found that expressions of anger increase perceptions of power and control, which are signifiers of status (Conway et al., 1999; Domagalski and Steelman, 2007). Moreover, managers in construction work who displayed anger were seen as more effective leaders (Lindebaum and Fielden, 2011).

Interestingly, however, even those who are higher in status are not universally immune from the impact of inappropriateness. For example, even high-status figures such as the president of the United States are impacted by the (in)appropriateness of emotional displays, as was demonstrated by Bucy (2000). Participants who were presented with non-verbal emotional responses of then-President Bill Clinton to news events were asked to evaluate the president. These emotional responses

were manipulated to be either appropriate or not for the news event depicted. Emotional displays that were inappropriate to the situations led observers to feel negative emotions toward the president and also led them to make negative trait evaluations of him.

At times, the outcome of an emotional display is not clear-cut, with different individuals holding different interpretations of the episode's effects or meaning. Status (among other things) may affect attitudes toward the consequences of an anger display as well as toward its (in)appropriateness. For instance, in some studies, supervisors who expressed anger seemed to believe that their anger expressions led to a positive outcome, however, unbeknownst to the supervisors, subordinates' respect for the supervisor and trust in the relationship suffered (Fitness, 2000; Callister et al., 2017). Thus, even when the outcome of an emotion display is perceived as beneficial by the displayer, there may be hidden costs that could have effects down the line. However, there is also evidence that this dynamic is affected by the degree to which the anger is deemed inappropriate. Koning and van Kleef (2015) found that inappropriate anger led to less trust in and respect for the leader who displayed the anger, and also led to less organizational citizenship behavior (i.e., subordinates' willingness to engage in extra work beyond their assigned roles). In contrast, when the anger was deemed appropriate, subordinates' organizational citizenship behavior did not suffer.

Although far less work has been conducted on status and displays of sadness and happiness than for anger, there is some research showing that expectations and norms for expressions of sadness and happiness differ based on status. For example, expressions of sadness are believed to be more normative for low-status individuals compared to those of high status, while happiness expressions are believed to be less appropriate for low-status individuals compared to those of higher status (Conway et al., 1999).

To establish this point more compellingly, future work could explicitly test the effects of the same emotional display by people of different status (and not merely the interpretation of these displays as more or less inappropriate). Such studies could examine whether or not emotional displays indeed lead to different outcomes based on the status of the displayer. Based on current evidence, I propose the following:

> Proposition 2: The displayer's status will impact perceptions of an emotional display as inappropriate, such that emotional displays by people of lower status will be perceived as inappropriate compared to displays of people of higher status.

Gender

When it comes to gender, many social contexts involve clear expectations about emotional displays. Broadly speaking, Western societal norms imply that even the same emotional displays are assessed differently depending on whether the person expressing the emotion is male or female. For example, in their paper succinctly titled "She's Emotional. He's Having a Bad Day," Barrett and Bliss-Moreau (2009) showed that men's displays of emotion are given situational attributions, whereas those of women are given dispositional attributions.

Brescoll and Uhlmann (2008) found a similar pattern with respect specifically to anger. Thus, emotional displays may be interpreted differently for men and women from the outset.[4]

The phenomenon of prescribed societal gender roles regarding emotions—even for very young children (Brody, 2000)—is well documented and needs only brief mention here. Women are expected to be more caring and tender and to express their emotions more openly than men (e.g., Shields, 2005). Moreover, it has been found that women's motives for emotional regulation are relationship oriented, while men's are power based (Timmers et al., 1998). That study further found that individuals deliberately regulate their emotional displays so as "to avoid gender-inappropriate emotional impressions" (p. 975).

With respect specifically to the emotions examined in this paper, happiness and sadness are considered normative for females more than males, while anger is considered normative for males more than females (Timmers et al., 1998; Ragins and Winkel, 2011; Sloan, 2012). If women do express anger, they are expected to do so indirectly and passively, while men's anger displays are expected to be direct and even aggressive. Domagalski and Steelman (2007) claim that these differences are not so stark in the work setting. Nonetheless, it is a consistent finding that female leaders who display anger in organizational settings are penalized (e.g., they receive worse evaluations from their colleagues), while male leaders who display anger are not (Lewis, 2000; Ragins and Winkel, 2011). Brescoll and Uhlmann (2008) found that expressions of anger reduced attributions of status to women regardless of their actual organizational status or rank. Gibson et al. (2009) also found that female displays of anger in organizations are less likely to result in positive outcomes compared to those of males.

Salerno and Peter-Hagene (2015) used a juror decision task to examine the effect of anger displays by males vs. females. They presented participants with a scenario where one member of a jury angrily opposed an otherwise unanimous decision. Participants were more likely to reconsider their decision and change their vote if the angry individual was male rather than female. These findings add to the evidence that women are more likely to be labeled "emotional outlaws" and assessed as displaying emotions that are inappropriate (Shields, 2005). Thus, I propose the following:

> Proposition 3: The Displayer's gender will impact perception of an emotional display as inappropriate, such that displays of anger by females will be perceived as more inappropriate than such displays by males, whereas displays of sadness and happiness by males will be perceived as more inappropriate than such displays by females.

Gender affects evaluations of emotional displays not only in relation to the specific emotion expressed but also in relation to the characteristics of the display. For example, females' emotional displays at work are more likely to be assessed as being of an inappropriate level of intensity (Ragins and Winkel, 2011).

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[4]See, however, Elsbach and Bechky (2017), who found that observers applied both situational and dispositional attributions to professional women who cried at work, depending on whether the behavior fit the context and observers' expectations.

Moreover, gender differences have been found in the use of emotions and emojis (Wolf, 2000; Chen et al., 2017), where women were found to be more likely to use those digital displays of emotion. This leads to the next section.

CHARACTERISTICS OF THE DISPLAY

In addition to differences in attributes of the displayer, when it comes to (in)appropriateness, differences can also arise in the manner by which emotions are conveyed. These differences may involve technical or formal features, such as the display medium (e.g., whether emotions are displayed via the phone or a computer), or attributes of the display itself (e.g., intensity). We will begin with the latter.

Intensity

Emotions are experienced and expressed at various strengths and magnitudes (Frijda et al., 1992; Sonnemans and Frijda, 1994). Differences in the intensity of felt emotions reflect the importance of the trigger (i.e., the event giving rise to the emotion) for the individual (Ortony et al., 1988; Clore, 1994; Heylen et al., 2015). For instance, people become angrier when an important goal is frustrated compared to a less essential goal. In the normal course of things, such differences in intensity are also apparent in expressed emotions (e.g., Banse and Scherer, 1996; Cheshin et al., 2012, 2018). Intensity can be conveyed through all the modes by which emotions are expressed: facial expressions (e.g., broad grins: Barasch et al., 2016); gestures and body language (e.g., banging on a table: Cheshin et al., 2012); text-based communication (e.g., using repeted paralingual cues, and/or capital letters: Cheshin et al., 2018); and the voice (e.g., through differences in pitch, stress, or intonation: Banse and Scherer, 1996; Baum and Nowicki, 1998). Variations in intensity may be captured not only by differences within any particular mode (e.g., a glare versus a frown), but often (though not always) by differences in the modes employed (e.g., screaming or banging on a table versus a glare; Cheshin et al., 2012).

Differences in the intensity of emotional expressions may or may not represent the actual intensity of the experienced emotion. Personal goals or situational demands—including organizational display rules—may lead people to exaggerate or suppress their felt emotion, so that their emotional display is not necessarily aligned with their true feelings (Hochschild, 1983; Morris and Feldman, 1996; Grandey, 2000). Here, again, as discussed above, I am concerned with the inappropriateness of the display, not the alignment between the display and the felt emotion. In particular, there are situations where intense emotional displays are non-normative and inconsistent with display rules. In general, high-intensity emotional displays are considered more appropriate in settings where the trigger giving rise to the emotion is apparent and meaningful not only to the individual displaying the emotion, but also to those observing (or targeted by) the display—for example, in settings involving high-stakes conflicts or strong communal relationships (Clark and Taraban, 1991; Frijda et al., 1992; Rose et al., 2006; Lindebaum et al., 2016). In contrast, low-intensity emotional

displays are typically considered appropriate in interactions with people one does not know closely, including exchange relationships and most service settings (Cheshin et al., 2018). On the other hand, there are also occasions when the intensity of an emotional display may be *too* low, for instance, someone receiving a highly valued reward, such as winning a gold medal in the Olympics, and displaying only a tiny smile. Shields (2005) describes appropriateness of intensity in emotional displays as based on *emotional borderlines* that define when emotional displays are either excessive or insufficient.

In this vein, the intensity of anger displays has been addressed by Geddes and Callister's (2007) Dual Threshold Model of Anger, discussed above. Extremely high-intensity anger displays, such as those that involve physical actions (e.g., slamming a door or pounding on a desk), are likely to cross the impropriety threshold in most contexts (Gibson et al., 2009). Such high-intensity expressions of anger yield negative rather than positive outcomes, because they shift the focus from the reason for the anger to the person displaying it. Evidence for the Dual Threshold Model of Anger comes from a large body of literature, of which only a sample is presented here. Cheshin et al. (2012) found that patients and their escorts who displayed "loud" (i.e., high-intensity)—and thus inappropriate—anger were more likely than those who displayed "silent" (i.e., low-intensity) anger to be removed by security staff from a hospital emergency room. Gibson et al. (2009) evaluated anger episodes in six different organizations, and looked at outcomes for the displayer of anger, for the relationship between the displayer and the target, and for the organization. In all cases, the less intense (and therefore more appropriate) the display of anger was assessed to be, the more positive were the consequences across all three outcomes studied. Adam and Brett (2018) found a curvilinear relationship between anger intensity and negotiation outcomes, where concessions from the opposing side rose when moderate anger was expressed, but then fell again when the anger grew in intensity (and was in consequence perceived as less appropriate). Glikson et al. (2019) found that customers' angry complaints yielded different results based on the intensity with which the anger was displayed. High-intensity anger was seen as both less appropriate and as more threatening than anger of lower intensity. Interestingly, Glikson et al. also found that while high-intensity anger was always deemed less appropriate than low-intensity anger, the outcomes of the anger display depended partly on culture, a finding to which I will return later in this manuscript. Finally, recent work by Staw et al. (2019) showed that the intensity of coaches' emotional affective displays at half time had a curvilinear impact on team performance in the second half of the game. Performance suffered if the coach's intensity was either too low or too high, but improved when the coaches' emotional display was perceived as being at the appropriate intensity level.

Even when it comes to happiness, too much of a good thing can be bad. For example, Barasch et al. (2016) showed that people assess very happy individuals to be more naïve than those who display happiness more moderately, and as more likely to be targeted for exploitation by others. Once again, it is not the intensity *per se* that matters, but the inappropriateness of the display. As Barasch et al. (2016) noted, "the perceived

appropriateness of the emotion is likely to matter. For example, if a person just won the lottery or received a substantial promotion, extreme happiness may be especially appropriate and not displaying extreme happiness may be met with negative reactions" (p. 201).

Cheshin et al. (2018) support these findings on happiness intensity while adding sadness to the mix. In a service setting, they examined how displays of happiness and sadness that varied in intensity affected evaluations of service providers and actual use of the product they promoted. They found that differences in happiness and sadness intensity were recognized, whether displayed via the face and body, by intonation, or even merely by text. For both emotions, high-intensity displays were deemed less appropriate than low-intensity displays, and appropriateness mediated the relationship between customers' assessments of the display intensity and their evaluations of the service and product.

Also with regard to sadness, there is evidence that crying at work—a relatively intense expression of sadness—can have negative consequences for the displayer. For example, in a hospital setting, medical students who cried were ridiculed or berated for their behavior, which was deemed unprofessional (i.e., inappropriate) (Wagner et al., 1997). It has also been found that while crying elicits social support from others, this is often accompanied by negative evaluations of the crying individual (Hendriks et al., 2008; Pauw et al., 2019). Elsbach and Bechky (2017), in the study mentioned earlier, found that episodes in which professional women cry at work are assessed differently based on their "conformance to cognitive scripts that dictate the context and behaviors allowed and prohibited"—i.e., internalized display rules (Elsbach and Bechky, 2017, p. 150). Elsbach and Bechky note that crying was seen as more inappropriate to the degree that it was more intense (e.g., "bawling," "too emotional," or "overkill"). Such inappropriate episodes led observers to apply dispositional rather than situational attributions to the crying. For instance, excessive criers were seen as overly emotional, unprofessional, or manipulative, as opposed to reacting normatively in response to a difficult situation.

Much of the work on crying has dealt with gender issues, with crying by males seen as more inappropriate than crying by females, especially in the eyes of other males (Cretser et al., 1982). Studies in sports contexts have found that male players who display low-intensity, moderate crying (e.g., "tearing up") are perceived as having higher self-esteem compared with players who cry more intensely (Wong et al., 2011; MacArthur and Shields, 2014). Warner and Shields (2009b) examined how the intensity of tears (as opposed to merely their presence or absence) affected evaluations of men and women. They found that men who expressed sadness via low-intensity crying ("a moist eye") were evaluated more positively than women in similar scenarios, with the tears taken as indicating that the person is sensitive, but has control over their feelings (Warner and Shields, 2009b). However, Vingerhoets and Bylsma (2016), in a review of the relevant literature, argue that the appropriateness of crying, given the context, has a greater impact on the response than the gender of the crying indivdual.

Overall, it is clear that intensity is a key variable in determining the inappropriateness of an emotional display. However, as

noted by Barasch et al. (2016); Adam and Brett (2018), and Glikson et al. (2019), more work is needed on the interpersonal effects of emotion intensity (perhaps with the exception of anger). In particular, most work to date deals with cases where high-intensity displays are inappropriate and lead to negative outcomes, leaving open the question of whether and when high-intensity emotional displays are deemed appropriate and are beneficial. Based on the above, I propose the following:

> Proposition 4: High-intensity displays of emotion are more likely to be perceived as inappropriate than low-intensity displays.

The Display Medium

As our world becomes more and more digital, interactions between individuals are increasingly mediated by technology. For example, employees in a range of fields work in virtual teams that are not bound to a specific location, and communicate via digital devices (e.g., Gilson et al., 2015). This section discusses how emotions are displayed in computer-mediated communication as opposed to face-to-face communication and how perceived inappropriateness plays a role. Given the relative newness of this medium, most research in this area still deals with the more basic question of how emotions are displayed in digital communications rather than specific aspects of these displays, such as their inappropriateness.

Despite the relative scarcity of non-verbal cues in computer-mediated communication, evidence for the presence of emotions and emotion dynamics in this medium is robust (e.g., Derks et al., 2008; Cheshin et al., 2011; Baralou and Mcinnes, 2013). Visual cues, such as emoticons and emojis, have evolved as a means to overcome the lack of non-verbal cues in digital communications (e.g., Dresner and Herring, 2010; Stark and Crawford, 2015; Miller et al., 2016; Hu et al., 2017). Yet, people's ability to recognize emotions and interpret emotional displays in computer-mediated communications has not kept pace with the burgeoning use of communications technology, leaving the emotional content of many messages murky and misinterpretations a constant hazard (Derks et al., 2007; Byron, 2008; Laubert and Parlamis, 2019). Even the length of an email and response times have been taken as emotional cues, and even these have been found to lead to differing conclusions at times (Byron and Baldridge, 2007). Byron (2008) suggests that the creation of display norms can help users interpret emotional content in computer-mediated communication. Indeed, there is evidence that teams using computer-mediated communication develop their own norms of interaction (Postmes et al., 2000; Cheshin et al., 2013). Moreover, Cheshin et al. (2013) showed that while norms may be created based on the specific medium being used (e.g., text messages vs. face-to-face communication), these norms stick even when communication channels change. These findings point to the importance and stability of both communication norms and emotional norms in virtual communications, and hint that violations of these norms will be noticed, and as such should lead to negative consequences.

There are also organizational norms and expectations regarding what one should and should not communicate via

phone or email, as opposed to face-to-face. For example, employees should never be fired via email or by phone, only face-to-face. Likewise, emotional expressions that seem appropriate in one mode could be deemed inappropriate in another. Byron (2008), in her work on emotions in email, describes two effects that could impact the interpretation of emotions as appropriate or not: the *neutrality effect*, whereby positive messages seem more "emotionally neutral than senders intend" (p. 312), and the *negativity effect*, whereby such messages are seen as more negative than intended. Both effects stem from the fact that non-verbal cues are limited. Thus, a critique delivered via email may seem harsher than criticism delivered face-to-face. However, while displays of anger or sadness may be perceived as greater in intensity if delivered via email as opposed to face-to-face, displays of happiness may be perceived as lower in intensity. These biases should impact inappropriateness assessments of emotional displays.

In recent work investigating the impact of violating emotional display norms in computer-medicated communication, Glikson et al. (2018) tested how the use of smileys impacts first impressions. They found that unlike a face-to-face smile, which leads to impressions of warmth, use of smileys led participants to perceive new colleagues as less competent; as a result, participants tended to share less information with smiley-users. The driver for these adverse responses was the assessment of smileys as inappropriate in a formal business setting. When the smiley was used in relation to an informal social gathering, the smiley did seem appropriate and the negative outcomes were eliminated. In another recent study, Riordan and Glikson (2019) verified the importance of communication norms in assessing the appropriateness of emojis. In a set of studies, they showed that managers who used emojis in organizations that had formal communication styles were seen as less effective. Li et al. (2019) found similar results in a customer service setting, where the appropriateness of using emojis—defined by the communal or exchange relationship—determined customers' satisfaction with the service. These studies attest to the impact of inappropriateness of emotional displays in computer-mediated communication—in this case via emojis—on outcomes for the displayer and the organization. Therefore, the following is proposed:

> Proposition 5: Violating norms of emotional displays in computer-mediated communication will lead to negative outcomes for the displayer and the organization.

As we have just seen, digital communication adds another layer of complexity to the question of when and where emotional displays are perceived as appropriate. First, the norms of face-to-face communication are not always transferable to digital communication. Further, the nature of a business's communication style may affect the appropriateness of emotional expressions in electronic communications. Finally, electronic communication allows for easy interaction between people from different national as well as organizational cultures. Glikson and Erez (2013) showed that different cultures have different norms that dictate the (in)appropriateness of emotional displays—e.g., norms for the display of positive and negative emotions—even in computer-mediated communication. It is to differences in cultural norms regarding emotional display rules, and other aspects of the context, that I turn next.

CHARACTERISTICS OF THE CONTEXT

Characteristics of the context is a broad category. Its scope ranges from the very narrow (e.g., the topic of the interaction) through the surrounding context (e.g., formal vs. informal) or culture (e.g., a hierarchical vs. flat organizational culture), to the broad (e.g., industry or sector) and very broad (e.g., national culture). Any given context comes with expectations and norms about how one should behave, which of course include emotional display norms. The following brief review highlights contextual differences in the perceived inappropriateness of emotional displays in the workplace, and the consequences of norm violations for the emotional displayer and for the organization.

At its most narrow, the context comprises the topic or purpose of the interaction. For example, apologies are thought to be accompanied by emotional displays of remorse, regret, shame, and sadness. Displays of other emotions are deemed inappropriate, with potentially deleterious effects for the displayer and the organization. ten Brinke and Adams (2015) investigated the organization-level effects of emotion displays during public apologies following revelations of corporate wrongdoing. They found that apologies accompanied by displays of inappropriate emotions, such as happiness, were assessed as less sincere and yielded worse outcomes in terms of investor confidence and stock market returns. Moreover, these effects lasted as long as 90 days after the incident, indicating that the consequences of emotion displays can have a relatively long duration.[5]

At the next level up, permitted or expected emotional expressions tend to vary between formal and informal contexts (e.g., a business environment vs. a social gathering). Broadly speaking, more rules regarding emotional displays operate within work/business settings than outside them (Moran et al., 2013). That is, in work contexts, the space within which emotions can be expressed (i.e., the space between the emotional expression and the impropriety thresholds) is likely to be narrower than in non-work contexts. Organizational cultures can be more or less formal and hierarchical, meaning that standard display rules for formal contexts may be enforced or encouraged to a greater or lesser extent by particular organizations. An organization with a very flat culture may allow greater expressions of emotion than one with a very hierarchical culture (Domagalski, 1999; Matsumoto et al., 2008).

Some emotion display norms vary between different industries or sectors. For example, anger displayed by a service provider will almost always be deemed inappropriate and lead to adverse outcomes for the organization and the individual displayer (e.g., customer dissatisfaction or complaints, and in the worst

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[5]In addition, when the apology was made by a higher-status individual (the CEO), the effect of the apology was stronger than when it was made by a lower-status organizational member.

cases, the offender losing his/her job; Rafaeli and Sutton, 1987; Grandey et al., 2010; Gabriel et al., 2016). However, in non–customer-facing settings, anger can be a useful tool, as seen in findings that construction project managers employ anger to help ensure the progress of the project (Lindebaum and Fielden, 2011) and that displays of anger by military leaders can be considered appropriate and motivating (Lindebaum et al., 2016). Similarly, Gibson et al. (2009) found different organizational norms regarding anger between sectors. One sector that is governed by powerful (if implicit) rules relating to displays of emotions is the legal system, where emotion displays have been found to impact legal decisions. Rose et al. (2006) found that complainants who do not display emotions deemed appropriate to the "victim role" receive less sympathy, and offenders in those cases receive lesser punishment; while Heath (2009) provides examples of cases where emotional displays that were deemed unfitting and non-normative led to arrests and even convictions of potentially innocent defendants in the United States.

With respect to national culture, a large body of literature has examined the effect of different cultural values on emotional display norms. Some organizational or sector norms transcend national boundaries. For instance, Grandey et al. (2010) found that emotional display norms with respect to customer service are fairly consistent across the globe. However, in many cases, such norms diverge based on national culture. To cite just one example, in Singapore, it is considered less acceptable to display anger and sadness than in the United States (Moran et al., 2013). Glikson and Erez (2013) observed that different emotional display norms emerged in virtual teams when the groups were culturally homogeneous, implying that such norms differ between the five countries they examined. Much of the literature on culture and emotion relies on the classic distinction between individualistic and collectivistic cultures. In general, this work has found that anger displays, in particular, are deemed inappropriate in collectivist cultures, where expressing anger poses a threat to group harmony, whereas in individualistic cultures, anger displays may be appropriate in different circumstances (e.g., Kitayama et al., 2006). Another cultural value found to affect assessments of inappropriateness is power distance—i.e., one's acceptance for power inequalities and social hierarchies (Hofstede, 2001). Glikson et al. (2019) mentioned above, found that displays of high-intensity anger by customers were perceived as less appropriate by service providers (the target of the anger) who scored low (vs. high) in power distance. This led to lower amounts of compensation for the angry customer.

Negotiation settings offer a profitable vantage point from which to examine the effects of culture and context on emotional expressions. A large body of work has examined the effects of displaying emotions—especially anger—in negotiations, both within cultures and cross-culturally. To cite just a few examples: Kopelman and Rosette (2008) found that Israelis were more likely to accept an offer from counterparts when the offer was accompanied by negative emotions, while East Asians were less likely to do so. This has been attributed to differences in cultural norms relating to humility and deference between

Israelis and East Asians. Adam et al. (2010) attest to differences in responses to anger in negotiations between Americans of European ancestry and people of East Asian backgrounds. The European Americans conceded more to an angry opponent while the Asians conceded less, with the responses explained by assessments of the anger as (in)appropriate. Other studies have examined the effects of anger in negotiations on the basis not of culture, but of other contextual features. For instance, Adam and Brett (2015) found that anger leads to positive outcomes for the displayer in competitive negotiations and negative outcomes in cooperative negotiations, with hints that the appropriateness of the display is the mechanism involved. Similarly, van Kleef and Côté (2007) found that manipulating norms regarding anger and indicating when a display is appropriate and when it is not, determined how people reacted to an angry counterpart in a negotiation. Outcomes for the negotiators were better when the anger was perceived as appropriate.

Sadness has received attention in negotiation research. In one study, displays of sadness led to greater concessions from the other side, presumably because the latter felt concern for the person displaying sadness (Sinaceur et al., 2015). In one of their experiments, Sinaceur et al. (2015) examined the interaction between the emotion displayed (anger or sadness) and the appropriateness of the emotion. In that experiment, the negotiating partner who was exposed to the emotional display was informed either that in negotiations it is inappropriate to blame the other side for disagreements or that blaming others was a normal and natural part of negotiations. Sinaceur et al. (2015) found that in the conditions where blaming was deemed inappropriate, participants who displayed sadness, which is not indicative of blame, obtained better outcomes in the negotiation than those who displayed anger, which is indicative of blame. However, when blaming the other side was deemed to be the norm, sadness displays did not lead to better outcomes for the displayer. Thus, only when sadness was seen as more appropriate than anger did it lead to positive outcomes for the displayer.

Rees and Kopelman (2019) offer a similar argument, contending that appropriateness rather than rationality is what drives success in cross-cultural negotiations. They argue that actions that seem rational and "make sense" but are inappropriate result in poor outcomes, while those that seem irrational but appropriate result in good outcomes. Thus, in the intersection between culture and emotion, the logic of appropriateness (based on norms) trumps the logic of rationality (based on reason) (see also Kopelman, 2009; Kopelman et al., 2016).

Indeed, in light of the full range of the literature covered in this section, it is likely that this conclusion holds for the full range of settings, contexts, and characteristics discussed here. For example, with respect to anger, it might be considered reasonable and appropriate to show anger when one wants to be seen as tough and resolute, or when the situation is dear to one's heart, but this could backfire in a cooperative setting, or where the cultural norm calls for suppression of emotions. With respect to happiness, it might seem reasonable to incorporate a smiley as a substitute for a (real) smile when sending an

email to a new work colleague, yet this could be perceived as inappropriate and unprofessional, and possibly even a sign of lower competence. Finally, with respect to sadness, it might be reasonable for a manager to display sadness after failing to meet a goal, but an excessive show of unhappiness—especially by a male manager—would likely seem inappropriate to others, and lead to perceptions of the manager as weak or less competent.

Based on the above, I propose the following:

Proposition 6: Assessments of emotional displays as inappropriate will differ based on the context and culture.

Table 1 offers examples of how features of emotional displays—characteristics of the displayer, the display, or the context—can lead to negative outcomes for the person displaying the emotion, or for the organization. The examples incorporate anger, sadness, and happiness.

BOUNDARY CONDITIONS FOR THE CURRENT MODEL

Authenticity

As mentioned above, emotions can be displayed even if they are not genuinely felt by the individual. At times, this is done intentionally to adhere to display norms and to try to display an emotion that is appropriate. However, I see this as a separate issue that, no doubt, has an impact on outcomes of emotional displays (e.g., Tng and Au, 2014; Gabriel et al., 2015; Hideg and van Kleef, 2017). This is a different, and important, aspect of emotional display that has been addressed by others. There is no doubt that

the emotion display will lead to better outcomes when it is both authentic and appropriate.

Containment of Inappropriateness

Geddes and Stickney (2011) found that some organizations react to deviant displays of anger by offering support rather than sanctions. That is, instead of punishing "emotional outlaws," these organizations encourage managers or coworkers to approach the angry employee in a mode of supportive concern. Geddes and Stickney found that offering such support leads to positive change and improved outcomes for the employee and the organization. Thus, in such cases, inappropriate behavior that could be expected to have negative outcomes is turned around so that the outcomes are positive. Such transformations require both vigilance and a proactive approach by the organization.

Similarly, organizations may be able to reverse the negative effects that might follow inappropriate displays of other emotions, such as sadness or happiness, though the approach may be different in each case. Anger is known to arise when a goal is obstructed or an injustice is observed (Smith and Ellsworth, 1985; Frijda, 1986). Supportive behavior may resolve the problem in part by addressing the problem that gave rise to the anger. Sadness is likewise a negatively valenced emotion that tends to arise when there is something wrong, and addressing the cause of the sadness or supporting the displayer may help reverse or prevent negative outcomes from the display. When a positively valenced emotion such as happiness is displayed in an inappropriate manner, the implication may be that the person displaying the emotion did not understand the norm. Thus, a successful response to such displays may entail providing clearer guidelines as to display

TABLE 1 | Examples of negative outcomes following inappropriate displays of emotion.

	Outcomes for Displayer	Outcomes for Organization
Characteristics of Displayer		
Status	Subordinates are more likely to be punished or sanctioned for anger displays than supervisors (Fitness, 2000)	Subordinates who expressed anger report less positive outcomes (compared to supervisors) related to situational problem improving and relational problems (Callister et al., 2017)
Gender	Male supervisors are assessed as less effective when displaying sadness compared to neutrality (Lewis, 2000)	Expressions of anger by females led to more negative organizational outcomes than males (Gibson et al., 2009)
Characteristics of Display		
Intensity	High-intensity happiness and sadness shown by service providers led the service provider to be assessed as less trustworthy (Cheshin et al., 2018)	A product was assessed worse and was less likely to be used when the intensity of happiness and sadness of a service provider was high rather than low (Cheshin et al., 2018)
Mode of Communication	Using smileys in first-impression formal email communications led to lower assessments of competence (Glikson et al., 2018)	A company's service was deemed worse by customers when it included a smiley in exchange relationships (Li et al., 2019)
Characteristics of Context		
Topic	Apologies for corporate wrongdoing by CEOs were assessed as less sincere when accompanied by displays of inappropriate emotions, such as happiness (ten Brinke and Adams, 2015)	Apologies for corporate wrongdoing were assessed as less sincere when accompanied by displays of inappropriate emotions, such as happiness, and yielded worse outcomes in terms of investor confidence and stock market returns (ten Brinke and Adams, 2015)
Culture	High-intensity anger displays by customers were perceived as less appropriate by service providers based on cultural values (high power distance), leading to lower compensation following complaints (Glikson et al., 2019)	Anger expressions in collectivist cultures are assessed as inappropriate and pose a threat to group harmony compared to anger expressions in individualistic cultures (Kitayama et al., 2006)

rules. However, in all these cases, the effectiveness of a supportive response may depend on another dimension that I have not yet discussed: whether the inappropriate display crosses the bounds of civility.

Two Distinguishable Forms of Perceived Inappropriateness of Emotional Display

According to the Dual Threshold Model of Anger (Geddes and Callister, 2007), when the impropriety line is crossed—anger is deemed as inappropriate and deviant. Deviant anger is "damaging, and/or unacceptable given the circumstance" (p. 732). I interpret this to mean that anger that has been deemed as deviant will always lead to negative outcomes for the displayer. It is clear, however, that the impropriety threshold can shift and move between cultures and contexts, yet once an anger display is seen as deviant, it would not be accepted and/or would be damaging.

Recently, Lindebaum et al. (2016) point to a seemingly paradoxical sentiment toward anger in the military. On the one hand, display rules in the military aim to reduce anger, as part of the military's effort to curtail its traditional bullying culture. On the other hand, there are tasks and situations in the military that require anger to be displayed. In that study, expressions of anger, even extreme expressions that included shouting and cursing, were seen as positive by (some of) the targets of the anger, who made sense of the anger as necessary due to the circumstances and assisting in the task (e.g., by signaling urgency). Thus, despite being rude and uncivil, the anger displayed was deemed appropriate. This is an example where an extreme display of anger is not deviant, as it does not lead to damage, nor is it seen as unacceptable; on the contrary, it is deemed appropriate to the situation—fitting the context.

The point of interest here is that in Lindebaum et al. (2016) study, extreme expressions of anger were seen as acceptable and appropriate even though such expressions could be described as impolite, uncivil, and rude. Thus, impropriety is to be distinguished from incivility. Incivility (i.e., behaving in an uncivil manner) is defined as "acting rudely or discourteously, without regard for others, in violation of norms for respect in social interactions," or, in the workplace, "in violation of workplace norms for respect" (Andersson and Pearson, 1999, p. 455; see also Pearson and Porath, 2009). A display of emotion can be uncivil or rude and still be deemed appropriate. Likewise, it can be civil and courteous but still deemed inappropriate based on characteristics of the displayer, the display, or the context, as discussed above. Adopting this notion, I would like to propose that inappropriateness can take on two forms—*civil* and *uncivil*.

Inappropriateness should be distinguished and divided into two different forms. One is uncivil-inappropriateness, meaning that this inappropriateness display is rude, and therefore negative and harmful. The other is civil-inappropriateness, meaning the display is odd and non-normative, yet considered polite. An uncivil-inappropriate emotional display could be analogous to an anger display that crosses the impropriety threshold of the Dual Threshold Model of Anger (Geddes and Callister, 2007). Thus, I propose that it is when one crosses the line

and is extremely inappropriate and rude that the outcome will be negative, whereas a perceived *civil*-inappropriate emotional display, which is not deemed rude, and although inappropriate—does not cross the "civility" line—could lead to a more rational and level-headed response.

The EASI model suggests that responses to the emotional displays of others will be based more strongly on affective reactions (as opposed to inferential processes) to the degree to which the emotion encountered is perceived as inappropriate (van Kleef et al., 2012; van Kleef, 2014). It is argued the negative affective reactions that follow inappropriate emotional displays overwhelm any concurrent inferential processes (van Kleef, 2014). The distinction between inappropriateness and incivility raises the question of whether the prioritization of the affective route may be a function of incivility rather than inappropriateness, at least in some cases.

For example, Cheshin et al. (2018) showed that customers in a service setting interpreted high-intensity displays of happiness or sadness by a service provider through the inferential route. It may be that in this case, it is because the inappropriate display was not perceived as uncivil that the (negative) affective route did not take precedence. Another example can be found in Glikson et al. (2018). When a smiley was used in a first impression email, it was deemed inappropriate, which led the targets to respond to it less favorably. This response was due to assessing this writer of this email as less competent (inferential route) and probably not due to an affective reaction to the inappropriate smiley.

An example of where behavior can be uncivil yet appropriate can be found in competitive behavior of trash-talking. A recent article by Yip et al. (2018) demonstrated how trash-talk, or "boastful comments about the self or insulting comments about an opponent that are delivered by a competitor typically before or during a competition" (p. 126), impacts individuals and organizations. This uncivil act was found to be common in competitive settings and has been found to motivate the targets to put forth more effort on competitive tasks. However, in cooperative settings, this uncivil act of trash-talk harmed performance. The authors state that: "Some forms of trash-talking are likely to be more appropriate than other forms, and appropriateness may moderate the effects of trash-talking" (p. 140). This is an example of how uncivil acts could be more appropriate in specific setting and not in others.

Thus, inappropriateness takes on two different forms. When it is deemed uncivil, it is a different type of inappropriateness and is similar to other rude and uncivil behaviors in the workplace (see Porath and Erez, 2007; Schilpzand et al., 2016) and, as such, evokes negative affective reactions. More simply, inappropriate behavior that is also uncivil and rude may be treated much like any other kind of uncivil, rude, or discourteous behavior. Yet, expressions of emotion that are non-normative but remain civil, courteous, and respectful to others may be perceived simply as examples of benign but odd behavior that require further inquiry (Stern et al., 1984), leading observers to react via the inferential route.

In short, it is suggested here that it is not inappropriateness *per se* that leads to (negative) affective reactions, but rather the intersection between (in)appropriateness and (in)civility. An

emotional display that is deemed inappropriate but civil may have a negative outcome, based on the inferences drawn from the display. However, these claims need to be empirically examined. As a suggestion to launch future studies, **Table 2** provides examples of the interaction between whether an emotional display is appropriate or inappropriate and whether it is civil or uncivil, along with (1) the likely route by which displayed emotions influence observers (inferential or affective) and (2) the likely outcome (positive or negative).

Based on the above, I propose:

Proposition 7: Reactions to an emotional display will depend both on whether the display is appropriate or inappropriate and whether it is civil or uncivil. When the inappropriateness is also uncivil, the affective reaction will be negative and will dominate the response and outcome to the displayer; yet, when the inappropriateness is civil, it will lead to (negative) inferences that will dominate the response and outcome to the displayer.

DISCUSSION AND CONCLUSION

Contrary to the everyday belief that emotions are evaluated as positive or negative based on the valence of the emotion, in many cases, it is actually the perceived inappropriateness of the presentation that determines how it is evaluated by observers, or by the target of the emotion display. Emotional displays that are perceived as inappropriate may give rise to negative outcomes for the displayer, organization, or both. Indeed, the review presented in this paper shows that the (in)appropriateness of emotional displays has vast implications that reach far beyond the impact of the discrete emotion displayed. What Rees and Kopelman (2019) argue regarding multicultural negotiations is true not only in negotiations but also in multicultural interactions. Rather, the landscape of display norms and rules guides perceptions of

TABLE 2 | Interaction between (In)appropriateness and (In)civility in emotional displays.

	Inappropriate Emotional Display	Appropriate Emotional Display
UNCIVIL	*Example*: Patient/escort shouting and cursing a nurse in the ER. *Process*: Affective (negative). *Outcome*: Security is called to remove the patient/escort from the ER. Negative outcome for the displayer.	*Example*: Drill sergeant berates cadets for failing to meet standards. *Process*: Inferential. *Outcome*: The cadets understand they have violated expectations and correct their actions. Positive outcome for the displayer and the organization.
CIVIL	*Example*: New colleague closes an email with a smiley. *Process*: Inferential. *Outcome*: The new colleague is assessed as less competent, and less information is shared with him/her. Negative outcome for the displayer, and possibly the organization.	*Example*: Service provider smiles in accordance with display rules. *Process*: Inferential and/or affective. *Outcome*: The service provider and firm are evaluated positively.

(in)appropriateness for emotional displays in any setting. This landscape includes the characteristics of the displayer, the display, and the context in which the display occurs.

The present paper builds on the Dual Threshold Model of Anger (Geddes and Callister, 2007) and applies the impropriety threshold to all emotion displays. Furthermore, the paper continues the line of work of Lindebaum and Jordan (2014) and van Kleef (2014), suggesting that discussions of emotional processes have been oversimplified, with most attention paid to symmetrical effects. In addition, this review shows that inappropriateness of emotional displays plays a role not only via the affective route (i.e., in the emotions elicited by the display), but also via an inferential route—i.e., through the cognitive inferences people draw from emotion displays. Lastly, the present manuscript suggests that (in)appropriateness intersects with (in)civility to engage either the affective or inferential route. The affective path dominates when a display crosses both the impropriety threshold (i.e., violates display rules) and violates the norms of etiquette. The inferential path dominates when the display crosses the impropriety threshold but remains within the bounds of etiquette and civility.

At a practical level, this review suggests that organizations could benefit from addressing the (in)appropriateness of emotion displays. For example, human resource management should consider how to train and guide employees to follow display rules on the basis of what features of a display are (or are not) appropriate (Gabriel et al., 2016). Geddes et al. (2019), in their recent work on anger, have called for organizations to offer "appropriate space" to express anger, which could take advantage of the positive aspects of anger expression. The idea of a place where anger is welcomed as appropriate symbolizes the essence of the present paper. When emotional expressions have a place and are seen as appropriate and fitting, the outcomes—for the person experiencing the emotion and for the organization—should be positive. Along these lines, Grandey et al. (2015) have called for organizations to eradicate display rules completely, on the grounds that their costs outweigh their benefits. The idea is that authentic displays and a positive climate will be beneficial for all. However, this view does not take into account others' expectations. In the realm of customer service, for example, display rules reflect the fact that consumers expect a certain deference and professionalism from service providers. Authentic displays of emotion by service providers could lead to unsatisfied customers who take their business elsewhere.

The present work is subject to limitations, some of which offer potentially fertile ground for further research. First, despite the evidence reviewed here, more work is needed to establish the claims raised in this paper. In this respect, the Perception of Emotion Appropriateness Rating Scale (PEARS), developed by Warner and Shields (2009a), is a validated measure of emotional appropriateness that could be useful in future research to validate ideas presented in this manuscript. Second, in the study of emotions, anger has dominated the literature. This makes sense, as anger potentially has the most detrimental effects on individual and organizational outcomes (including the potential to turn into aggression and violence). But this focus on anger means

that less is understood about the dynamics of other emotion displays in the workplace. Future research should concentrate and focus more closely on other discrete emotions, including but not limited to happiness and sadness. Moreover, incivility will, by nature, most often apply to anger. But other discrete emotions can also be viewed through this lens. Research should examine whether and when displays of emotions other than anger can be perceived as uncivil and rude (e.g., loud and incessant laughter or crying in a public place), or whether there are discrete emotions that are "immune" from the risk of incivility. Third, instances where display intensity is high yet perceived as appropriate are somewhat lacking. Likewise, the distinction between intensity and incivility in emotional displays could benefit from clarification. At what point does an intense display of (for example) sadness in the workplace cross the boundaries of etiquette (as well as workplace display norms) and become not only inappropriate, but also rude? Fourth, it should be noted that, at times, observers or targets of an emotional display may fail to accurately identify the emotion (or combination of emotions) being displayed (Fang et al., 2018). This is in part because some emotional expressions overlap with others. A good example is the smile. While a smile is considered a basic display of happiness, people are also known to smile when they are embarrassed, fearful, contemptuous, angry, dominant, submissive, listening, and more (Hess et al., 2002; Beukeboom, 2009; Perron et al., 2016). As such, the way an observer interprets a display of emotion may not be entirely aligned with the feelings of the displayer. It has also been shown that people are able to recognize more than one emotion in others' displays (Fang et al., 2018). Thus, it may be simplistic to assume that during interpersonal exchanges, people encounter and respond to one discrete emotion. Yet, most work to date does tend to focus on the evaluation of discrete and specific emotions, distinguishing between features of each emotion separately. Future work should take this element into account.

Another point to stress is that norms and customs change over time. For example, gender differences in the workplace have softened and blurred considerably over recent decades. This trend will probably continue, further altering norms about

behavior perceived as (in)appropriate, for women and men. Likewise, continuing advancements in technology will doubtless affect what kinds of emotional displays are deemed appropriate in computer-mediated communication. The relatively new use of emojis could make behaviors that appear inappropriate in 2020 (e.g., the use of smileys in business contexts) not only acceptable but desirable in the future. In this vein, testing and conceptualizing the different contexts and settings in which emotion displays operate can offer challenging and exciting avenues for research. For example, would displays of emotions by bots, or other forms of artificial intelligence, also be impacted by perceptions of inappropriateness? Imagine getting emotional feedback from your cellphone (e.g., happy squeals or a self-satisfied sigh). Would the same judgments regarding inappropriateness apply as in human conversations?

Overall, this manuscript shows that evaluating interpersonal aspects of emotions in terms of valence alone, as either "good" or "bad," is insufficient. Only after taking account of inappropriateness in emotional expressions can one evaluate the true valence of the emotion, in terms not only of how we feel but how the emotion affects our surroundings and others' responses to us.

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Lay Theories About Whether Emotion Helps or Hinders: Assessment and Effects on Emotional Acceptance and Recovery From Distress

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This investigation examined how people's beliefs about the functionality of emotion shape their emotional response and regulatory strategies when encountering distressing events. In Study 1, we present data supporting the reliability and validity of an 8-item instrument, the Help and Hinder Theories about Emotion Measure (HHTEM), designed to assess an individual's beliefs about the functionality of emotion. Participants who more strongly endorsed a Help Theory reported greater wellbeing, emotional acceptance, and use of reappraisal to regulate emotion. Participants who more strongly endorsed a Hinder Theory reported less wellbeing and more expressive suppression and substance use. In Study 2, we demonstrate that encouraging participants to view emotion as helpful affected their physiological and regulatory response to a distressing event. Participants in the Help Theory condition showed greater physiological reactivity (SCL) during a distressing film than control participants but were more accepting of their emotional response. Shortly after the film, SCL decreased for participants in the Help Theory condition. Compared to control participants, they engaged in less suppression and reported less lingering effect of the film on their mood. Together, these studies suggest that people's theories about the functionality of emotion influence their reactivity, the strategies they adopt to regulate emotion, and their ability to rebound after distressing events.

Keywords: theories of emotion, emotion regulation, emotional experience, acceptance, suppression

INTRODUCTION

Disney's 1943 cartoon film, "Reason and Emotion," depicted emotion as a caveman living in the brain alongside reason, a modern businessperson sporting a suit and glasses. The film aimed to promote U.S. support for World War II but it also had a broader message. Reason should be in the driver's seat with emotion strapped firmly in the back. Even today, popular culture and the media often portray emotion as the antagonist of reason, and convey the notion that people make wiser decisions unhindered by sentiment (Lutz, 1986; Parrott, 1995). Yet, popular culture also extolls the virtues of emotion. Emotion makes us fully human and gives life meaning. It motivates people to take important action and persevere in the pursuit of their goals. It provides a primary means of relating to others and motivates care for others (Lutz, 1986).

This dual perspective about whether emotion helps or hinders is also salient in academic theory and research. Economists and affective scientists argue that emotions are essential for guiding cognition and behavior (e.g., Simon, 1967; Frijda, 1994; Clore, 2011). Evolutionary psychologists argue that emotions evolved to help ancestral humans solve recurring problems such as overcoming goal obstruction (anger), avoiding pathogens (disgust), adjusting to loss (sadness), and finding a mate (desire; e.g., Tooby et al., 2008). Though emotions likely promote survival and reproductive fitness, this is not to say that any given emotional experience is helpful at any time. Researchers also recognize that, when too intense, too frequent, or inappropriate, emotion can interfere with effective decision-making, impede goals, cause added distress, and contribute to mental health problems (Kring, 2008).

Given the salience of competing perspectives on the functionality of emotion in popular culture, the media, and scholarship, surprisingly little is known about the extent to which lay people view emotion as helpful or harmful. We also know little about the consequences of these views for people's emotional experience and wellbeing. Thus, this investigation presents a measure designed to assess how much people view emotion as helping them or getting in their way. We also assess whether endorsing a Help or Hinder Theory about emotion has implications for people's emotional and regulatory responses and recovery from distressing events.

Lay Beliefs About the Functionality of Specific Emotional States and Features

Researchers have examined the extent to which people view specific emotional states and features as helpful or harmful (e.g., Chow and Berenbaum, 2012; Manser et al., 2012). In one study, participants reported their emotional experience in daily diaries. Those who valued negative emotions (e.g., anger, nervousness) showed weaker links between the negative emotions they experienced day-to-day and poor psychosocial functioning and physical health (Luong et al., 2015). Other studies have shown that inducing positive beliefs about the functionality of specific emotional states (e.g., anxiety) or features (e.g., physiological arousal) promotes recovery from stressful situations (Low et al., 2008; Jamieson et al., 2010, 2012; John-Henderson et al., 2015), and wellbeing (Chow and Berenbaum, 2016). The fact that negative emotions can be viewed as useful shows that people's beliefs about the functionality of emotion do not simply reflect how they want to feel (Chow et al., 2015), or how pleasurable they perceive certain feelings to be (Netzer et al., 2018). In general, then, valuing specific emotions, or specific features of emotion, tends to be associated with better outcomes than viewing them as dysfunctional (Brooks, 2014; De Castella et al., 2014; Veilleux et al., 2015; Crum et al., 2017; Ford et al., 2018).

Western media and discourse, however, often portray emotion overall as either helpful or a hindrance. Lay people may also hold views about the functionality of emotion generally. This is not to say that people believe emotions are always adaptive or always maladaptive. However, they may tend to view emotion generally as something that helps or hinders them. Despite the prevalence of global views about the functionality of emotion overall in the West, there is currently no scale that targets people's beliefs about emotion overall, independent of their beliefs about whether emotion can be regulated. Specifically, some scales assess people's beliefs about whether emotions are helpful or harmful in combination with their beliefs about whether emotions can be regulated (Halberstadt et al., 2013) or control behavior and thus cannot be regulated (Leahy, 2002; Veilleux et al., 2015). Other scales focus primarily on beliefs about emotion regulation as well as assessing whether emotions cause harm (Tamir et al., 2007; De Castella et al., 2013). Finally, there are scales that assess the functionality of specific emotions such as feeling upset (Rimes and Chalder, 2010), or specific pleasant and unpleasant feelings (Luong et al., 2015).

Why does the field need another measure? Lay theories about the overall functionality of emotion may affect wellbeing by guiding the strategies people use to regulate emotion. Understanding the antecedents of individual differences in the selection and efficacy of emotion regulation strategies has been noted as an important research direction (Gross, 2015). A great deal of research has examined the consequences of the strategies people use to regulate emotion for their emotion experience, physiology, memory, social interactions, and physical and mental health (e.g., Gross and John, 2003; Ford and Troy, 2019). Relatively little work has addressed what leads people to select particular regulation strategies in the first place. To determine how global beliefs about the functionality of emotion are related to emotion regulation, we need to measure these beliefs in a manner that is not confounded with perceptions of emotion regulation efficacy. It is also important to assess people's global views about the functionality of emotion overall rather than their views about specific emotional states. These general views should have broad implications for how people respond to emotional events regardless of their specific emotional reaction or how they construe their experience (e.g., as feeling angry, anxious, stressed, or upset). To the extent that emotion is informative and has adaptive functions (e.g., Simon, 1967; Frijda, 1994; Lench et al., 2015), such as guiding goal attainment and providing a primary means of relating to others, the tendency to embrace or avoid one's emotional life should have important and lasting consequences for people's wellbeing.

The Importance of Lay Beliefs About the Overall Functionality of Emotion

Lay theories about the overall functionality of emotion may influence people's wellbeing in several ways. First, these theories may shape how people appraise and experience emotion. When positive or negative events occur, people who believe that emotion is informative and valuable may be accepting of their emotional responses. Because they do not perceive their feelings to be a threat, they should allow them to unfold more fully and intensely without regretting the experience, instead of ignoring or suppressing their feelings. They may perform well under stress despite experiencing intense emotional and physiological arousal, and recover quickly once distressing events have passed

because they do not bear the additional burden of feeling distressed *about* their distress. In contrast, people who view emotion as dysfunctional are likely to feel bad about their emotional reactions. This may prolong unpleasant emotion, make it difficult for people to reason under stress, leading to decreased wellbeing over time.

A second way that lay theories about the overall functionality of emotion may affect wellbeing is by guiding the strategies people use to regulate emotion. Even people who tend to accept their feelings in daily life encounter situations in which they need to regulate or change their emotions to obtain their goals. Why people select one emotion regulation strategy versus another is an under-explored question (Gross, 2015). People's views about the functionality of emotion may influence the strategies they learn to use and prefer to use (Karnaze and Levine, 2018). People who view emotion as adaptive are likely to accept their emotional reactions to events and attend to them. This would provide them with opportunities to learn when and why they react emotionally including understanding that their emotions reflect their appraisals of events (Frijda, 1988). Understanding the causes of emotions should help people learn to regulate them when necessary by engaging in reappraisal. Viewing emotion as maladaptive would instead motivate people to avoid emotional experiences, mask them, and attempt to get rid of them. This view may promote the use of strategies such as attentional disengagement and distancing, which prevent people from learning from their emotions. This view may also promote more direct attempts to get rid of emotion, such as expressive suppression and substance use, which often have negative consequences (e.g., Gross and Levenson, 1997). Using strategies to avoid, mask, and directly get rid of emotion would prevent people from learning how their appraisals affect their emotional responses, rendering them less effective at engaging in reappraisal.

Finally, people's theories about the overall functionality of emotion may affect their wellbeing by guiding how they relate to others. People who view emotion as valuable are likely to be more open about and accepting of their own feelings within their relationships. Stress is related to worse relationship satisfaction (Falconier et al., 2015), so people who are less distressed by their own negative emotions should experience more harmonious relationships. People who view emotion as valuable should also be more accepting of how relationship partners feel, and empathy is related to relationship satisfaction (Sened et al., 2017). Both expressing and empathizing with emotion can improve relationship quality and thereby enhance wellbeing (Gross and John, 2003). Those who view emotion as harmful are likely to be less open about their feelings and may also discount or invalidate how relationship partners feel. As a result, they are likely to provide and receive less social support. In summary, we propose that viewing emotion as more helpful than hindering has several benefits, including more effective emotion regulation, promotion of social relationships, and greater wellbeing over time. A primary mechanism underlying these benefits is acceptance of the emotional experiences of the self and others.

To test these ideas, in prior research, we had undergraduates complete a stressful timed reasoning task and questionnaires that assessed their theories of emotion, emotional intensity, emotion regulation strategies, happiness, and social support (Karnaze and Levine, 2018). As a group, participants viewed emotion as more of a help than a hindrance. The more participants endorsed the view that emotion is helpful, the more intense emotion they reported experiencing in daily life, the better they performed on the stressful reasoning task, and the more positive reappraisal, happiness, and social support they reported. In contrast, viewing emotion as a hindrance was associated with reporting greater use of emotion suppression and less social support. Importantly, participants who endorsed a Help Theory about emotion did not do so because their emotional experience was milder. Viewing emotion as helpful was associated with reporting more rather than less intense emotion.

These findings provide preliminary evidence that people's beliefs about the overall functionality of emotion have consequences for their wellbeing. However, the study had limitations. To assess Help and Hinder Theories, we selected relevant items from existing measures that were not designed to assess beliefs about the overall functionality of emotion and that had differing sets of instructions. As a result, participants may have interpreted some items as referring to positive emotions and others as referring to negative emotions. To capture lay theories about the overall functionality of emotion, a single scale is needed with instructions that encompass both positive and negative emotion. The study was also correlational, thus it was not possible to determine the causal direction of the associations found between lay theories and reasoning, emotion regulation, and wellbeing.

The Current Investigation

To investigate whether an individual's theory about the functionality of emotion is a distinct construct with implications for wellbeing and emotion regulation, we conducted two studies. In Study 1, we developed a measure of lay theories about the functionality of emotion, the Help and Hinder Theories about Emotion Measure (HHTEM). The aim was to provide researchers with an efficient means of assessing an individual's beliefs about the overall functionality of emotion. We assessed the validity and reliability of the measure. We hypothesized that HHTEM scores would show convergent validity by being related in theoretically expected ways with measures of beliefs about emotions and attention to emotions. We hypothesized that HHTEM scores would show discriminant validity by being unrelated, or weakly related, to the need for cognition, approach and avoidance motivation, and social desirability. We assessed criterion correlation, that is, evidence that the HHTEM scores were correlated with relevant measures of emotional experience, emotion regulation, coping strategies, and wellbeing.

In Study 2, we experimentally manipulated the extent to which participants endorsed a Help Theory about emotion. We examined the effect of this manipulation on their emotional and physiological response during and after a distressing film. Previous research has shown that watching films that induce anger, sadness, and disgust increases skin conductance (Kreibig, 2010). Skin conductance is an index of sympathetic nervous system activity and an important component of negative emotion

(Dawson et al., 2007). Therefore, we used skin conductance as a measure of physiological arousal. Consistent with our previous finding that more strongly endorsing a Help Theory was correlated with greater self-reported emotional intensity (Karnaze and Levine, 2018), we proposed that encouraging people to view emotion as helpful would lead them to experience more intense emotion as well as greater physiological arousal when viewing distressing events. This greater emotional reactivity would reflect participants' belief that their emotional reactions are valuable and their willingness to allow those reactions to unfold rather than avoiding or distancing themselves from emotional experiences (Karnaze and Levine, 2018).[1] Thus, we hypothesized that relative to participants in the control condition, participants who viewed emotion as helpful would: (a) report more intense negative emotion, and exhibit greater sympathetic nervous system activity (SCL), during the distressing film; (b) report greater acceptance of their emotional response and less use of experiential suppression; and (c) show quicker emotional and physiological recovery after the distressing film.

STUDY 1

The aim of Study 1 was to create and validate a measure of lay theories about the functionality of emotion, including the fewest items possible, while meeting recommended guidelines of goodness of model-fit indices for confirmatory factor analysis (Acock, 2013). We also assessed the measure's test–retest reliability and whether scores converged and diverged with scores from other measures in expected ways. Finally, we assessed whether viewing emotion as a help or hindrance was associated with emotion regulation and coping strategies and with wellbeing, to replicate previous findings (Karnaze and Levine, 2018).

Method

Item Development and Pilot Study

We took a systematic approach to conceptualizing and measuring lay theories that emotion helps reasoning and wellbeing and that emotion hinders reasoning and wellbeing. We first consulted functionalist theories of emotion (e.g., Simon, 1967; Schwarz and Clore, 1983; Moors et al., 2013), ethnographic accounts of lay views about emotion (e.g., Lutz, 1986; Parrott, 1995; Shields, 2005), and existing scales assessing lay beliefs about the functionality of specific emotional states or features (Chow and Berenbaum, 2012; Manser et al., 2012; Luong et al., 2015). Based

on these accounts, we identified three dimensions along which people commonly view emotion as helpful or as a hindrance. People may view emotion as: (1) motivating/disrupting, (2) informative/irrational, and (3) essential to/a threat to life satisfaction, in ways that do not specifically refer to motivation or rationality. We then generated an over-inclusive pool of items (Loevinger, 1957): six Help items and six Hinder items designed to capture lay beliefs within each of the three dimensions. These 36 initial items were revised based on feedback concerning conceptual clarity and readability from members of the authors' research team. The complete list of 36 initial items is provided in **Supplementary Table 1**, which is available online at https: //osf.io/4vkfq/https://osf.io/4vkfq/. Because we wanted to assess lay theories that emotion, overall, helps or hinders reasoning and wellbeing, we also developed scale instructions that encouraged participants to think about both positive and negative emotions.

In a pilot study, we administered the initial 36 items to 223 undergraduates at a university in southern California. Participants rated the items in an online questionnaire. To ensure that the final HHTEM included items that were widely interpreted as referring to emotion overall, we had participants answer a follow-up question about each item after they had finished rating all 36 items. For each item, participants indicated whether they had thought mostly about positive emotion, mostly about negative emotion, or about emotion overall, when rating that item. The first step in item selection was to retain the items that more than 40% of participants interpreted as referring to "emotion overall" rather than as referring to mostly positive or mostly negative emotion. This resulted in our retaining 15 items: nine Help Theory, six Hinder Theory.

We conducted an exploratory factor analysis on these 15 items. Two main factors emerged from the data: a factor representing the view that emotion is helpful and a factor representing the view that emotion is a hindrance.[2] To construct a concise scale, we selected the four items with the highest loadings on a Help Theory factor while including at least one item from each of the three dimensions of a Help Theory. We also selected four items with the highest loadings on a Hinder Theory factor, while including at least one item from each of the three dimensions of a Hinder Theory. The resulting eight-item HHTEM is shown in **Appendix A**. We then administered and tested the properties of the scale with a separate group of participants.

Participants

Undergraduates (N = 282) at a university in southern California were recruited from the social science subject pool and completed online questionnaires at three time-points for course credit. At each time point, we instructed participants to read each question carefully and complete the questionnaire in a single session. We excluded data from participants who spent less than 10 min on the 90-min questionnaires at Time 1 (N = 1) or Time 3 (N = 1), or less than 5 min on the 30-min Time 2 questionnaire (N = 2). We also excluded data from participants who took more than three

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[1]Individuals who do not view emotion as helpful, and particularly those who view emotion as a hindrance, may use a range of strategies to inhibit and avoid emotion. Some strategies, such as suppressing emotion-expressive behavior and engaging in repressive coping, have been shown to increase sympathetic activation of the cardiovascular system (e.g., Roberts et al., 2008). Other strategies, such as avoiding emotional situations, attentional disengagement, self-distancing, and dissociation have been shown to decrease sympathetic activation (e.g., Fraley and Shaver, 1997; Sheppes et al., 2009; Hetzel-Riggin and Wilber, 2010; Dewe et al., 2016; Kross and Ayduk, 2017). Thus, even though individuals who endorse a Hinder Theory are more likely to engage in expressive suppression, we expected those who view emotions as helpful to show greater physiological arousal because they attend to and permit the progression of their emotional reactions.

[2]The 15 preliminary Help and Hinder Theory items in Study 1, and the factor analysis of those items, are available online at https://osf.io/4vkfq/in **Supplementary Tables 2**, **3**.

standard deviations above the mean time to complete the Time 1 questionnaire ($N = 7$), Time 2 questionnaire ($N = 2$), or Time 3 questionnaire ($N = 1$). The final sample included 282 participants at Time 1 and, due to attrition, 226 participants at Time 2, and 193 participants at Time 3. The mean age of participants was 20.98 years ($SD = 4.26$ years). Reflecting the gender composition of the social science subject pool, 85% of participants were female. Reflecting the ethnic composition of the campus, participants reported their ethnicity as East Asian (45%), Hispanic/Latino (23%), White (18%), Pacific Islander (6%), South Asian (4%), Black (1%), or other (3%).

Procedure and Measures

Participants completed three online questionnaires. We administered the questionnaires at approximately equal time intervals across the 11-week academic term, avoiding the final 2 weeks of the quarter when students were focusing on final exams. Specifically, they completed the Time 1 questionnaire within the first 7 weeks of the academic term. The questionnaire included the HHTEM and measures used to assess convergent and divergent validity and criterion correlation. Participants completed the Time 2 questionnaire approximately 2 weeks after Time 1 ($M = 13.94$ days, $SD = 1.74$, range = 9–22 days) when the academic term was well underway. This questionnaire assessed participants' coping strategies as a measure of criterion correlation. Participants completed the HHTEM again as part of the Time 3 questionnaire, approximately 1 month after Time 1 ($M = 29.63$ days, $SD = 3.21$, range = 14–34 days), allowing us to examine test–retest reliability. Preliminary analyses revealed no differences in Help or Hinder Theory endorsement between those who did versus did not complete the Time 2 or Time 3 questionnaires (ps > 0.14).

Time 1 Questionnaire

The Time 1 questionnaire included the measures listed below.

Baseline mood

After a task designed to evoke a neutral affective state (counting trees in photographs of their university), participants rated their current mood using the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988). Baseline positive and negative mood refer to mean ratings of 10 positive ($\alpha = 0.92$) and 10 negative ($\alpha = 0.91$) items.

HHTEM and convergent measures

Participants then completed the HHTEM. They also completed the following measures of beliefs about the functionality of, and attention given to emotional states, which we expected to be convergent with HHTEM scores. The Affect Valuation scale (Luong et al., 2015) measured how often participants experienced three positive states (joy, contentment, interest) and three negative states (anger, nervousness, downcast) as pleasant, helpful, appropriate, meaningful, and (reverse-coded) as disruptive, unpleasant, inappropriate, and pointless. Ratings were made on a scale from 1 (*almost never or never*) to 7 (*almost always or always*).

The Perceived Affect Utility Scale (Chow and Berenbaum, 2012) assessed how often participants experienced six positive feelings (e.g., proud, appreciative; $\alpha = 0.85$) and six negative feelings (e.g., fearful, hostile; $\alpha = 0.84$) as informative, motivational for goal attainment, and beneficial for behavior, using a scale from 1 (*never*) to 6 (*all the time*).

The Following Affective States Test (Gasper and Bramesfeld, 2006) assessed the degree to which participants: attend to and follow their positive feelings ($\alpha = 0.75$); ignore their positive feelings ($\alpha = 0.75$); attend to and follow their negative feelings ($\alpha = 0.70$); and ignore their negative feelings ($\alpha = 0.75$). Each subscale contained four items, rated from 0 (*strongly disagree*) to 6 (*strongly agree*).

Divergent measures

We also assessed measures expected to be divergent. The Short Form of the Need for Cognition Scale (Cacioppo et al., 1996) is an 18-item measure of the tendency to use and enjoy effortful cognition. Participants rated items (e.g., "I would prefer complex to simple problems") using a scale from 1 (*extremely uncharacteristic*) to 5 (*extremely characteristic*).

BIS/BAS scales (Carver and White, 1994) include four items that assess orientation to approach rewards (behavioral activation system; $\alpha = 0.77$) and four items that assess orientation to avoid punishment (behavioral inhibition system; $\alpha = 0.74$), using a scale from 1 (*very true for me*) to 4 (*very false for me*).

The 20-item impression management subscale of the Balanced Inventory of Desirable Responding (Paulhus, 1984) assessed social desirability using a scale from 1 (*not true*) to 7 (*very true*); $\alpha = 0.72$.

Measures of criterion correlation: Emotion regulation, coping strategies, emotional intensity, and wellbeing

The Emotion Regulation Questionnaire (Gross and John, 2003) included five items assessing the use of reappraisal ($\alpha = 0.84$) and four items assessing the use of expressive suppression ($\alpha = 0.68$), using a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Participants also completed the Brief COPE Inventory (Carver, 1997) which assessed how often participants used different coping strategies when experiencing stress, including two items each for: active coping ($\alpha = 0.66$), planning ($\alpha = 0.68$), positive reframing ($\alpha = 0.78$), acceptance ($\alpha = 0.71$), receiving emotional support ($\alpha = 0.89$), seeking instrumental support from others ($\alpha = 0.86$), and substance use ($\alpha = 0.94$). The scale ranged from 1 (*I usually don't do this at all*) to 4 (*I usually do this a lot*).

The six-item Impulse Strength factor of the Berkeley Expressivity Questionnaire (Gross and John, 1995) assessed the intensity of participants' emotional reactions, using a scale from 1 (*strongly disagree*) to 7 (*strongly agree*); $\alpha = 0.86$.

Finally, participants completed four measures of wellbeing. The Satisfaction with Life Scale (Diener et al., 1985) included five statements about satisfaction with life, rated from 1 (*strongly disagree*) to 7 (*strongly agree*); $\alpha = 0.87$.

The four-item Subjective Happiness Scale (Lyubomirsky and Lepper, 1999) assessed participants' level of general happiness by asking participants to compare themselves to happy and unhappy individuals on a 7-point scale ($\alpha = 0.84$).

The 12-item Multidimensional Scale of Perceived Social Support (Zimet et al., 1988) assessed feelings of support by family,

friends, and a significant other, using a scale from 1 (*strongly disagree*) to 5 (*strongly agree*); α = 0.94.

The 10-item version of the Center for Epidemiologic Studies Depression Scale (Andresen et al., 1994) assessed how often participants felt symptoms during the past week (e.g., "I could not 'get going'") using a scale from 1, (*rarely or none of the time/less than 1 day*) to 4 (*all of the time/5–7 days*); α = 0.85.

Time 2 Questionnaire
To further assess criterion correlation in the midst of the academic term, participants again completed the emotion regulation and coping measures that they had completed at Time 1.

Time 3 Questionnaire
At Time 3, to assess test-retest reliability, participants again completed the HHTEM as well as the convergent measures described above for Time 1.[3]

Results
Psychometric Properties of the HHTEM
Table 1 presents descriptive data on the HHTEM. Preliminary analyses showed no significant differences between genders or ethnic groups in their endorsement of help or hinder theories (all ps > 0.22). As found by Karnaze and Levine (2018), participants tended to view emotion overall as more helpful ($M = 3.43$, $SD = 0.62$) than hindering ($M = 3.11$, $SD = 0.62$), $t(280) = 6.25$, $p < 0.001$. Cronbach's alpha was 0.74 for Help items and 0.64 for Hinder items. Average item intercorrelations were 0.42 for Help items and 0.32 for Hinder items. Responses on both scales followed a normal distribution. Help Theory and Hinder Theory endorsement were not correlated with one another, $r(280) = -0.13$, $p = 0.83$.

Factor structure
Figure 1 shows the results of a confirmatory factor analysis that modeled Help and Hinder Theories at Time 1 as distinct factors which were allowed to covary. We also followed the approach of Judd et al. (1986) to test the hypothesis that Help and

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[3]In addition to the measures listed, the three questionnaires in Study 1 included exploratory questions (e.g., concerning health, academics) that were not the focus of the current investigation and additional measures that are listed online in **Supplementary Text**.

TABLE 1 | Descriptive data for the Help and Hinder Theories about Emotion Measure in Study 1.

Psychometric property	Help Theory	Hinder Theory
N	280	280
M	3.43	3.11
SD	0.62	0.62
Range	1.25 – 5.00	1.00 – 5.00
Kurtosis	0.73	0.87
Skewness	−0.07	0.23
Cronbach's α	0.74	0.64
Mean item intercorrelation	0.42	0.32

Hinder items were better represented as measuring two distinct constructs rather than one bipolar construct. In the first step of this process, Model 1 tested whether the four Help Theory items and the four Hinder Theory items could be represented as one bipolar Help-Hinder Theory latent factor. Model 1 did not show a good fit to the data; RMSEA = 0.19; CFI = 0.543. The absolute values of standardized loadings of the eight items ranged from 0.05 to 0.75. Model 2 then tested whether Help Theory items loaded significantly onto a latent factor of Help Theory, and whether Hinder Theory items loaded significantly onto a latent factor of Hinder Theory, with these factors allowed to covary. This model showed a better fit to the data, however CFI and RMSEA did not meet recommended guidelines (Acock, 2013); RMSEA = 0.10; CFI = 0.872. The standardized loadings of the four Help Theory items ranged from 0.58 to 0.77. The standardized loadings of the four Hinder Theory items ranged from 0.49 to 0.70.

To determine whether Model 2 was a significantly better fit than Model 1, we conducted a X^2 test comparing the fit of the two models. The two-factor model was a statistically significant improvement over the one-factor model, $X^2(1) = 148.24$, $p < 0.001$. Because Help Theory and Hinder Theory were not related, we also represented Help Theory and Hinder Theory in separate models. In the Help Theory model, CFI (0.996) and RMSEA (0.04) both met the criteria considered for a good fit to the data (CFI ≥ 0.95; RMSEA ≤ 0.05). In the Hinder Theory model, CFI (0.973) met the criteria for a good fit to the data, but RMSEA (0.08) did not meet the recommended cutoff. In summary, fit indices were better when modeling Help and Hinder Theories as separate factors rather than as one Help-versus-Hinder Theory factor. Separate models of Help and Hinder Theories had model-fit indices that exceeded the recommended criteria for a good fit (CFI ≥ 0.95; RMSEA ≤ 0.05).

Test–retest reliability
For convergent measures, test–retest reliability coefficients ranged from 0.28 to 0.85 (e.g., 0.28 and 0.85 for valuation of negative and positive emotion, respectively, and 0.65 and 0.57 for utility of positive and negative emotion), and are available online in **Supplementary Table 4**. Test–retest reliability for Help and Hinder scores fell at about the middle of this range. Participants' Help Theory scores were correlated between Time 1 and Time 2, $r(280) = 0.46$, $p < 0.001$. Hinder Theory scores were also correlated between Time 1 and Time 2, $r(199) = 0.50$, $p < 0.001$.

Convergent and Discriminant Validity and Criterion Correlation
We conducted correlation analyses between the HHTEM subscales and validity measures using bootstrapping. This involved taking 1,000 random samples from the data, with replacement, to compute an interval for each correlation coefficient (e.g., the correlation between Help Theory and Perceived Affect Utility scores) to obtain a 95% probability that the interval contains the correlation coefficient of the population. If an interval does not include zero, the association can be

FIGURE 1 | Study 1 confirmatory factor analysis with the distinct Help Theory and Hinder Theory factors, with standardized regression coefficients displayed.

interpreted as statistically significant. The results are shown in **Table 2**. We describe the results below using the conventional descriptions of correlations as weak ($r < 0.20$), moderate ($0.20 \geq r \geq 0.50$), and strong ($r > 0.50$; Hemphill, 2003). If either Help or Hinder Theory endorsement was correlated with a variable, but the other Theory was not, the Table also presents a z-test indicating whether the strength of the correlation differed significantly for Help versus Hinder Theory (Steiger, 1980). See **Supplementary Tables 5–8** for correlations among convergent measures, among divergent measures, and among emotion regulation measures.

Convergent Measures for Help and Hinder Theories
We first assessed whether Help and Hinder Theory endorsement were related to existing measures of beliefs about the functionality of specific emotional states or features.

Valuation of positive and negative feelings
As **Table 2** shows, when examining associations with the Affect Valuation Scale, we found that Help Theory endorsement was weakly correlated with valuing positive feelings but was not correlated with valuing negative feelings (see **Supplementary Table 5** for correlations among convergent measures). Hinder Theory endorsement was not correlated with valuing positive or negative feelings. The Affect Valuation Scale includes questions about how appropriate and how enjoyable it is to experience positive and negative feelings. Therefore, we conducted follow-up analyses in which we examined correlations between Help and Hinder Theory endorsement and scale items that specifically assessed how meaningful, helpful, pointless, or disruptive feelings are. As expected, Help Theory endorsement was correlated with viewing both positive feelings, $r(280) = 0.30$, $p < 0.001$, and negative feelings as meaningful, $r(280) = 0.23$, $p < 0.001$, and

TABLE 2 | Study 1 correlations of HHTEM subscales with convergent and divergent measures and tests of the difference between dependent correlations.

Measure	Help Theory		Hinder Theory		
	r	95% CI	r	95% CI	z
Convergent measures					
Value of Specific Affective States					
Positive affect valuation[a]	0.20**	[0.06, 0.33]	−0.11	[−0.23, 0.01]	3.70***
Negative affect valuation[a]	0.05	[−0.11, 0.19]	−0.01	[−0.14, 0.12]	–
Positive affect utility[b]	0.25***	[0.13, 0.36]	−0.01	[−0.14, 0.12]	3.12**
Negative affect utility[b]	0.15*	[0.03, 0.27]	−0.14	[0.00, 0.26]	–
Attention to Specific Affective States[c]					
Attention to positive feelings	0.29***	[0.16, 0.40]	−0.01	[−0.14, 0.12]	3.63***
Attention to negative feelings	0.17**	[0.05, 0.30]	0.20**	[0.07, 0.31]	–
Ignoring positive feelings	−0.23**	[−0.29, −0.01]	−0.23**	[0.09, 0.35]	–
Ignoring negative feelings	−0.17*	[−0.30, −0.06]	−0.17**	[0.22, 0.49]	–
Divergent measures					
Need for Cognition	0.06	[−0.05, 0.17]	−0.07	[−0.18, 0.05]	–
Approach motivation	0.01	[−0.14, 0.15]	0.06	[−0.09, 0.20]	–
Avoidance motivation	0.04	[−0.10, 0.18]	0.01	[−0.13, 0.14]	–
Social desirability	−0.12	[−0.23, −0.01]	−0.05	[−17, 0.07]	–

[a]*Affect Valuation scale (Luong et al., 2015);* [b]*Perceived Affect Utility Scale (Chow and Berenbaum, 2012);* [c]*Following Affective States Test (Gasper and Bramesfeld, 2006). Participants completed all measures at Time 1. Z-test values are presented for all measures that were significantly correlated only with Help Theory or only with Hinder Theory. *p < 0.05. **p < 0.01. ***p < 0.001.*

with viewing both positive feelings, $r(280) = 0.31$, $p < 0.001$, and negative feelings as helpful, $r(280) = 0.19$, $p = 0.003$. As expected, Hinder Theory endorsement was correlated with viewing both positive feelings, $r(280) = 0.17$, $p = 0.004$, and negative feelings as pointless, $r(280) = 0.14$, $p = 0.01$, and with viewing positive feelings as disruptive, $r(280) = 0.18$, $p = 0.002$.

Perceived utility of positive and negative feelings
Table 2 shows that, as expected, Help Theory endorsement was moderately correlated with viewing both positive and negative feelings as useful on the Perceived Affect Utility Scale (Chow and Berenbaum, 2012). Hinder Theory was not correlated with viewing either positive or negative feelings as useful.

Attention to positive and negative feelings
Examining responses to the Following Affective States Test (Gasper and Bramesfeld, 2006), Help Theory endorsement was moderately correlated with paying attention to and following positive feelings, and was weakly correlated with attending to and following negative feelings. In contrast, Hinder Theory endorsement was moderately correlated with ignoring both positive and negative feelings.

Divergent Measures for Help and Hinder Theories
We next assessed whether Help and Hinder Theory endorsement were unrelated or weakly related to constructs that should be theoretically distinct from viewing emotion as a help or hindrance.

Need for cognition
As expected, neither Help nor Hinder Theory was related to need for cognition. Thus, viewing emotion as helpful did not reflect

valuing cognition less. Viewing emotion as a hindrance did not reflect valuing cognition more.

Motivation
Neither Help nor Hinder Theory endorsement was related to approach or avoidance motivation. Thus, Help Theory endorsement did not reflect a tendency to approach rewarding experiences, which would increase positive feelings. Hinder Theory endorsement did not reflect a tendency to avoid negative experiences, which would decrease negative feelings.

Social desirability
As expected, Help and Hinder Theory endorsement were not related to the tendency to present oneself in socially desirable ways.

Criterion Correlation
To assess the criterion correlation of the HHTEM, we examined how Help and Hinder Theory endorsement were related to: (a) emotion regulation and coping strategies (assessed at both Time 1 and Time 2), (b) emotional experience (Time 1), and (c) measures of wellbeing (Time 1).

Emotion regulation and coping strategies
The results for emotion regulation and coping strategies are shown in **Table 3**. Consistent with our past research (Karnaze and Levine, 2018), Help Theory endorsement was weakly correlated with engaging in reappraisal both relatively early in the academic term (Time 1) and in the midst of the academic term (Time 2). Help Theory endorsement was also weakly associated with acceptance at Time 2, and with the use of planning to cope with stress at both time points and positive reframing at Time 1. Help Theory endorsement was moderately correlated with seeking and

TABLE 3 | Study 1 correlations of HHTEM subscales with emotion regulation and coping strategies at Time 1 and Time 2, and tests of the difference between dependent correlations.

Measure	Time 1 questionnaire					Time 2 questionnaire				
	Help Theory		Hinder Theory		Difference	Help Theory		Hinder Theory		Difference
	r	95% CI	r	95% CI	z	r	95% CI	r	95% CI	z
Emotion regulation										
Reappraisal	0.18**	[0.04, 0.31]	0.01	[−0.11, 0.11]	2.20*	0.18**	[0.01, 0.33]	0.01	[−0.12, 0.14]	1.37
Expressive suppression	−0.01	[−0.13, 0.13]	0.17**	[0.04, 0.31]	−2.13*	−0.01	[−0.16, 0.14]	0.08	[−0.05, 0.23]	–
Coping strategies										
Acceptance	0.08	[−0.05, 0.22]	−0.01	[−0.13, 0.10]	–	0.17*	[0.02, 0.29]	0.07	[−0.05, 0.19]	1.04
Active coping	0.18	[0.06, 0.32]	0.01	[−0.13, 0.13]	–	0.13	[−0.01, 0.25]	−0.02	[−0.17, 0.12]	–
Planning	0.18**	[0.05, 0.31]	0.03	[−0.12, 0.12]	1.78	0.16*	[0.01, 0.31]	0.07	[−0.08, 0.20]	0.93
Positive reframing	0.16**	[0.02, 0.29]	0.03	[−0.08, 0.15]	1.54	0.15	[0.01, 0.29]	0.03	[−0.09, 0.14]	–
Instrumental social support	0.21***	[0.08, 0.34]	0.02	[−0.09, 0.14]	2.26*	0.21**	[0.07, 0.37]	0.03	[−0.10, 0.16]	1.87
Emotional social support	0.22***	[0.10, 0.34]	0.10	[−0.03, 0.22]	1.44	0.28***	[0.15, 0.41]	0.02*	[−0.10, 0.14]	2.74**
Substance use	0.12	[0.00, 0.24]	0.25***	[0.14, 0.35]	−1.57	−0.02	[−0.16, 0.13]	0.18**	[0.05, 0.30]	−2.07*

*Participants completed the HHTEM at Time 1. They completed the Emotion Regulation Questionnaire (Gross and John, 2003) and the Brief COPE Inventory (Carver, 1997) at both Time 1 and Time 2. Z-test values are presented for all measures that were significantly correlated only with Help Theory or only with Hinder Theory *p < 0.05. **p < 0.01. ***p < 0.001.*

receiving social support at both time points. In contrast, Hinder Theory endorsement was weakly correlated with using expressive suppression to regulate emotion at Time 1, and weakly-to-moderately correlated with using substances to cope at both time points. As **Table 3** shows, although there were a few exceptions, most associations found between HHTEM scores and emotion regulation and coping strategies were consistent over time.

Emotional experience

Participants rated their baseline positive and negative mood after completing a neutral filler task at the start of the Time 1 questionnaire. Help Theory endorsement was weakly correlated with a more positive baseline mood but was not correlated with negative baseline mood. In contrast, Hinder Theory endorsement was moderately correlated with a more negative baseline mood but was not correlated with positive baseline mood. Help Theory endorsement was moderately correlated with greater emotional intensity on the Impulse Strength factor of the Berkeley Expressivity Questionnaire (Gross and John, 1995), whereas Hinder Theory was not related to emotional intensity.

Wellbeing

We hypothesized that, even after adjusting for differences in baseline mood, participants who more strongly endorsed a Help Theory would report more happiness, life satisfaction, and social support, and fewer depressive symptoms. We expected participants who more strongly endorsed a Hinder Theory to report less happiness, life satisfaction, and social support, and more depressive symptoms. To test this, we conducted separate hierarchical regression analyses for each outcome. In each analysis, we entered baseline positive and negative mood at Step 1, and entered Help and Hinder Theory endorsement in Step 2.

As shown in **Table 4**, positive and negative baseline mood showed the expected associations with each outcome variable. That is, a more positive mood at baseline was associated with greater happiness, life satisfaction, and social support, and fewer depressive symptoms. A more negative mood at baseline was associated with less happiness, life satisfaction, and social support, and more depressive symptoms. At Step 2, after accounting differences in baseline mood, participants who more strongly endorsed a Help Theory reported more social support. They also showed a non-significant tendency to report more satisfaction with life ($p = 0.052$). Participants who more strongly endorsed a Hinder Theory reported less happiness and more depressive symptoms. These findings are consistent with our hypothesis that endorsing a Help Theory would be associated with greater wellbeing and that endorsing a hinder would be associated with less wellbeing.

Contrary to our hypotheses, participants who more strongly endorsed a Help Theory also reported more depressive symptoms. People who view their emotions as helpful may consider their depressive symptoms, which included both emotions and behaviors, as important and thus attend to them and even share them with others, which could inadvertently prolong the duration of depressive symptoms. This is supported by the finding that emotional experiences are prolonged when people continue to think about them, or share them with others (Verduyn et al., 2011). However, to further explore this unexpected finding, we computed a dichotomous variable representing whether participants did (coded as 1; 64%) or did not (coded as 0) meet the cutoff level of ≥10 for clinically significant depressive symptoms (e.g., Thielke et al., 2010). We then computed partial correlations, controlling for baseline positive and negative emotion, between Help and Hinder Theories and this dichotomous variable. The results showed that endorsing a Hinder Theory, $r_{partial} = 0.13$, $p < 0.05$, but not a Help Theory ($p = 0.18$), was associated with clinically significant depressive symptoms.

TABLE 4 | Study 1 summary of hierarchical regression analyses for Help and Hinder Theory endorsement predicting wellbeing outcomes ($N = 282$).

Variable	Happiness		Life satisfaction		Social support		Depressive symptoms	
	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1	0.18***		0.19***		0.09***		0.30***	
Baseline positive mood		0.35***		0.36***		0.23***		−0.23***
Baseline negative mood		−0.31***		−0.30***		−0.23***		0.53***
Step 2	0.02*		0.02*		0.05**		0.05**	
Baseline positive mood		0.35***		0.35***		0.19**		−0.25***
Baseline negative mood		−0.28***		−0.29***		−0.24***		0.46***
Help Theory		0.05		0.11†		0.21***		0.11*
Hinder Theory		−0.13*		−0.08		−0.06		0.21***
Total R^2	0.45***		0.20***		0.37***		0.59***	

†$p = 0.05$. *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

Discussion

In Study 1, we created a new measure of lay theories about the functionality of emotion. Across two samples of university students (the pilot study and Study 1 samples), we demonstrated that the model representing Help and Hinder Theories about emotion as distinct constructs was a better fit to the data than modeling them as a unipolar construct. The alpha coefficients, a measure of scale reliability, were on the lower side of the range considered to be acceptable, particularly for the hinder scale. This was likely due to including only four, relatively heterogeneous, items. We sought to create a measure that was short and easy to administer while including unique rather than redundant items in order to capture the broad constructs of viewing emotion overall as helpful or hindering for reasoning, goal-pursuit, and general wellbeing. We expected a scale that measured these broad lay theories to predict a range of outcomes and behaviors. Having a narrow range of items may produce indices of high internal consistency (e.g., alpha), but be less useful for predicting outcomes of interest. Likewise, having too much heterogeneity can result in less accuracy in predicting outcomes. This is known as the bandwidth-fidelity tradeoff (Cronbach and Gleser, 1957). Additional Hinder Theory items may increase Cronbach's alpha. However, because alpha is a function of scale length and item homogeneity, John and Soto (2007) recommend also computing the average item intercorrelations. These values for both Help Theory (0.42) and Hinder Theory (0.32) suggest that the items within each construct are moderately related.

The test–retest reliability coefficients for Help theory (0.48) and Hinder Theory (0.51) were low. It should be noted that the test-retest reliability coefficients for related measures in the literature (0.28 for valuing negative feelings, 0.57 for perceiving negative feelings as useful) were also low (**Supplementary Table 4**). We also found that the test-retest reliability coefficients for the scales assessing attention to positive and negative feelings ranged from 0.56 to 0.67, and in previous research, they ranged from 0.59 to 0.67 (Gasper and Bramesfeld, 2006). Taken together, these findings suggest that beliefs about emotional experiences are less stable over time than other constructs such as beliefs about cognition, attitudes, or personality traits. Scores for scales assessing beliefs about emotion should rely on

memory for past emotional experiences, which can be shaped factors such as current feelings or current appraisals of past emotional experiences (Levine et al., 2018). Scale modification in further research should encourage participants to think about emotions more generally, rather than in relation to their current circumstances.

Scores for the Help Theory subscale of the HHTEM reflect the extent to which people view both positive and negative emotions as meaningful and helpful. Hinder Theory endorsement reflects the extent to which participants view both positive and negative emotions as pointless and view positive emotions as disruptive. Help Theory endorsement does not simply reflect the tendency to pursue goals to obtain rewards, nor does it reflect less need for cognition. Hinder Theory endorsement does not simply reflect the tendency to ignore feelings, differences in emotional intensity, or greater need for cognition. Thus, both Help and Hinder Theory scores were related to, and distinct from, other measures in theoretically expected ways, providing evidence for convergent and discriminant validity.

Consistent with our prior findings (Karnaze and Levine, 2018), Help and Hinder Theory scores also predicted emotion regulation, coping strategies, and wellbeing in theoretically expected ways, providing evidence of criterion correlation. Specifically, viewing emotion overall as a hindrance was associated with using expressive suppression (at Time 1) and substances to regulate emotions, experiencing less happiness, and with a greater likelihood of experiencing clinically significant depressive symptoms. Viewing emotion overall as helpful was associated with emotional acceptance (at Time 2), with using reappraisal to regulate emotion, and with reporting more social support. In addition, a non-significant tendency was found for participants who viewed emotion as helpful to report more life satisfaction ($p = 0.052$). One way that Help Theory may confer wellbeing is by promoting acceptance of emotional experience, which in turn allows people to recover quickly from distressing events. However, the data in Study 1 were correlational, leaving uncertainty about the causal direction of the associations. To test the hypothesis that endorsing a Help Theory about emotion promotes greater acceptance of emotion during distressing events, and reduced emotional and physiological reactivity after

distressing events, we manipulated people's beliefs about the functionality of emotion in Study 2.

STUDY 2

Study 2 assessed whether viewing emotion as helpful influenced people's emotional and physiological response, and regulatory strategies, when faced with distressing events. Specifically, we manipulated participants' views about the value of emotion and assessed the effects on their emotional response, physiological reactivity, and regulatory strategies during a distressing film and their recovery after the film. In Study 1, the more people viewed emotion overall as helpful, the more they reported using acceptance to cope with stressful experiences. We also found that people who viewed emotion overall as helpful reported experiencing more intense emotional reactions (Karnaze and Levine, 2018). People who are led to view emotion as helpful should be more accepting of their emotional responses to distressing events and thus more fully experience them, resulting in more intense emotional and physiological reactions during such events. After distressing events have passed, however, people who accept their emotions should feel less distressed *about* their reactions, resulting in less distress overall. Therefore, we hypothesized that, during a distressing film, participants encouraged to view emotion as helpful, compared to those in the control condition, would report more intense negative emotion, exhibit greater sympathetic nervous system activity (skin conductance level; SCL), and report more acceptance and less experiential suppression of emotion. We hypothesized that after the distressing film, participants encouraged to view emotion as helpful would show faster recovery.[4]

Method
Participants
Undergraduates ($N = 160$) were recruited from the social sciences subject pool and via flyers at a university in southern California for a study on responses to multimedia. Participants were compensated with course credit (subject pool) or $10 (flyers). A power analysis of previous studies assessing emotion regulation and skin conductance responses to film clips, conducted with the program G*Power, showed that 120 participants (60 per condition) were required to obtain a power of 0.80. The experimental manipulation required students to provide open-ended responses describing how emotion was helpful. We excluded data from seven participants who did not complete these two questions. We excluded data from four other participants due to experimenter or program error. The mean age of participants was 20.55 years ($SD = 2.61$) and most (80%) were female. Participants were Asian ($n = 43\%$), Hispanic/Latino

(29%), White (15%), African American (2%), Mixed Race (5%), or other race-ethnicity (6%).

Procedure and Measures
Participants sat in a corner with two adjacent computer desks. They rotated the chair between the computer monitors at these two desks during the session. Film clips and questions during the post-film period were administered via a computer set up with E-Prime® 2.0 software that allowed start and stop times to be marked in the physiological data. The other study materials were administered on a computer with a Qualtrics questionnaire.

Physiological measures
At the beginning of the session, the investigator attached two silver–silver chloride electrodes to the palm of the hand that participants did not use for the computer mouse and fitted each participant with a respiratory transducer snugly over their clothes. Skin conductance and respiration were measured continuously. We used an E-Prime program to send time markers to the electrodermal activity (EDA) data file at the beginning and end of three events. This allowed us to compute average SCL for each event: (a) a 2.5-min neutral film, (b) a 4-min distressing film, and (c) post-film completion of retrospective ratings of emotions and regulation strategies used during the distressing film. EDA data were processed with BioLab Acquisition Software and any EDA changes associated with sudden changes in respiration were transformed using the spline interpolation function in the EDA Analysis 3.1.2 program.

Neutral film and baseline SCL and emotion
To assess baseline SCL, participants watched a film clip of nature scenes that has been recommended for inducing a neutral mood (Rottenberg et al., 2007). Participants rated the greatest amount of positive emotion (compassion, happiness, interest, pride; $\alpha = 0.78$) and negative emotion (anger, anxiety, confusion, contempt, disgust, embarrassment, fear, guilt, sadness, shame, unhappiness; $\alpha = 0.80$) they felt during the film, using a scale from 1 (*not at all/none*) to 9 (*extremely/a great deal*).

Experimental manipulation
Participants were randomly assigned to a Help Theory condition or control condition. After watching the neutral film and rating their emotions, participants assigned to the Help Theory condition read and summarized brief article excerpts. The excerpts cited purported scientific evidence that experiencing emotion helps the pursuit of goals, physical health, mental health, and relationship satisfaction. Participants then wrote about how their own personal experiences of pleasant and unpleasant emotions were helpful in their transition to life as a college student. Finally, participants were asked to give advice about how emotion is helpful to an incoming college freshman, Taylor, who was assigned to live in a triple dormitory room in the upcoming year. Participants who were assigned to the control condition read and summarized brief article excerpts citing purported scientific evidence that verbal ability is helpful to pursuing goals, physical health, mental health, and relationship satisfaction. Participants were prompted to write about how their own personal experiences of how oral and written communication

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[4]In Study 2, we pilot-tested a Hinder Theory induction ($N = 31$). The instructions were identical to those for the Help Theory induction except that they emphasized how emotions were harmful rather than helpful in daily life and in the transition to life as a college student. Preliminary analyses showed that instructions designed to encourage viewing emotion as a hindrance did not increase Hinder Theory endorsement, or decrease Help Theory endorsement, relative to the control condition ($ps > 0.41$). Therefore, this investigation focused on increasing Help Theory endorsement.

were helpful to their transition to life as a college student. They gave advice about how verbal ability is helpful, to an incoming college freshman, Taylor, who was assigned to live in a triple dormitory room in the upcoming year.

Hinder Theories about Emotion Measure

After the manipulation, participants were instructed, "Earlier, you read some passages about whether [emotion/verbal ability] is helpful or harmful. Your personal experience might lead you to agree or disagree with what you read. Next, we are interested in your own personal views about the extent to which emotion is helpful or harmful. We want to know what you think, rather than what the experts think." Participants then completed the 8-item HHTEM.

Distressing film

Participants then watched a 4-min excerpt from the film *Cry Freedom,* which depicts soldiers shooting and killing schoolchildren in South Africa. This film clip has been shown to elicit a range of negative emotions, and to provide an ecologically valid way to assess how people react emotionally to distressing events and regulate negative emotion (Rottenberg et al., 2007).

Emotional response and regulation strategies

Immediately after the film, participants rated the greatest intensity of their positive ($\alpha = 0.48$) and negative emotional responses ($\alpha = 0.76$) to the distressing film using the same questions and scales used for the neutral film. They also retrospectively reported the strategies they had used to regulate their emotional response during the film. Using items adapted from Tull et al. (2010), participants rated how much they had engaged in acceptance ("I let myself feel whatever I was feeling") and reappraisal ("I tried to think differently about the events in order to change how I was feeling about the film"), using a scale from 1 (*not at all*) to 9 (*very much*). They also rated the extent to which they used experiential suppression ("I tried not to feel how I was feeling" and "I tried to stop my emotions") using the same scale. They also answered the question, "How much did watching the film affect your mood during the film?" using a scale from 1 (*not at all*) to 9 (*a great deal*).

Post-film period SCL

Because SCL reactivity can decrease quickly, to assess physiological recovery, we examined SCL in the post-film period, during which participants retrospectively rated how they felt and regulated emotion during the distressing film.

Emotion and emotion regulation during the four-minute rest period

We then told participants to rest for a few minutes while the recording program recalibrated. The program advanced to the next set of questions after 4 min. Participants were asked to rate the degree to which they felt positive ($\alpha = 0.62$) and negative emotions ($\alpha = 0.93$) during the 4-min rest period. They also rated the extent to which they used the emotion regulation strategies during the rest period. Participants also rated, "How much did watching the last film affect your current mood?" using a scale from 1 (*not at all*) to 9 (*a great deal*).

Violence rating and prior exposure to the film

Participants rated how violent the film was compared to what they watch in a typical week, from 1 (*much less violent*) to 7 (*much more violent*). They also indicated whether they had seen the film before and how much they knew about the events in the film.

Debriefing

Finally, participants completed demographic questions and watched an amusing film clip to induce a more positive mood. During debriefing, participants were told that we created the article excerpts for the study, and that research suggests that emotional experience can have both positive and negative consequences.

Results

Preliminary Analyses

We compared HHTEM ratings across conditions to find out whether we successfully manipulated the extent to which participants viewed emotion as helpful. Participants in the Help Theory condition endorsed a Help Theory ($M = 3.74$, $SD = 0.64$) more than did those in the control condition ($M = 3.40$, $SD = 0.65$), $t(158) = 3.22$, $p < 0.01$, $d = 0.09$. Participants in the Help Theory condition endorsed a Hinder Theory ($M = 2.95$, $SD = 0.60$) less than those in the control condition ($M = 3.17$, $SD = 0.61$), $t(158) = -2.33$, $p < 0.05$, $d = 0.07$. Thus, the experimental manipulation was successful. Alpha values were 0.73 for Help Theory items and 0.58 for Hinder Theory items. The mean item intercorrelations were 0.40 for Help Theory items and 0.25 for Hinder Theory items. Preliminary analyses showed no difference between the Help Theory condition ($M = 1.70$, $SD = 0.84$) and the control condition ($M = 1.80$, $SD = 0.91$) in negative affect during the neutral film $t(151) = 0.74$, $p = 0.46$, $d = 0.11$. There was no difference between conditions in how violent they found the distressing film compared to what they watch in a typical week ($p = 0.21$).

Emotional Response to the Distressing Film

To assess whether endorsing a Help Theory affected participants' subjective emotional response to the distressing film, we conducted a 2 (Help Theory vs. control condition) $\times$ 3 (time: neutral film, distressing film, 4-min rest period) mixed model ANOVA on mean negative emotion. Only a main effect of time was found. Negative emotion increased from the neutral film ($M = 1.76$, $SD = 0.88$), to the distressing film ($M = 6.10$, $SD = 1.30$), and decreased during the post-film rest period ($M = 2.82$, $SD = 1.75$), $F(2,302) = 614.23$, $p < 0.001$, $\eta^2 = 0.80$. Negative emotion did not differ by condition, $F(1,151) = 1.07$, $p = 0.30$, nor was there an interaction between time and condition, $F(1,151) = 0.26$, $p = 0.61$, $\eta^2 = 0.01$.

We also conducted a 2 (condition) $\times$ 2 (time: distressing film, 4-min rest period) mixed model ANOVA on the extent to which participants reported that the distressing film affected their mood. A main effect of time indicated that, overall, participants' current mood was affected more during the distressing film than afterward, $F(1,151) = 110.67$, $p < 0.001$, $\eta^2 = 0.42$. An interaction between time and condition was also found, $F(1,150) = 5.98$, $p = 0.02$, $\eta^2 = 0.04$. The extent to which the

distressing film affected participants mood during the film did not differ significantly for participants in the Help Theory condition (M = 7.12, SD = 1.82) and the control condition (M = 7.12, SD = 2.01), $t(151)$ = 0.01, p = 0.99. After the distressing film, however, participants in the Help Theory condition reported that their mood was less affected (M = 5.07, SD = 2.55) than those in the control condition (M = 5.85, SD = 2.11), $t(151)$ = 2.06, p = 0.04, d = 0.34. Thus, inducing a Help Theory did not affect the intensity of specific negative emotions reported during or after the distressing film. After the film, however, participants in the Help Theory condition reported that the film was affecting their current mood less than those in the control condition.[5]

Physiological Response to the Distressing Film

Preliminary analyses of physiological reactivity showed that, overall, the higher participants' SCL during the neutral film, the higher their SCL during the distressing film, $r(156)$ = 0.88, p < 0.001. In addition, the more violent participants rated the distressing film compared to films they typically watched, the higher their SCL during the distressing film, controlling for neutral film SCL, $r_{partial}(154)$ = 0.17, p = 0.03. Therefore, we adjusted for neutral film SCL and violence rating in analyses comparing SCL between conditions during or after the distressing film. In analyses that included SCL during the neutral film, we adjusted for violence rating.
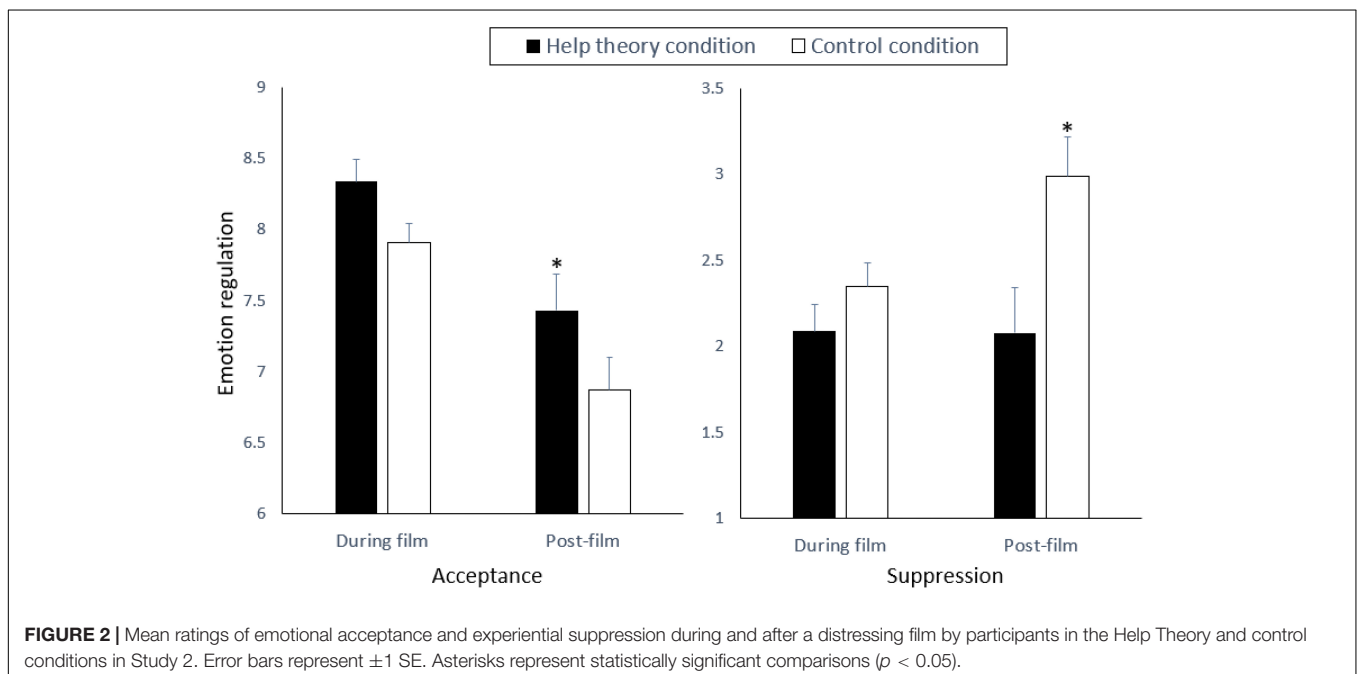
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[5]Preliminary analyses showed that ratings of subjective emotion and emotion regulation in Study 2 did not differ significantly when neutral film SCL or violence rating were included as covariates, so these analyses are presented without covariates. Mean values for subjective emotion, by time and condition, are available online in **Supplementary Table 10**. Mean values for emotion regulation, by time and condition, are available online in **Supplementary Table 11**. Mean values for skin conductance, by time and condition, are displayed online in **Supplementary Figure 1**.

To find out if physiological reactivity differed between conditions, we first conducted a 3 (time: neutral film, distressing film, post-film) × 2 (condition) mixed model ANCOVA on mean SCL, with violence rating as the covariate. The results showed an interaction between time and condition, $F(1,154)$ = 5.72, p = 0.02, η^2 = 0.04. We then compared SCL in the Help Theory and control conditions separately at each time point. During the neutral film, SCL did not differ between the Help Theory condition ($M_{adjusted}$ = 6.70, SD = 5.25) and control condition ($M_{adjusted}$ = 5.86, SD = 4.38), $F(1,154)$ = 1.21, p = 0.27, η^2 = 0.01. As hypothesized, during the distressing film, participants in the help condition showed higher SCL ($M_{adjusted}$ = 8.07, SD = 5.35) than participants in the control condition ($M_{adjusted}$ = 7.27, SD = 4.71), $F(1,153)$ = 4.37, p = 0.04, η^2 = 0.03. After the distressing film, SCL did not differ between the Help Theory condition ($M_{adjusted}$ = 7.54, SD = 5.42) and control condition ($M_{adjusted}$ = 7.23, SD = 4.69), $F(1,153)$ = 0.51, p = 0.48, η^2 = 0.01.

To test our *a priori* hypothesis that viewing emotion as helpful would promote physiological recovery, we also compared mean SCL (unadjusted) during versus after the distressing film separately for each condition. SCL decreased significantly after the distressing film for participants in the Help Theory condition, $t_{paired}(68)$ = 2.50, p = 0.02, d = 0.11, but not for participants in the control condition $t_{paired}(87)$ = −0.042, p = 0.97, d = 0.01. In summary, participants who viewed emotion as helpful showed greater physiological reactivity during the distressing film but showed recovery after the film. After the distressing film, participants in the Help Theory condition did not differ in reactivity from those in the control condition.

Emotion Regulation

Figure 2 shows mean acceptance and experiential suppression by condition over time. For each emotion regulation strategy, we

FIGURE 2 | Mean ratings of emotional acceptance and experiential suppression during and after a distressing film by participants in the Help Theory and control conditions in Study 2. Error bars represent ±1 SE. Asterisks represent statistically significant comparisons (p < 0.05).

conducted a 2 (time: distressing film, post-film rest period) × 2 (condition) mixed model ANOVA. For acceptance, the results showed main effects of time and condition. Overall, participants reported accepting their feelings more during the distressing film than during the post-film rest period, $F(1,151) = 32.59$, $p < 0.001$, $\eta^2 = 0.18$. Participants in the Help Theory condition accepted their emotions more than did those in the control condition, $F(1,151) = 4.77$, $p < 0.05$, $\eta^2 = 0.03$. For experiential suppression, the results showed an interaction between time and condition, $F(1,151) = 4.55$, $p < 0.05$, $\eta^2 = 0.03$. During the distressing film, participants did not differ by condition in their use of suppression, $t(1,151) = 0.87$, $p = 0.39$. After the film, however, participants in the Help Theory condition suppressed their emotional experience less than did those in the control condition, $t(1,151) = 2.85$, $p = 0.005$, $d = 0.38$. Perhaps because the inhumane acts depicted in the film *Cry Freedom* did not lend themselves to reappraisal, participants reported little reappraisal during or after the film (all means < 2.18), and reports of engaging in reappraisal did not differ between the Help Theory and control conditions ($ts < 1.42$, $ps > 0.16$).

Discussion

In Study 2, we manipulated participants' views about the value of emotion. Although self-reported negative emotion did not differ between conditions, participants in the Help Theory condition showed greater physiological reactivity during the distressing film than did those in the control condition. Yet, physiological reactivity decreased significantly from the end of the distressing film to the end of the post-film period for participants in the Help Theory condition, suggesting recovery. Physiological reactivity did not decrease after the distressing film for participants in the control condition. Participants in the Help Theory condition also reported greater acceptance of their emotional response than did control participants, engaged in less experiential suppression after the film, and reported that the film had less effect on their current mood after the film.

Experiments provide control and the opportunity to assess causal effects but can be subject to demand characteristics. However, the current findings do not correspond to the pattern of differences likely to result from experimenter demand. If participants were attempting to respond as they believed the experimenter preferred, the Help Theory and control conditions would likely differ in self-reported emotion but not in physiological reactivity. Instead, self-reported emotion did not differ between conditions, but participants in the Help Theory condition showed greater SCL during the distressing film and a decrease in SCL after the film. In addition, social desirability was not associated with SCL levels during or after the distressing film for participants in either condition ($ps > 0.10$). Finally, the greater acceptance reported by participants in the Help Theory condition is consistent with the results of Study 1 which did not manipulate beliefs about emotion. Thus, the results of Study 2 suggest that believing that emotion has value promotes acceptance of emotional experience and physiological and mood recovery after distressing events.

GENERAL DISCUSSION

Debates about whether emotion is adaptive or maladaptive predate Plato and are still salient in Western media and discourse today (Lutz, 1986; Karnaze and Levine, 2018). Recently, researchers have also begun to explore lay people's views about the functionality of specific emotional states or features such as stress and physiological arousal. However, people's theories about the overall functionality of emotion are not well understood. This investigation examined how lay beliefs about the functionality of emotion shape people's emotional experience, the strategies they adopt to regulate emotion, and their recovery after distressing events. Study 1 described the development and testing of a measure of people's theories about the extent to which emotion is a help or a hindrance. Participants who more strongly endorsed a Help Theory reported greater wellbeing, emotional acceptance, and use of reappraisal to regulate emotion. Participants who more strongly endorsed a Hinder Theory reported less wellbeing and more expressive suppression and use of substances to cope with stress. The results of Study 2 showed that encouraging participants to view emotion as helpful promoted emotional acceptance and recovery from a physiologically arousing negative experience.

Assessment and Correlates of Beliefs About the Overall Functionality of Emotion

The results of Study 1 support the reliability and validity of the new 8-item instrument, the Help and Hinder Theories about Emotion Measure (HHTEM), which assesses an individual's beliefs about the overall functionality of emotion. Help Theory scores showed acceptable alpha but Hinder Theory scores showed low alpha. However, scales that are shorter and have less redundant items tend to have lower alphas. Therefore, we also assessed the average item intercorrelations, which indicated that the items within each construct were moderately correlated. Help and Hinder Theory showed less stability over time, but fell within the range of test-retest correlations for convergent measures. Because beliefs about emotion should rely on memory for past emotional experiences, which can be shaped by current feelings or appraisals of past experiences (Levine et al., 2018), in future work it will be important to encourage participants to think about emotions more generally, rather than in relation to their current circumstances.

Help and Hinder Theories converged with several constructs about emotional experience in expected ways. Consistent with our previous findings (Karnaze and Levine, 2018), Help Theory endorsement was associated with experiencing emotion with greater, rather than less, intensity. The more participants endorsed a Help Theory, the more they viewed positive and negative emotion as being meaningful and helpful, and the more they reported attending to and following their feelings. People who more strongly endorsed a Hinder Theory tended to ignore their positive feelings, but reported both ignoring and attending to negative feelings, perhaps indicating ambivalence toward their unpleasant emotions. Hinder Theory endorsement was

not related to emotional intensity. Hinder Theory endorsement was associated with viewing both positive and negative feelings as pointless and with viewing positive feelings as disruptive. Participants who more strongly endorsed a Hinder Theory tended to ignore positive feelings but reported both ignoring and attending more to negative feelings. Thus, people who view emotion as a hindrance may attempt to ignore negative feelings but find themselves nonetheless under their sway. Importantly, Help and Hinder Theories did not merely reflect people's tendency to approach rewarding experiences or avoid punishment, to place less or greater value on cognition, or to present themselves in a positive manner.

Participants who viewed emotion as more helpful also reported using regulatory strategies that are often adaptive: reappraisal, acceptance, planning, and positive reframing. In contrast, Hinder Theory endorsement was related to engaging in expressive suppression and using substances to cope with stress. Together, these findings suggest that people who view emotion as helpful tend to engage in regulation strategies that involve reflecting on their emotional experience. In contrast, those who view emotion as harmful engage in strategies directed toward ridding themselves of their feelings or altering feelings without addressing their underlying causes. Consistent with findings that using adaptive emotion regulation strategies promotes wellbeing (e.g., Gross and John, 2003), participants who viewed emotion as more helpful also reported more happiness and social support and tended to be more satisfied with life. Participants who more strongly viewed emotion as a hindrance reported less happiness and were more likely to report clinically significant depressive symptoms. Thus, Study 1 revealed theoretically expected associations between people's beliefs about the functionality of emotion and their emotional experience, regulatory strategies, and wellbeing.

Developing and testing the HHTEM is a critical step toward determining whether viewing emotion overall as adaptive gives people advantages by predisposing them to feel better about their emotional reactions, better regulate their emotions, receive more social support, and thus experience greater wellbeing over time. It also makes the unique contribution of tapping beliefs about the harmful nature of emotion and their correlates. However, correlational data cannot speak to the causal direction of these associations. Therefore, in Study 2, we experimentally manipulated the extent to which participants endorsed a Help Theory about emotion.

Effects of Lay Theories About Whether Emotion Helps

The results of Study 2 showed that people could be encouraged to view both positive and negative emotion as helpful for reasoning and wellbeing. Moreover, manipulating participants' beliefs about the functionality of emotion affected their emotional acceptance during a distressing film and recovery afterward. Overall, participants perceived the events of the distressing film as very upsetting, and self-reports of negative emotion did not differ as a function of condition. Yet, relative to controls, participants in the Help Theory condition reported greater emotional

acceptance. They also showed higher skin conductance, a marker of sympathetic nervous system activation, during the distressing film than did participants in the control condition. SCL and subjective emotional experience are not always correlated (Mauss et al., 2005) and encouraging participants in the Help Theory condition to value emotion may have led them to empathize more with the protagonists and feel threatened, resulting in sympathetic nervous system arousal. After the distressing film, however, participants in the Help Theory condition reported suppressing their negative feelings less, and reported their current mood was affected less by the film, than control participants. In addition, those in the Help Theory condition, but not in the control condition, showed a decrease in skin conductance in the period after the film, suggesting recovery. Thus, believing that emotion has value promoted emotional acceptance and physiological and mood recovery after a distressing experience.[6]

These findings suggest that, when people encounter distressing situations, those who value emotion allow themselves to more fully experience their emotional reactions in the moment. Because they value emotion, they may feel less distressed by their reaction, allowing them to recover quickly. Future research could test this by examining personal events that are physiologically arousing (e.g., a stress test) and measuring physiological recovery over a longer time (e.g., cortisol reactivity). Even if people have intense subjective emotional and physiological responses to distressing events, their ability to recover from such events can have subsequent mental and physical health benefits (e.g., Leger et al., 2018).

Limitations and Future Research Directions

In Study 1, Cronbach's alpha for the Help scale was acceptable (0.74), but Cronbach's alpha for the Hinder Scale (0.64) only minimally met the threshold considered acceptable for an *ad hoc* scale. Thus, modification to improve the internal consistency of items is needed before the Hinder Scale can be recommended for use in future research. In addition, the test-retest correlation for the combined Help and Hinder Theory scale was low ($r = 0.46$). This raises the question of how stable beliefs about the functionality of emotion are. Future research is needed to ensure that researchers can measure global beliefs about the functionality of emotion irrespective of current events that may evoke transient positive or negative emotional reactions. Beliefs about the functionality of emotion may also change

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[6]The help theory condition differed from the control condition in four ways: Participants in the Help Theory condition showed greater skin conductance during the distressing film, more acceptance during the distressing film, less experiential suppression during the post-film rest period, less effect of the distressing film on mood. One potential objection to our interpretation of these findings is that these differences between the help and control conditions could have been due to the use of an induction that discussed emotion rather than to encouraging participants to view emotion as helpful *per se*. However, as explained in Footnote 3, we initially piloted participants with a Hinder Theory induction. Preliminary analyses showed no differences between the Hinder Theory condition and the control condition for any of the four variables (*p*s ranged from 0.07 to 0.92). These results suggest that the differences found between the Help Theory and control conditions were due to inducing participants to view emotion as helpful rather than to use of an experimental procedure that directed participants' attention to emotion.

across developmental periods. We examined lay theories among samples of college students. It will be important to examine endorsement of these theories among older adults who tend to value positive emotional experiences and reappraise or avoid negative emotional experiences (Carstensen et al., 2003). In Study 2, encouraging a Help Theory did not increase reappraisal of the violent and unjust historical events depicted in the film. Future research should also examine whether promoting a Help Theory about emotion leads people to engage in reappraisal in circumstances that lend themselves to the use of this strategy. Future research should also assess the long-term implications of lay theories about emotion for wellbeing. For example, researchers could encourage a Help Theory before a major life transition, such as a school or career change, and assess downstream links to adjustment, social support, and wellbeing. Importantly, feeling satisfied with relationships and life in general could promote a Help Theory about emotion, so it is important to look at whether a Help Theory predicts long-term support and wellbeing during periods of transition. Further research on viewing emotion overall as a hindrance is also important. If people who regard their emotions as generally harmful can learn to recognize the important functions emotions fulfill, they may feel better over time because they are less alarmed by their responses to life events. Interventions designed to encourage viewing emotion as adaptive, combined with training in emotion regulation, could help people be more strategic and effective in selecting emotion regulation strategies in daily life, rather than trying to mask, numb, ignore, or eradicate undesired feelings.

Finally, given the importance of lay theories of the functions of emotion, it will be important to explore how these theories develop, and how they relate to the development of personality traits and decision-making strategies (e.g., people's tendency to "trust their gut," openness to experience, neuroticism[7]) (for related approaches, see Walle and Campos, 2012; Dweck, 2017) as well as culture. The samples were relatively diverse in terms of race-ethnicity, and we did not find gender or ethnicity differences in these studies. However, in past research, we found that men tended to view emotion as more hindering than women, and that Asian and Hispanic participants viewed emotion as more hindering than White participants (Karnaze and Levine, 2018). The role of culture in shaping lay theories about the functionality of emotion is an important issue for future research, as cultures that tend to value individual expression may view emotion as more helpful than cultures that prioritize the needs of the social group.

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[7] As we noted in the online **Supplementary Materials** (https://osf.io/4vkfq/), participants also completed The Big Five Personality Inventory (John and Srivastava, 1999), though this measure was not a focus of the present investigation. **Supplementary Table 9** shows how Help and Hinder Theory endorsement was related to personality traits.

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CONCLUSION

In conclusion, the results of the current investigation show that people's beliefs about the value of emotion matter. Taken together, the new HHTEM and these studies demonstrate that it is advantageous for people to view emotion overall as functional. Even if a specific emotional experience is not helpful in a situation, viewing emotion overall as adaptive predisposes people to be more accepting and less distressed by their own emotional reactions, better regulate their emotions, receive more social support, and experience greater wellbeing over time. The HHTEM also makes the unique contribution of tapping beliefs that emotion is harmful overall, providing evidence about the ways that holding a negative view of emotion can put people at risk.

DATA AVAILABILITY STATEMENT

The datasets generated for this study are available on request to the corresponding author.

ETHICS STATEMENT

All studies were approved by, and carried out in accordance with the recommendations of, the Institutional Review Board of the University of California, Irvine. All subjects in Study 2 provided written informed consent. In accordance with the national legislation and institutional requirements, written consent was not required for the participation in Study 1.

AUTHOR CONTRIBUTIONS

MK and LL conducted the research and wrote the manuscript.

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SUPPLEMENTARY MATERIAL

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APPENDIX A

TABLE A1 | Items and instructions for Help and Hinder Theories about Emotion (HHTEM) Scale.

Instructions	People can experience many different kinds of emotion, such as anger, disgust, sadness, fear, joy, love, pride, and awe. We want to know what you think about emotion overall. Considering emotion overall, how often is each statement below true? 0 = Almost Never 1 2 = Sometimes 3 4 = Almost Always
Help Theory Items	
	(1) Emotion helps people focus on what's important
	(2) Emotion is a source of wisdom
	(3) Emotion helps people know what's beneficial or harmful
	(4) Emotion is a strength that humans have
Hinder Theory Items	
	(1) Emotion distracts people from what's important
	(2) Emotion makes life confusing
	(3) Emotion clouds judgment about right and wrong
	(4) Emotion is a weakness humans have

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The Damaging Effects of Perceived Crocodile Tears for a Crier's Image

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Emotional tears are uniquely human and play an essential role in the communication of distress in adults. Several studies have shown that individuals are more willing to offer emotional support and help a person in tears. Preliminary evidence suggests that this greater willingness to provide support is mediated via perceived warmth and helplessness. Moreover, tearful individuals are regarded as more reliable and honest. In the current study, we examined whether people can reliably distinguish genuine and fake crying, and what the consequences for the further evaluation of the crier are. A total of 202 participants (73 men, 129 women) were exposed to brief movie clips of genuine and fake crying adults and were asked to assess the criers. Results show that women were slightly better at identifying fake and genuine crying. How the crying was perceived subsequently seemed to have a strong influence on the further evaluation of the "crier." Criers qualified as pretenders were perceived as significantly more manipulative, less reliable, less warm, and less competent. Further, the respondents felt less connected with the perceived pretenders, who also were less welcomed as friends, colleagues, neighbors, and babysitter. They were additionally qualified as significantly less fit for "reliable" professions (judge, teacher, police officer, scientist, and physician). In contrast, the ratings of their fitness for "unreliable" professions (banker, CEO, journalist, real estate salesman, and politician) yielded a significant difference in only one video clip (and contrary to expectations). Our findings thus indicate that the subjective labeling of crying as fake is associated with a significantly less positive perception of the "crying" person, regardless of whether the crying is actually fake or genuine. The qualification of tears as crocodile tears thus seems to affect the crier's image strongly negatively.

Keywords: crying, tears, genuine, image, perception

INTRODUCTION

> . . . . . .tears are shed in the greatest quantity by people with the best characters
>
> Petitus (1661)

Tearful crying is a uniquely human reaction to a wide variety of situations and stressors, including separation, loss, physical pain, and situations typically associated with feelings of helplessness as well as seeming positive situations such as weddings, proposals, victory, reunion, and exceptional achievements (Vingerhoets, 2013; Gračanin et al., 2018). Remarkably, despite the

current high interest of researchers in emotions, the study of emotional tears has received just modest attention of the scientific community. Moreover, the functions of emotional tears were for a considerable period more subject of speculation of clinicians than the object of more systematic studies. Ever since Freud and Breuer (1995) launched their catharsis concept, the idea dominates that the function of emotional tears must be searched for in the crying individual him or herself. In other words, the focus was mainly on how crying impacted the well-being of the crier. Not only in the clinical literature but also in the lay literature, this conviction acquired a dominant position (Cornelius, 1986). Also, today, one can read popular articles and watch YouTube videos voicing the notion that crying brings relief and is healthy. Occasionally, even rather strong statements like "Cry or die" are utilized.

However, tearful crying also seems to serve essential communicative, interpersonal functions (Kottler, 1996; Nelson, 2005; see Gračanin et al., 2018, for a review). There is currently increasing evidence that emotional tears not only inhibit aggression (Hasson, 2009), and promote empathy in others, they also facilitate the willingness to connect and to provide help and succor (Vingerhoets et al., 2016). Moreover, Balsters et al. (2013), examining the influence of tears on the identification of sadness and the perceived need for social support, found that sadness was faster identified when tears were added to sad adult faces. Also, the perceived need for social support was greater when faces contained tears. Another study showed that observers are more willing to provide emotional support and tend to express less negative affect toward a crying than a non-crying individual (Hendriks et al., 2008).

Moreover, whereas in the popular media crying is often associated with weakness and a lack of competence, recent evidence suggests that criers are also seen as notably warmer (Van de Ven et al., 2017), and more reliable and honest (Píco et al., 2020). Currently, we do not know which conditions determine the reaction of the observers to a crying individual. Vingerhoets (2013) has formulated a preliminary model, in which factors like the characteristics of the crier (e.g., gender, status) as well of the observer (e.g., empathy, psychopathy), their mutual relationship (e.g., mother-child; romantic partners; therapist-client; chief – employee), the perceived appropriateness, and how the crier weeps (just moist eyes or uncontrolled crying) all might exert their influence. However, there is currently no research that has specifically addressed these factors.

Given these possible positive effects of tears on others, the display of this behavior may likely benefit those applying this strategy. Indeed, substantial anecdotal evidence and a few more systematic studies have addressed this issue (Buss et al., 1987; Vingerhoets and Bylsma, 2016). For example, narcissists (Alexander, 2003), highly neurotic women (Buss et al., 1987), and sociopaths ("the champions of the crocodile tears," Stout, 2005) are known for their tactics of manipulation, including crying (Vingerhoets and Bylsma, 2016). Narcissistic crying has been qualified as "performed," "inauthentic," and "exploitative," for instance, in therapeutic settings. This fake crying may trigger feelings of being controlled and devalued in therapists who observe the patient's distress, but yet

feel untouched by the whole experience. Crocodile tears may thus result in emotional detachment, and a lack of empathic connection, which contrasts with empathic feelings and sharing of distress experienced when witnessing genuine crying (Alexander, 2003).

Also in the courtroom, tears of defendants are frequently regarded as crocodile tears (Lefrevre, 2008; Glaberson, 2011). In these settings, what people consider as fake tears generally seems not to be appreciated, and a convict who is suspected of crying crocodile tears may be met with much disapproval and adverse reactions. Even defense attorneys have occasionally been accused of swaying juries with the power of tears to spare their client, appealing to the emotions of the jury instead of their reason (Lefrevre, 2008). The general implicit assumption thus seems to be that manipulating juries in the courtroom with crocodile tears may be beneficial for the defendant (Glaberson, 2011).

The detection of the truthfulness of others is an essential skill in everyday social interactions and legal settings. This raises the question of whether people can reliably distinguish between fake and real emotions, and, more specifically, between genuine and crocodile tears. The results of a few studies on deception do suggest that crocodile tears may be recognized and show that verbal and body language cues can reveal falsified sadness expressions, also in the case of false remorse (Porter and Yuille, 1995; Porter and Ten Brinke, 2008; Ten Brinke et al., 2012). More precisely, Ten Brinke et al. (2012) showed that, compared with genuine remorseful feelings, false remorse was accompanied by a broader range of emotions. This emotional turbulence may be reflected in the leakage of genuine, positive emotions during expressions of falsified sadness. Indeed, there is suggestive evidence that individuals show inconsistent emotional expressions during deception, possibly indicating that subtle emotional leakages in the face reveal an involuntary aspect of human behavior (Porter and Ten Brinke, 2008; Ten Brinke and Porter, 2012).

Do individuals or groups differ in the capacity to recognize fake expressions? Vrij and Mann (2001) examined the detection of real-life videotaped deception of relatives appealing for help concerning a missing family member whom they had murdered. Police officers, with an accuracy rate of 50%, did not outperform laypeople. Moreover, it has been shown that lie ability and lie production are positively related, indicating that, in particular, those who easily lie, are better at detecting deceitful others (Wright et al., 2013). Dark triad personality traits (narcissism, psychopathy, and Machiavellianism) have also been shown to predict the ability to detect deceitfulness, although associations may be sex-specific. Lyons et al. (2017) showed that narcissism was related to poor lie detection in women, possibly because of deficits in empathy, whereas Machiavellianism, a personality trait connected to manipulation of others, was a positive predictor of lie detection in men.

Concerning sex differences, Vrij and Mann (2001) reported higher accuracies in men than in women. However, a meta-analysis examining individual differences in the ability to detect deception based on 108 studies did not reveal substantial sex differences (Aamodt and Custer, 2006). There was also no evidence of associations with age or education. Similarly, a more

recent meta-analysis concluded that individuals vary in their credibility when telling lies, but not in their ability to detect lies, suggesting that deception judgments depend more on the liar's credibility than on any other individual difference factor (Bond and DePaulo, 2008).

One may, however, wonder if the ability to distinguish real and fake tears also depends on whether the crier employs surface acting or deep acting (Mesmer-Magnus et al., 2012). In the case of surface acting, it might be easier to recognize that the tears are not genuine than in the case of deep acting. In the latter case, actors memorize intense emotional episodes and re-experience the associated emotions. That implies that the produced tears are always real, although the associated emotion(s) that triggered the tears have no connection with the direct situation.

We know currently little about how the perception of tears as crocodile tears subsequently impacts the evaluation of the "crier." Therefore, the primary objective of the current study was to examine how the perception of tears as real or fake subsequently impacts the evaluation of the crying individual. To that end, we exposed the participants to eight brief video-fragments of crying individuals. Four of them were real crying episodes, and the remaining four included acted crying episodes. We asked the participants for each video fragment to indicate whether it was genuine or acted crying.

Based on the literature showing emotional leakage during deception, one could expect that participants would be able to reliably recognize crocodile tears, although in the case of the use of very brief footages, without sound and possible deep acting, it might be unlikely that observers can make this distinction. We further asked the participants to rate the perceived reliability, warmth, tendency to manipulate, weakness, sincerity, and competence of the crying models and to indicate to what extent they felt connected with him or her. We additionally requested the participants to report how suitable the crying model was for a set of professions that are regarded as reliable (physician, judge, teacher, police officer, and scientist) and a set of professions deemed unreliable (journalist, banker, real estate agent, politician, and CEO) according to the Ipsos Mori Veracity Index, a survey that lists the most and least trusted professions (Ipsos MORI, 2016). Participants were also requested to evaluate the suitability of the crying person for different personal relationship roles (colleague, neighbor, friend, and baby sitter), in order to obtain an impression of the effects of this factor for everyday social life.

Given the suggestion that manipulative crying may result in emotional detachment and disapproval (Alexander, 2003), we further hypothesized that the labeling of tears as fake is associated with more negative qualifications of the "crier." More specifically, we expected that those who are perceived as fake criers are evaluated as less reliable, warm, and sincere, and less suitable for reliable jobs and close relationships, but more manipulative and suitable for unreliable jobs. We also explored gender differences in the capacity to recognize crocodile tears, but, given the mixed findings in previous studies (Aamodt and Custer, 2006), we were not certain what we might expect.

MATERIALS AND METHODS

Participants

The study was announced via social media. Although a considerable number of people showed interest, the final sample with complete data consisted of 202 participants ($N = 129$ women). The ages ranged from 16 to 70 years old ($M = 31.15$, $SD = 15.05$). There were no exclusion criteria. Power analysis using G*Power 3.1 for paired t-test (the difference between two dependent means) showed that a sample size of 199 is sufficient to detect small effects [$d = 0.2$, $\alpha = 0.05$, power 0.80, 2 groups (real and fake)]. Permission for this study was obtained from the local ethics committee, and all participants gave informed consent.

Procedure and Measure

The participants were asked to complete an online survey during which they were exposed to eight brief video clips (without sound, duration between 2 and 7 s), depicting a real or fake crying individual. Video clips of fake criers originated from YouTube movies with actors (two men, two women), whereas video clips of real crying originated from YouTube movies showing genuinely crying individuals (two men, two women). The video clips were selected from a larger set of 66 videos from YouTube. The selection of the eight clips was based on the technical quality of the video, front view of the faces of the crying individuals, the clear display of rolling tears on the cheeks, and full visibility of the faces, necks, and shoulders.

The participants were not informed that tears of four of the criers were fake, and of four others were real. All participants viewed all eight video clips. After each video fragment, a set of questions was answered, addressing the perceived genuineness of the tears and the evaluation of the depicted crier. More precisely, participants were asked whether the depicted tears were real or fake and to indicate how confident (0–100%) they were about their answer. In addition, they were requested to evaluate the reliability, warmth, tendency to manipulate, weakness, sincerity, and competence of the crying model. With the Inclusion of Others in Self scale (Aron et al., 1992), we further assessed to what extent the participant felt connected with the depicted individuals. Finally, as a more indirect measure of perceived reliability and social attractiveness, and to obtain some clue to what extent the different ratings would translate to daily life, the participants indicated their enthusiasm to have the depicted individual in certain social roles in their private life (i.e., as a colleague, neighbor, friend, or babysitter), and to what extent they felt that the depicted individual was fit for a set of reliable and unreliable professions. More precisely, participants were asked to rate the perceived fitness of the depicted person for being a police officer, teacher, scientist, judge, and physician, professions that have previously been characterized as reliable according to the veracity index, and banker, real estate salesperson, CEO, politician, journalist, which are professions characterized as unreliable (Ipsos MORI, 2016). All ratings were conducted on VAS scales ranging from 1 to 100.

Statistical Analysis

To evaluate whether the participants were able to distinguish between real and fake tears and to examine possible gender differences in the ability to detect crocodile tears, Chi-square tests were performed. To address the primary objective (i.e., to examine whether the perception of tears as real or fake impacts the further evaluation of the crying individual), a series of linear mixed-effect models were fitted. All data analyses were carried out within the R statistical environment (R Core Team, 2016). Preliminary analyses (factor and reliability analyses) were carried out with the help of package "psych" (Revelle, 2018), multilevel modeling was performed using package "lme4" (Bates et al., 2015), while visualizations were created with the aid of package "ggplot2" (Wickham, 2016).

The perceived role fitness (PRF) for the three different domains (private settings, reliable and unreliable jobs) were all measured with multiple items. In order to evaluate the appropriateness of computing a single indicator for the specified domains, a principal component factor analysis was conducted for each domain separately. A single component seemed to adequately represent the data, with approximately 70% of the items' variance explained by the first component, regardless of the perceived role fitness domain) (**Table 1**).

To test whether actual tears and perceived tears and their interaction have an impact on the dependent measures, individual judgments were modeled as a function of measurement type (perceived role fitness, warmth, manipulative tendency, reliability, weakness, sincerity, competence, and connectedness), actual tears (fake/genuine), perceived tears (fake/genuine) as well as their interactions. At the same time, we controlled for participants and video-clips as random effects in a series of hierarchical linear models. Categorical predictors (actual tears and perceived tears) were dummy coded with "fake" as the reference level for both of them. First, a null model (model 0) was estimated to assess the amount of between-person and between-clips judgment variance. The null model was used both to estimate the amount of variance that can be accounted for by individual differences (participants) and by manipulation (video clips) and also to serve as a null model to compare more complex models with. The addition of fixed parameters was evaluated in a stepwise fashion using the likelihood ratio test. Main effects of all variables were entered in model 1. Model 2 additionally included two-way interaction terms, while model 3 also included three-way interaction terms. As a significance indicator of every single parameter, bootstrap confidence intervals were computed (5000 samples). As a measure of overall effect size, $\Omega 2$ proposed by Xu (2003) was calculated and reported.

RESULTS

Recognition of Genuine and Fake Tears and Gender Differences

Chi-square analyses of the contingencies of actual tears (genuine/fake) and perceived tears (genuine/fake) revealed that there is a statistically significant association between actual tears

TABLE 1 | Principal components eigenvalues, reliabilities estimates, and mean inter-item correlation of perceived role fitness domains.

	N items	First component Eigenvalue	Cronbach's α	Mean inter-item correlation
Private setting	4	2.79	0.85	0,59
Reliable jobs	5	3.18	0.86	0,54
Unreliable jobs	5	3.35	0.88	0,59

TABLE 2 | Number of occurrences for every combination of actual and perceived tears for the total sample and for the male and female subsample separately.

	Total sample		Men		Women	
	Perceived tears		Perceived tears		Perceived tears	
Actual tears	Fake	Genuine	Fake	Genuine	Fake	Genuine
Fake	424	384	146	146	278	238
Real	307	501	123	169	184	332

and perceived tears ($\chi^2 = 33.61$, $p < 0.001$). The diagonal elements in the total sample part of **Table 2** are higher than the off-diagonal ones. On average, 57% of video clips were correctly categorized (significantly higher than chance). If we separate those contingencies by gender, it can be seen that there is no formally statistically significant association of actual and perceived tears in the male subsample ($\chi^2 = 3.34$, $p = 0.06$), while the opposite is true for the female subsample ($\chi^2 = 33.89$, $p < 0.001$). More precisely, the accuracy rate of the men was 54%, while the female accuracy rate was 59% (male and female subsample part of **Table 2**).

How the Perception of Tears as Genuine or Fake Impact the Evaluation of the "Crier"

Table 3 presents the descriptives of the evaluations of the genuine and fake criers. The null-model (model 0) fitted the data poorly (**Table 4**). The ICC was 0.13, mostly related to between-person differences, meaning that almost 13% of the judgment variance can be attributed to between-person effects while the amount of between-clips variance was neglectable (less then 1%). The addition of fixed main effects increased the model fit significantly, as did the inclusion of both two-way and three-way interactions (**Table 4**).

The addition of three-way interaction terms had a modest (in terms of effect size estimates) but significant effect. Model 3 estimates, *t*-values, and 95% bootstrapped confidence intervals are presented in **Table 5**.

The observation that all the main effect estimates are statistically significant, except for the perceived genuine tears, means that every domain/variable is estimated significantly lower than the intercept value (58.44) in the actual false/perceived false tears condition. Those main effects are not of interest because they serve as a starting point for judgments in the actual fake/perceived fake condition. The perceived tears two-way interaction parameters show that the judgments of positive

TABLE 3 | Descriptives (mean and SD) of certainty, competence, reliability, warmth, weakness, connectedness, sincerity, manipulation, role fitness, reliable job, and unreliable job for genuine and acted tears (left) and perceived genuine and perceived fake tears (right).

	Actual tears				Perceived tears			
	Genuine		Fake		Genuine		Fake	
	M	SD	M	SD	M	SD	M	SD
Certainty	57.56	23.94	57.83	25.11	58.66	23.78	56.52	23.37
Competence	38.32	22.46	40.32	22.90	43.61	21.97	34.13	22.49
Reliability	43.30	25.04	40.87	24.80	54.93	21.49	26.53	19.35
Warmth	43.83	26.02	41.52	26.65	54.22	23.73	28.69	22.29
Weakness	32.34	24.73	30.76	24.75	28.08	23.22	35.75	25.88
Connectedness	22.85	25.16	22.62	25.72	34.03	26.27	9.06	15.90
Sincerity	45.05	26.97	40.12	26.42	58.05	22.09	23.87	18.92
Manipulative	34.44	26.40	37.95	27.29	24.06	19.84	50.88	27.01
Role fitness	44.42	22.92	42.11	22.17	52.28	20.82	32.35	19.61
Reliable job	30.35	19.81	34.37	19.78	37.17	19.80	26.53	18.40
Unreliable job	30.24	20.57	34.71	20.60	33.28	19.84	31.50	21.67

TABLE 4 | Fit indices and significance testing of the fitted models.

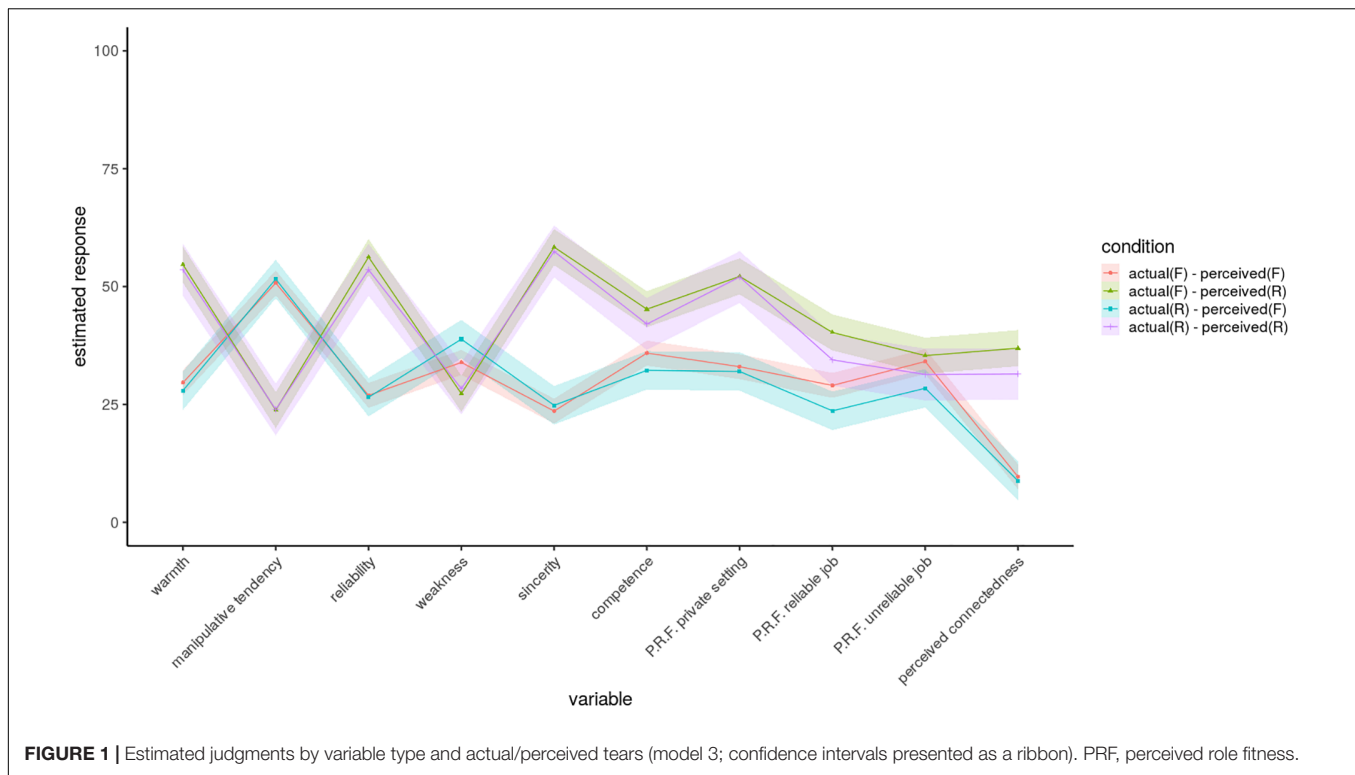|	df	AIC	BIC	Ω^2	log-likelihood	χ^2	df(χ^2)	p
Model 0	4	164023	164054	0.14	−82008			
Model 1	16	160740	160865	0.28	−80354	3307.270	12	<0.001
Model 2	37	157750	158038	0.39	−78838	3032.212	21	<0.001
Model 3	47	157748	158114	0.40	−78827	21.508	10	<0.05

personality aspects (warmth, reliability, sincerity, competence, perceived role fitness in private settings, and reliable jobs) are higher in the perceived genuine condition than in the perceived false condition. The same is true, but in the opposite direction, for the perceived manipulative tendencies and weakness, while there are no differences for PRF for unreliable jobs. The actual tears two-way interactions appeared to have a more subtle effect. Fewer parameters are statistically significant. More precisely, only perceived weakness was evaluated as higher in the case of not correctly identified actual tears with manipulative tendencies and sincerity having a marginally significant difference. The three-way interaction shows a small effect. The model estimates are not significantly different or are slightly smaller than zero, meaning that the combination of genuine actual tears perceived as genuine does not significantly increase or change the estimates.

If we take a look at the model's prediction as a whole [the model's estimated response for actual (fake/genuine) and perceived (fake/genuine) tears condition; **Figure 1**], it is clear that the perception of the tears as real, regardless of their actual nature, has a significant impact on almost all judgments. The same effect cannot be attributed to the actual tears in the presented clips. The sole perception of the tears as genuine evoked a more positive judgment of the depicted crying model in terms of higher perceived warmth, reliability, sincerity, competence, PRF in private settings and reliable jobs, and perceived connectedness and lower perceived manipulative

TABLE 5 | Estimated coefficients, t-values, bootstrap 95% confidence intervals, and variance components of model 3.

	Estimate	t	95% C.I.	
Main effects			Lower-bound	Upper-bound
Intercept	58.44	50.37	55.99	60.83
Warmth	−28.79	−21.38	−31.42	−26.04
Manipulative tendency	−7.66	−5.69	−10.23	−4.90
Reliability	−31.50	−23.39	−34.19	−28.79
Weakness	−24.51	−18.20	−27.08	−21.81
Sincerity	−34.83	−25.86	−37.51	−32.07
Competence	−22.52	−16.73	−25.22	−19.83
PRF private settings	−25.41	−18.87	−28.04	−22.74
PRF reliable job	−29.39	−21.82	−31.98	−26.66
PRF unreliable job	−24.30	−18.05	−27.00	−21.56
Perceived connectedness	−24.30	−18.05	−27.00	−21.56
Perceived tears (real)	−1.30	−0.71	−4.12	1.49
Actual tears (real)	−4.00	−2.47	−7.23	−0.68
Perceived tears 2-way interaction				
Warmth	26.26	13.44	22.40	30.14
Manipulative tendency	−25.73	−13.17	−29.66	−21.93
Reliability	30.59	15.66	26.61	34.60
Weakness	−5.38	−2.76	−9.16	−1.51
Sincerity	36.02	18.44	32.09	39.81
Competence	10.56	5.40	6.63	14.53
PRF private settings	20.40	10.44	16.48	24.34
PRF reliable job	12.48	6.39	8.71	16.16
PRF unreliable job	2.49	1.27	−1.48	6.40
Perceived connectedness	28.53	14.60	24.61	32.47
Actual tears 2-way interaction				
Warmth	2.29	1.10	−1.92	6.29
Manipulative tendency	4.81	2.32	0.66	8.97
Reliability	3.58	1.72	−0.53	7.87
Weakness	8.90	4.29	4.54	12.97
Sincerity	5.20	2.50	0.93	9.37
Competence	0.32	0.15	−3.82	4.49
PRF private settings	2.96	1.43	−1.21	7.12
PRF reliable job	−1.41	−0.68	−5.61	2.66
PRF unreliable job	−1.70	−0.82	−5.89	2.50
Perceived connectedness	3.10	1.49	−1.09	7.26
Perceived tears	6.32	2.84	2.36	10.33
Perceived/Actual tears 3-way interaction				
Warmth	−5.67	−2.02	−11.19	−0.01
Manipulative tendency	−6.97	−2.49	−12.38	−1.36
Reliability	−8.57	−3.06	−14.08	−2.89
Weakness	−10.12	−3.61	−15.67	−4.54
Sincerity	−8.40	−3.00	−13.77	−2.65
Competence	−5.76	−2.06	−11.36	−0.05
PRF private settings	−5.38	−1.92	−11.12	0.26
PRF reliable job	−6.68	−2.38	−12.06	−1.07
PRF unreliable job	−4.59	−1.64	−10.14	1.12
Perceived connectedness	−10.87	−3.88	−16.44	−5.20
Random effects	**Variance**			
Subjects	78.09			
Video clips	0.73			
Residual	403.45			

PRF, perceived role fitness.

FIGURE 1 | Estimated judgments by variable type and actual/perceived tears (model 3; confidence intervals presented as a ribbon). PRF, perceived role fitness.

tendency. The situation regarding the perceived weakness and the PRF for unreliable jobs appeared to be less clear than for the other domains. More specifically, we found no significant differences in PRF for unreliable jobs, while there were significant differences in perceived weakness, although the pattern that was observed in other domains appears dampened. Genuine tears, when perceived as fake, produced a marginally higher weakness estimate than when the tears were perceived as real, regardless of their actual nature.

DISCUSSION

The present study was specifically designed to examine how the perception of tears as genuine or false subsequently impacts the further evaluation of the "crier." To that end, we exposed participants to brief movie fragments of genuine and fake crying adults and asked them to evaluate the depicted models. We found strong evidence that it is, in particular, the perception of the tears as genuine or fake, rather than their actual state, that determines how the "crier" is further qualified. Whereas the direct comparison of the genuine and fake criers yielded suggestive evidence that genuine criers were considered more reliable, these effects were rather small. In contrast, individuals, correctly or incorrectly, identified as genuine criers were rated as substantially more reliable, more welcome in different private roles, and more fit for reliable professions than those deemed as crying crocodile tears. Partly as expected, female participants slightly performed better than chance, although they still had considerable difficulty in determining whether a crying

episode was genuine or fake. Also given the findings that the participants were not very certain about the correctness of their qualification of the tears as real or fake, we are reluctant to conclude that the current results add to previous studies showing that subtle emotional leakages can reveal falsified sadness (Ten Brinke et al., 2012).

Our findings strongly suggest that, despite the awareness of their uncertainty and relatively poor ability to distinguish between genuine and fake crying, the participants nevertheless seemed to attach much value to their judgment, which subsequently determines how they further perceived the "criers." Those who were regarded as producing crocodile tears received much stronger negative and/or less positive qualifications than those who were considered as genuine criers. The former group were also less welcome in the private lives of the participants, and they were deemed less fit for what people generally regard as reliable professions. In contrast, the results of the fitness for unreliable professions yielded no clear differences. Our findings thus indicate that the subjective labeling of crying as fake is associated with a significantly less positive perception of the "crying" individual, regardless of whether the crying is indeed fake. Perceived crocodile tears thus have a damaging effect on the crier's image.

A strength of the present study is that we exposed the participants to eight different crying individuals and that the results were very similar for all these different criers, indicating a high generalizability of the findings. However, the current study also suffers from some limitations. First, one should be aware that the exposure times to the stimuli were rather short, and there was no auditory information. Consequently, it was not possible

to detect emotional leakage, as in the studies of Vrij and Mann (2001) and Ten Brinke et al. (2012). It is, therefore, plausible that these stimuli characteristics make the task of distinguishing between fake and real tears more difficult than it is in real life. Additionally, as outlined in the introduction, the recognition of tears as fake or genuine may also be particularly challenging if the actors apply deep acting strategies, meaning that the expression fits the internal feelings and in a certain sense even cannot be considered as fake.

Further, we implicitly assumed that the labeling of the crying as real or fake subsequently determined how the "crier" was perceived. However, it cannot be ruled out that the participants saw possibly cues in the physical appearance or demeanor of the targets that determined both the identification of the crier as real or fake and the further positive or negative qualifications. We, therefore, recommend that in future studies, the participants provide a first evaluation of the depicted criers in a neutral state several weeks before the ultimate test, allowing the researchers to explore whether the models in a neutral state perhaps show some signals that observers associate with negative or positive characteristics. When they subsequently rate them once more based on their crying, we can, with greater confidence, conclude that the perceived genuineness of the tears influences the further evaluation of the target. Alternatively, future studies should manipulate real and fake crying and present the movie clips with the same actor to participants in order to rule out influences of variation across videos, preferably during lab sessions. However, it should be noted that, because of the low variance of the dependent variables that can be attributed to between-person variations, the impact of movie diversity, even if uncontrolled for in the design, is neglectable. Since the participants completed the survey online at a place of their own choice, we also cannot rule out influences of external distractors. Note, however, that it is unlikely that the effects of crocodile tears will be weaker in well-controlled laboratory conditions when the participants' attention to the stimuli is optimal. In contrast, it seems more plausible that the effects of crocodile tears may even be stronger in well-controlled laboratory conditions when participants' attention to stimuli is optimized. Another limitation is that we cannot rule out that participants had seen the movie clips before, although this is unlikely because we presented clips of unknown actors from YouTube. Thus, an extensive replication is needed before we can draw more definite conclusions.

The present findings nevertheless suggest that crocodile tears likely are met with negative consequences. In that sense, this study yielded most relevant findings corroborating the anecdotal evidence about the negative consequences of fake crying in therapeutical (Alexander, 2003) and court settings (Lefrevre, 2008; Glaberson, 2011). Perhaps people implicitly feel that tears represent an honest signal and that misusing them for manipulation may not just be some minor transgression but rather a sign of intrinsic badness and lack of trustworthiness, sufficiently negative characteristics to warrant social rejection. The other side of the coin is that genuine crying seems associated with warmth, honesty, and reliability, characteristics that render an individual attractive for social exchange and collaboration (Gračanin et al., 2018). Our findings reveal that the participants felt more connected with those individuals who they perceive as real criers and were more willing to have them in certain roles in their private life. The present findings thus corroborate with previous findings demonstrating that tearful individuals, as compared with the same individuals without tears, are perceived as warmer, more reliable, and honest (Zickfeld et al., 2018; Píco et al., 2020). An important implication for crying research could be that it makes sense to check whether the participants perceive the tears as fake or genuine, because that might have substantial impact on the further evaluation. It seems that this is a factor that should be added to the preliminary, above discussed model of Vingerhoets (2013) on the possible relevant factors.

Once it has been established that genuine tearful individuals are perceived as warmer and more reliable, the next logical and intriguing step is to establish whether individuals who tend to cry more are actually morally superior to non-criers. A recent self-report study yielded some first evidence that that might indeed be the case. Vingerhoets et al. (2018) demonstrated a positive association between self-reported crying proneness and the self-reported tendency to display prosocial behavior. Moreover, those who reportedly tend to cry more often showed stronger disgust reactions to and disapproval of social transgressions of others. Future research needs to replicate and extend these observations, preferably with real prosocial behavior as dependent variables, rather than just self-report.

Interestingly, in particular in the popular literature, crying is predominantly associated with a variety of negative connotations (e.g., weak, not competent, emotionally not stable, manipulative). However, the current study yielded first data indicating that those who genuinely cry are much appreciated and most welcome in our private lives. The problem, however, is that the tears have to be reliably perceived as genuine, which might be problematic because observers are not always very accurate in distinguishing genuine from fake tears.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation, to any qualified researcher.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Ethics Review Board (ERB) of the School of Social and Behavioral Sciences of Tilburg University. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

IR collected the data. IR, MR, and AV wrote the manuscript. MT analyzed the data, wrote the results section, and commented on the manuscript.

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Lay Beliefs About Interaction Quality: An Expertise Perspective on Individual Differences in Interpersonal Emotion Ability

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Social interactions have long been a source of lay beliefs about the ways in which psychological constructs operate. Some of the most enduring psychological constructs to become common lay beliefs originated from research focused on social-emotional processes. "Emotional intelligence" and "social intelligence" are now mainstream notions, stemming from their appealing nature and depiction in popular media. However, empirical attempts at quantifying the quality of social *interactions* have not been nearly as successful as measures of individual differences such as social skills, theory of mind, or social/emotional intelligence. The subjective, lay ratings of the quality of interactions by naïve observers are nonetheless consistent both within and between observers. The goal of this paper is to describe recent empirical work surrounding lay beliefs about social interaction quality and ways in which those beliefs can be quantified. We will then argue that these lay impressions formed about the quality of an interaction, perhaps via affect induction, are consistent with an expertise framework. Affect induction, beginning in infancy and occurring over time, creates instances in memory that accumulate and are ultimately measurable as social-emotional expertise (SEE). The ways in which our lay beliefs about social interaction quality fit the definition of expertise, or the automatic, holistic processing of relevant stimuli, will be discussed. We will then describe the promise of future work in this area, with a focus on a) continued delineation of the thoughts, behaviors, and timing of behaviors that lead to high-quality social interactions; and b) the viability of expertise as the conceptual model for individual differences in social-emotional ability.

Keywords: social interactions, emotion, expertise, affect induction, lay beliefs

INTRODUCTION

Social interactions have long been a source of lay beliefs about the ways in which psychological constructs operate. Indeed, some of the most enduring and popular psychological constructs to become common lay beliefs have originated in research focused on social-emotional interactions. Emotional intelligence (EI) and social intelligence (SI) have both become common parlance due

in part to both the intuitive nature of the constructs as well as the success of Daniel Goleman's popular accounts (Goleman, 1995, 2007). However, the way in which one determines whether a social interaction is positive or negative largely remains very much like Justice Stewart's dictum: "We know it when we see it." Empirical attempts at quantifying social interaction quality have not been nearly as successful as measures of individual traits such as social skills (Riggio, 1986), theory of mind (Lawrence et al., 2004), or social and/or emotional intelligence (Silvera et al., 2001; Geher, 2004; Mayer and Salovey, 2007). Although questions remain concerning the latent traits and abilities being measured by the scales, measures of the aforementioned constructs are psychometrically reliable and valid (Thorndike and Stein, 1937; Murphy, 2006; Riggio, 2010). Further, observer reports have been central to the validation of these constructs, with individual differences measures of social traits and abilities routinely compared with observer ratings of the same trait as evidence of the measure's validity (e.g., Colvin and Funder, 1991; Elfenbein et al., 2015). Despite the common usage of observer report, the subjective, lay interpretation of the quality of an interaction overall *by observers of the interaction* has not been as frequent, though it has been shown to be consistent within and between trained (Alden and Wallace, 1995; Beidel et al., 2010; Glenn et al., 2019) and untrained (Wild and Bachorowski, unpublished) observers.

QUANTIFYING LAY BELIEFS ABOUT INTERACTION QUALITY

Recent work has shown that ratings of dyadic interaction quality by naïve, third-party observers corresponds with the self-reported social ability of the individuals in the interactions being observed (Wild and Bachorowski, unpublished). These observers watched videos of an interacting dyad. The dyads interacting in the videos were participating in an interview paradigm in which one of the interactants was a trained graduate student using a scripted interview. The interactant was an undergraduate student who completed self-report measures of a variety of social-emotional individual differences, including the Social-Emotional Expertise (SEE) Scale (McBrien et al., 2018). Participants in the observer study were asked to watch the "target" interactant in the interview, the undergraduate student, unaware of the target's self-reported social ability. They were then asked to rate the quality of the interaction they had just observed. Observers' ratings were higher for interactions depicting dyads that had higher self-reported social ability, as quantified by the SEE Scale. These results replicated results of a study in which trained "expert" observers, who were involved in social interaction research and given explicit instructions for what to observe in an interaction to determine the overall quality, rated the same set of videos. Like naïve observers, experts rated undergraduate participants with higher self-reported social ability as having higher social interaction quality as well (Wild and

Bachorowski, unpublished). Such findings indicate that lay beliefs about the quality of interactions may be a fruitful area for delineating the specific behaviors that promote high-quality social interactions.

Consistent with the findings described above, Elfenbein et al. (2015) demonstrated that observers are able to accurately assess the EI of individuals being observed in social interactions. It is of interest here to note that the self- and other-perception of individuals' EI was consistent regardless of whether a peer or supervisor was providing the rating. Together, these results indicate that observer perceptions, or lay beliefs, of social-emotional ability can be consistent across social contexts and evaluative judgments. These findings also build on previous work in which dyads rated each other on rapport, and third party observers rated dyads on the same metric (Bernieri et al., 1996; Bernieri and Gillis, 2001). Rapport is a construct related to social ability, but is concerned more with the quality of the dyadic interaction and the behaviors associated with the overall quality, rather than connecting that interaction quality with the specific social ability of individuals in the interaction. By collecting lay observers' ratings of both the overall interaction quality of a dyad, and participant self-reports of social ability, we are beginning to bridge the gap between lay observers' interpretations and individual difference metrics that can be used across interaction types.

The findings discussed thus far are based on dyadic interactions. Further work will benefit from studying larger social groupings. Additionally, work investigating the goal of the specific social context will be illuminating. While previous work has considered interacting dyads in a variety of contexts [e.g., interview scenarios (Wild and Bachorowski, unpublished) and collaborative games (Bernieri et al., 1996)], the ratings of interaction quality by lay observers have been consistent. Explicit investigation of whether context shifts lay observers' interpretations of interaction quality are warranted. Toward this end, recent work has shown that individuals, at least in the cultural context of the United States, rate faces of individuals wearing clothing associated with higher economic status as more competent than faces wearing clothing associated with lower economic status (Oh et al., 2019). These results indicate that factors extrinsic to the specific judgment being made contribute to lay perceptions of an individual's social characteristics. Further, discrepancies have been identified between individuals' ratings of subjective success versus objective metrics of success (e.g., Deslauriers et al., 2019). In this example, individuals engaged in active learning reported feeling as though they had performed worse (i.e., learned less) despite performing better on objective metrics of learning. Early evidence does not identify such a discrepancy between self-reported social expertise and lay observers' ratings of social performance (Elfenbein et al., 2015; Wild and Bachorowski, unpublished). However, to further investigate this potential discrepancy between objective and subjective social performance, more objective, theory-based measures of social performance are required.

AFFECT INDUCTION AND SOCIAL INTERACTIONS

As described above, lay observers of social interactions seem to have a good sense of the social ability of the individuals they are observing. These findings do, however, raise an important question: What is the mechanism through which socially able individuals are conveying their ability to others? A recently completed study (Wild and Bachorowski, unpublished) utilized facial electromyography (fEMG) to begin to address the question of mechanism by testing whether individuals observing social interactions experienced greater activity in their zygomatic (associated with positive affect) or corrugator (associated with negative affect) muscles based on the quality of the interaction they were observing. Participants gave continuous ratings of their affect and rated the quality of the interactions they observed. The essential goal of this experiment was to test hypotheses derived from affect induction theory, or the idea that the signals associated with social-emotional behaviors function to elicit affect in others (Owren and Bachorowski, 2003). Prior work investigating the social behavior of laughter has shown that individuals' use of laughter varies with social circumstances (Owren and Bachorowski, 2003), and that this variability in laugh acoustics differentially drives the amount of positive affect reported by listeners (Bachorowski and Owren, 2001). The results were consistent with an evolutionary perspective on the functional use of affective signals in social interactions (Owren and Bachorowski, 2001). Affect-related signals such as laughter and smiling, as well as other behaviors involved in social interactions (e.g., eye gaze, body position, etc.) would not have adaptive utility if they were simply veridical representations of the internal state of the organism. Instead, it is more parsimonious and consistent with numerous examples from other species (e.g., chameleons shifting color to adapt to the environment and bull snakes mimicking rattlesnakes to avoid predators) where behavior is used to influence the response of observers rather than indicate a true intention (Owren et al., 2003). The argument to be made here is that social animals, chief among them humans, utilize social behaviors to induce affect in others. Including the social partners, themselves, but also the observers of those interactions is consistent with an evolutionary account of social signals (Owren et al., 2003). The recent fEMG study from our group, described above, has yielded results that indicate observers' affect ratings were indeed impacted by the self-reported social ability of the individuals they were viewing. These results show that lay observers of social interactions are more positively, affectively impacted by the behavior of those with high social ability than those with lower social ability.

SOCIAL-EMOTIONAL EXPERTISE (SEE)

Our ongoing work is focused on testing whether the results described thus far are amenable to an expertise account of individual differences in social interaction ability. In cognitive psychology, expertise is typically defined as the automatic, accurate, and holistic processing of relevant stimuli (Logan, 1985; Gauthier et al., 2000). As such, expertise is domain-specific (e.g., expertise in car identification does not generalize to other domains). A valid and reliable self-report measure of SEE has been developed, with scores related to both convergent and discriminant constructs as predicted (McBrien et al., 2018). As examples, SEE Scale scores are positively correlated with SI, EI, and social skills inventories. These results are an indication of the consistent inter-correlations of measures of constructs involving social behavior and problem-solving, found in meta-analytic reviews, as has been shown in the interpersonal accuracy literature (Schlegel et al., 2017). This work has found that the skills and abilities thought to be associated with interpersonal accuracy, or the ability to correctly judge others' emotions, intentions, and other social characteristics, are all correlated in the mild to moderate range.

While the fact that interpersonal accuracy was determined by Schlegel et al. (2017) to be a collection of separate, mildly to moderately correlated skills and abilities is important, there are further implications. Expertise in any given domain requires a similar constellation of moderately correlated skills and abilities, not all of which are necessary, but several of which are sufficient (e.g., Richler et al., 2019). For instance, it is not necessary to have high fluid intelligence to be a car expert, however, there is a correlation between fluid intelligence and visual ability and performance on a visual expertise task (Sunday et al., 2018a). The combination of skills, abilities, and acquired experience necessary for expertise is not a fixed ratio, and the skills and experiences necessary are not strictly limited. It is therefore plausible that expertise in the social domain occurs in much the same way, with a set of moderately correlated skills and abilities available to an individual to utilize as components of their social expertise. If this is the case, the level of social expertise, or the successful utilization of social skills and abilities, is the true individual differences metric. This is not to claim that other metrics of individual differences in social skills and abilities are not informative. Those metrics are important, and may provide the specific skills and abilities that comprise a given individual's social expertise. Below, we outline how lay impressions of social ability and these more specific metrics of social skills inform the central aspects of our nascent expertise account of individual differences in social ability.

AUTOMATICITY IN SOCIAL INTERACTIONS

Our proposal that social interactions might operate as a domain of expertise is consistent with the instance theory of automaticity, which states that a skill becomes more automatic as more instances of successful completions of the skill accrue, and therefore is more readily accessible in memory (Logan, 1988, 1995). The more instances present in memory, the greater

the probability of accessing an instance of that skill (or action) quickly, thereby promoting automaticity. In the context of affect induction in social interactions, increased instances of both inducing affect in others and having it induced in one's self could ultimately produce smooth, automatic affect-related responses.

Instances are formed each time a skill is utilized, and become more automatic as a result of practice (Logan, 1997). Context influences skill success, so the context of a skill's utilization is important. For instances of successful social skill, social context must be taken into account, and is likely variable across cultures, socio-economic statuses, race/ethnicities, gender identities, and more. It follows that SEE would vary with experience in a given social context, just as has been found for other social-emotional individual difference measures (e.g., Rimé et al., 1990; Oh et al., 2019). More experience with interactions in one culture would lead to more automatic, and therefore expert, performance in that culture than in a culture with which experience is limited. This has been demonstrated in emotion recognition, a process that is automatic and yet varies based on in-group/out-group experience (e.g., Elfenbein and Ambady, 2003; Beaupré and Hess, 2006; Hess and Fischer, 2014). Baseline SEE may influence the starting point of competence in navigating novel social situations. In the same way that a car expert will more readily learn to identify a novel vehicle than a novice, so too might someone high in SEE learn to adapt to novel social contexts than someone lower in the SEE spectrum. In this way a SEE framework for individual differences in social ability can account for differences in social ability within and between cultures as a function of baseline ability and experience. This application of automaticity to instances of social interactions also provides an account for how friendships can build over time, as two people accrue instances of successful interactions across shared contexts. The social exchanges seen between close friends, so often described in lay observation as "effortless," may in fact be automatic.

HOLISTIC PROCESSING IN SOCIAL INTERACTIONS

A second hallmark of expertise frameworks for skills in other domains, such as car experts or radiologists, is the holistic processing of relevant visual stimuli (Richler et al., 2011). Holistic processing can be measured in various ways. One demonstration of holistic processing involves focusing on the overall stimulus and then very quickly honing in on only the most relevant details for making an informed decision. Holistic processing is exemplified by radiologists looking first at an entire CT image before narrowing in quickly on the parts of the image that are consistent with lesions (Wood, 1999; Sheridan and Reingold, 2017), or car experts first looking at the car as a whole before zeroing in on the aspects that identify the unique make and model of the vehicle (Gauthier et al., 2000; Sunday et al., 2018b). Further, these visual ability metrics and fluid intelligence are both associated with successful performance on a visual detection task in radiological images (Sunday et al., 2018a) and performance on these tasks has been linked with specific activation in the fusiform face area, an area associated with expertise (Gauthier et al., 1999; Tarr and Gauthier, 2000; Gauthier and Nelson, 2001; Sunday et al., 2018b). In much the same way, individuals in a social interaction may need to see the overall state of the interaction before zeroing in on specific aspects to improve the outcome of the interaction, and this process may require a combination of social interaction ability and SI and/or EI. The visual expertise for faces may instead reflect the role faces play in human social interactions and exemplify the way in which individuals acquire and adapt social ability as an expertise. Impairment in holistic processing of a social interaction could impair social interaction quality, such as the impairments in interaction quality seen in Social Anxiety Disorder (SAD). Individuals with SAD have long described being too focused on specific behaviors in the interaction (usually their own) to focus on the overall interaction. This focus on specific behaviors then leads to difficulty tracking the needs of the other person in the interaction, thereby negatively affecting the overall quality of the interaction (Mueller et al., 2009). To frame this clinical disorder as being in part attributable to an error of holistic processing, one's focus on a specific behavior (e.g., "what am I doing with my hands") precludes the ability to focus on the overall interaction, leading to an impairment in both holistic processing of the social-emotional stimuli and the automatic processing of relevant stimuli. Stepping back, this brief description of SAD is illustrative of a lay characterization creating a scientifically viable framework for research.

SUMMARY AND FURTHER DIRECTIONS

Lay beliefs about the quality of social interactions and the ways in which those interactions can be impaired are proving important for building a scientific description and explanation of social-emotional interactions. The lay belief that the "chemistry" between two people, rather than the attributes of just one participant in an interaction, is vital to its success has been borne out in the data we have collected. Observers' ratings of a dyad's interaction quality are not related to traits unique to one person, but to the ability, or expertise, of each individual at adapting to others successfully. The lay beliefs of those with social anxiety have identified impaired holistic processing as a key component in the disruption of their social interaction quality. Further work will focus on a continued delineation of the thoughts and behaviors that lead to high-quality social interactions and viability of expertise as the conceptual model for individual differences in social-emotional ability. Such a model will also allow for the development of objective measures of social performance that can answer questions regarding the consistency between subjective and objective ratings of social performance. As this delineation continues, it will be crucial to not lose sight of the ways in which lay beliefs offer ecological validity. Lay

beliefs about social interactions could be an essential guide to our elucidating the mechanistic underpinnings of human interaction.

DATA AVAILABILITY STATEMENT

The datasets generated for this study are available on request to the corresponding author.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Vanderbilt University Institutional Review Board. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

Both authors contributed to the conceptualization and construction of this manuscript.

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Everyday Beliefs About Emotion Perceptually Derived From Neutral Facial Appearance

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The evolution of the human brain and visual system is widely believed to have been shaped by the need to process and make sense out of expressive information, particularly via the face. We are so attuned to expressive information in the face that it informs even stable trait inferences (e.g., Knutson, 1996) through a process we refer to here as the *face-specific fundamental attribution error* (Albohn et al., 2019). We even derive highly consistent beliefs about the emotional lives of others based on emotion-resembling facial appearance (e.g., low versus high brows, big versus small eyes, etc.) in faces we know are completely devoid of overt expression (i.e., emotion overgeneralization effect: see Zebrowitz et al., 2010). The present studies extend these insights to better understand lay beliefs about older and younger adults' emotion dispositions and their impact on behavioral outcomes. In Study 1, we found that older versus younger faces objectively have more negative emotion-resembling cues in the face (using computer vision), and that raters likewise attribute more negative emotional dispositions to older versus younger adults based just on neutral facial appearance (see too Adams et al., 2016). In Study 2, we found that people appear to encode these negative emotional appearance cues in memory more so for older than younger adult faces. Finally, in Study 3 we exam downstream behavioral consequences of these negative attributions, showing that observers' avoidance of older versus younger faces is mediated by emotion-resembling facial appearance.

Keywords: facial expression, person perception, neutral, neutral face, impression formation

INTRODUCTION

That humans possess theory of mind–the ability to read others to make accurate assessments of others' seemingly invisible internal states–is widely hailed as evidence that the evolution of the human brain, and visual system in particular, has been shaped by a need to process and derive social meaning from others' expression, particularly via the face (Allison et al., 2000; Emery, 2000).

As humans we are so tuned to reading expressive information from others that we fall prey to what we will refer to here as *face-specific fundamental attribution errors* (Albohn et al., 2019). Just like the classic *fundamental attribution error*, which posits that individuals tend to ascribe internal and stable traits based solely on external features, individuals tend to ascribe enduring personality traits and emotional dispositions to others based on their overt facial expressions

(see also, Knutson, 1996; Hess et al., 2000). We are so tuned to reading expressive information from the face that even when there is no expressive information present individuals base their beliefs about others' emotional dispositions on emotion-resembling appearance cues in the face (i.e., emotion overgeneralization; Zebrowitz et al., 2010). Here we argue that the mechanism underlying emotion overgeneralization is a face-specific fundamental attribution error. That is, individuals overgeneralize emotions *because* they are using facial appearance cues that resemblance expressions to make their judgments about enduring impressions of others.

Such appearance cues have been argued to contribute to various emotion stereotypes. For example, male faces (versus female faces) tend to structurally resemble anger expressions with lowered brows, thin lips, and square jaws, whereas female faces structurally resemble happy faces, in line with prevailing gender emotion stereotypes (see Adams et al., 2015 for review; Hess et al., 2004; Becker et al., 2007; Zebrowitz et al., 2010; Palumbo et al., 2017). Further, as a face ages, it takes on more emotion-resembling cues (Malatesta et al., 1987; Adams et al., 2016), which have been argued to contribute to negative age-related stereotypes (Hess et al., 2012).

A large meta-analytic review (Kite et al., 2005) and a study of 26 different cultures revealed strong evidence for negative age-related stereotypes (Löckenhoff et al., 2009). Critically, there is evidence that this bias is largely linked to impressions derived from faces. For instance, when asked to rate impressions of a "typical" younger and older person when not viewing faces, the typical negative bias disappeared (Boduroglu et al., 2006). This latter finding suggests a perceptual basis for age-related negative stereotypes, one we argue here is related to age-related emotion-resembling cues in the face. The most prevalent age-related stereotype is that older people are more prone to negative emotion than their younger counterparts, which arguably directly contributes to a general negativity bias (Fabes and Martin, 1991; Kite et al., 2005; Ebner, 2008).

THE CURRENT WORK

We first report a preliminary study to demonstrate lay beliefs about how informative neutral faces are to individuals. We hypothesized that participants would report that neutral faces offer little-to-no information when deriving emotional beliefs about others. We do this first to contrast with our subsequent studies in which we aimed to show that neutral faces are indeed utilized to form emotional impressions of others.

Next, in Study 1 we subjected all neutral faces to a computer vision analysis designed to read emotion from faces to establish objective evidence (from pixel and facial metric data) that there are more negative emotion cues in older versus younger faces. Then we had observers rate older and younger neutral faces on an emotion disposition profile to examine the influence of aging on everyday beliefs about emotions people report when rating faces. We predicted that there would be a bias to rate older faces as more likely to experience negative emotions, as prior work has suggested

that aging cues in the face resemble negative emotions such as sadness and anger (e.g., Ebner, 2008; Hess et al., 2012), which we argue here in turn contributes to negative age-related stereotypes and bias.

Next, in Study 2 we examined people's mental representations of older versus younger neutral faces to see if the images people hold in their memory of "typical" faces contain emotional tone. Assuming that people's mental representations of older and younger faces reflects that which has been previously seen and stored in memory, we hypothesized that composites generated of older versus younger neutral faces, using a reverse correlation (RC) task (Dotsch et al., 2008), would be rated as higher on negative emotions by independent raters.

Finally, in Study 3 we examined the potential consequences of these negative age-related everyday beliefs about emotion on motivated behavior. Utilizing a modified approach/avoid task, we predicted that older faces would be avoided more than younger faces regardless of overt expression, and that older neutral faces would be avoided at a similar level as negative expressions due to emotion resemblance of age-related cues in the face. This latter prediction was tested using mediational analyses to show that age influences avoidance via emotion-resembling cues in the face.

PRELIMINARY STUDY: EVERYDAY BELIEFS ABOUT NEUTRAL DISPLAYS

Methods

Participants

Participants ($N = 32$; 22 females, 10 males, $M_{age} = 18.78$) were college students and received course credit in exchange for participation.

Stimuli and Procedure

Participants were asked "How socially informative is a/an (younger/older) (male/female) neutral face?" for a total of four trials per participant.

Each statement was presented in random order across participants. Participants were allowed to type their response in a text box. At the beginning of the experiment they were asked to provide at least one sentence per question. After each free response, participants were asked the same question but asked to provide a numerical value on a Likert-type scale with anchors 1 = "Nothing at all" to 7 = "A lot."

Results

Overall, across both older and younger adults the modal response on the "social informativeness" of a neutral face was two, suggesting that the majority of participants believed that neutral faces contained very little useful information for making judgments.[1]

Next, we conducted a two (gender: male, female) by two (age: old, young) linear mixed effects model to examine whether

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[1] Modal response was two rather than one most likely due to scale extremity response bias (i.e., avoiding the very lowest or highest points of the scale).

participants' ratings of neutral faces varied by age or gender. Our linear mixed effects model contained random intercepts for participants.

There was only a main effect of age, $F(1, 96) = 6.60$, $p = 0.012$. Overall, participants believed that older adult neutral faces [estimated marginal mean (EMM) = 3.14] provided significantly less information than younger adult neutral faces (EMM = 3.73).

We also analyzed our open-ended data with a thematic analysis, which revealed results similar to our rating data. The full linear mixed model, along with additional thematic analysis, is provided in **Supplementary Materials 1**.

In sum, this pilot study suggests lay beliefs regarding neutral faces are that they are relatively uninformative, particularly older adult neutral faces. We present this data first because although everyday beliefs about neutral faces may be that they convey little information, in the subsequent studies we aim to demonstrate that they nonetheless contribute greatly to everyday beliefs about emotion, and of particular relevance to the current work, age-related beliefs.

STUDY 1: DEMONSTRATION OF AGE-RELATED EMOTION OVERGENERALIZATION

Study 1 was designed to demonstrate age-related emotion overgeneralization when making judgments of intentionally posed neutral faces. Specifically, we predicted that individuals would differentially attribute enduring emotional dispositions more so to older and younger adult neutral faces despite the lay belief that neutral faces provide little useful information.

Methods
Participants and Stimuli
Participants ($N = 49$; 39 females, 10 males, $M_{age} = 19.2$) were college students. Stimuli were 888 older and younger adult neutral faces from the FACES image set (Ebner et al., 2010), the Face Database (Minear and Park, 2004), and the Humboldt image set (see, Adams et al., 2016) for a total of 394 old female adults, 209 old male adults, 144 young female adults, and 141 young male adults.

Procedure
Participants were instructed that they would be shown faces of individuals and asked to rate them on "how likely each individual is to feel the following emotions," and then each emotion was listed in the following order: anger, joy, disgust, sadness, fear, and surprise. Next, individuals randomly saw 100 images from the image pool along with rating sliders for each of the six emotions. Each rating slider was anchored with points 1 = "Not at all," 4 = "Somewhat," and 7 = "Very much."

Results
FaceReader Results
To first examine whether the observer rating results were driven by misconceptions of emotion cues in the aging neutral face, we analyzed each face utilizing FaceReader™ 6.1 (Noldus, 2015). FaceReader™ is a commercial computer vision tool used to objectively analyze the presence of expressions, action units, and emotional overall valence in facial images. FaceReader™ is well established and validated in the scientific literature, with results approaching expert level (Lewinski, 2015; Adams et al., 2016).

Each face was analyzed using FaceReader™ 6.1's general model. As part of the general model, FaceReader™ outputs a valence score between -1 and $+1$ that corresponds to the amount of predicted negativity or positivity, respectively, present in each face. We analyzed each of the neutral faces' valence score to compare whether older adult neutral faces were objectively categorized as more negative than younger adult neutral faces. Of the 888 faces, 878 face images were recognized and able to be computed with FaceReader's™ detection algorithm. In line with our hypothesis, the valence of older adult neutral faces (EMM = -0.051) was more negative than younger adult neutral faces (EMM = 0.000), $F(1, 877) = 14.14$, $p < 0.001$, $R^2 = 0.02$.

Rating Results
Preprocessing
To prepare the data for analysis, we first removed outliers. Outliers that were 1.5 times below or above the interquartile range were removed. Two hundred and twenty-one (0.004%) responses were removed in this manner. We conducted a 2 (image age: old, young) by 6 (emotion rating: angry, disgust, joy, fear, neutral, and surprise) linear mixed effects model with fixed effects for image age and emotion rating. We included random intercepts for each participant and image, and random slopes for image age within participant.

Analysis
There was a main effect for emotion rating, $F(5, 28230.2) = 130.96$, $p < 0.001$. There was also a main effect of image age, $F(1, 59.80) = 9.39$, $p = 0.003$. Overall, older adult images (EMM = 2.80) were rated higher on emotionality compared to younger adult images (EMM = 2.71), $t(29127) = 3.07$, $p = 0.002$.

Critically, these main effects were qualified by an interaction between emotion rating and image age, $F(5, 28230.3) = 12.71$, $p < 0.001$. On average, older adults were expected to feel more anger, disgust, and surprise compared with younger adults. Means and pairwise comparisons are reported in **Table 1**.

TABLE 1 | Pairwise comparisons for emotion ratings between young and old faces for Study 1.

Rating	Older adult EMM	Younger adult EMM	Estimate	*t*-value	*p*-value
Anger	2.94	2.75	0.19	3.65	<0.001
Disgust	2.99	2.63	0.36	6.88	<0.001
Fear	2.50	2.50	−0.002	−0.05	0.963
Joy	3.02	3.00	0.02	0.31	0.755
Sad	2.94	3.00	−0.06	−1.17	0.244
Surprise	2.48	2.36	0.12	2.38	0.018

Additionally, we tested whether each images' valence score mediated the relationship between image age and average participant rating score. FaceReader^{TM} valence mediated this relationship for all emotion ratings except surprise and fear (all significant indirect effects p's < 0.001). The full linear mixed effects model, and mediation analyses are presented in **Supplementary Materials 2**.

In sum, Study 1 shows that participants derive beliefs about the emotional dispositions of younger and older adults based solely on their neutral faces. Overall more emotion is perceived in older faces, particularly more anger and disgust, presumably due to age-related appearance. That we found no difference in sadness and greater surprise for older adults, is perhaps due to the fact that we were using a very large, naturalistic data set of neutral faces. However, more overall affective negativity was detected by FaceReader^{TM} based solely on objective facial cues, which in turn mediated participant responses, underscoring emotion resemblance as a primarily contributing influence in these everyday beliefs regarding age-related emotional dispositions.

STUDY 2: BIAS IN MENTAL REPRESENTATIONS OF AGED FACES

Study 2 was designed to examine how older and younger faces are encoded in memory. To do this we used a RC procedure (Dotsch et al., 2008) to generate composite images that reflect "mind's eye" representations of a typical older versus younger adult. Study 1 demonstrated that older versus younger neutral faces objectively contain more negative emotion cues and are subjectively rated as expected to experience more negative emotions (particularly anger and disgust). Study 2 examined whether these age-related negative emotion-resembling appearance cues are also encoded into memory.

Method
Participants
Twenty-seven participants (16 females, 11 males) created RC classification images (CIs), and 66 participants[2] (46 females, 20 males) rated each image. Participants were college students that participated in exchange for course credit.

Study Stimuli
Stimuli for this study were created following the typical RC procedure. Briefly, 300 image pairs were created by overlaying random sinusoidal noise or the inverse of the random noise pattern atop an age-ambiguous base image created by averaging old and young, male and female neutral faces from the Ebner face set (Ebner et al., 2010) together (see, Dotsch et al., 2008 for full RC method).

On each of the 300 trials, participants were asked to select between the image pairs the one that "looked most like a typical (older/younger) adult." Participants completed this procedure for both age blocks (old/young), which were randomized between
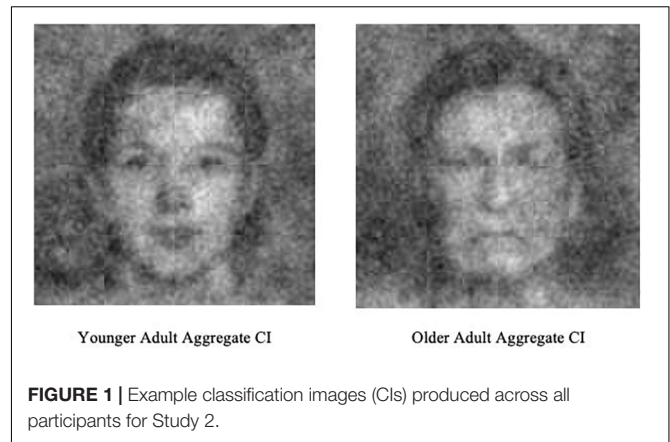
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[2]Six participants did not complete the experiment. However, including them did not change the results and are thus included in all analyses presented.

FIGURE 1 | Example classification images (CIs) produced across all participants for Study 2.

participants. Then, by aggregating participant responses across each trial and block, a meaningful representation of what the individual was imagining when thinking of the age group emerges from the random noise (see **Figure 1** for examples). We collected 56 stimuli in this manner (27 participants × 2 blocks + 2 aggregate images).

Rating Procedure
Participants were instructed that they would be shown faces that "had been manipulated using a computer program," and to rate each face on several emotions/traits. Next, participants saw each of the 56 stimuli individually and asked to rate it on how angry, disgustful, fearful, feminine, happy, masculine, neutral, sad, and surprised it appeared before moving on to the next image. Images were randomized between participants. Each Likert-type scale was anchored with points 1 = "Not at all," 4 = "Somewhat," and 7 = "A lot."

Results
We conducted a 2 (image age: older, younger) by 8 (rating: angry, disgustful, fearful, feminine, happy, masculine, neutral, sad, and surprised) linear mixed effects model with fixed effects for image age and emotion rating. We included random intercepts for each participant and image. Ratings of aggregate CIs are reported in **Supplementary Materials 3**.

There was a main effect for emotion rating, $F(8, 31338.2) = 731.043$, $p < 0.001$. Of note, CIs were rated highest for appearing neutral, and neutral ratings were significantly higher than all other emotion ratings. There was also a main effect for image age, $F(1, 52.1) = 18.99$, $p < 0.001$. On average, older adult CI images (EMM = 3.17) were rated higher than the younger adult CI images (EMM = 3.03), $t(31473) = 4.36$, $p < 0.001$.

There was also an interaction between emotion rating and image age, $F(8, 31338.2) = 92.07$, $p < 0.001$. Overall, older adult CIs were rated as expressing more anger, disgust, fear, sadness, and less happiness and neutrality than younger adult CIs (**Table 2** reports full pairwise comparisons). The full linear mixed effects model is presented in **Supplementary Materials 4**.

In sum, Study 2 demonstrated that individuals hold internal representations of typical aged faces that contain more negative emotionality than younger faces. Because internal

representations for groups are largely the product of what has been experienced or seen before, these results suggest that the negativity "read into" aged faces are perceptually encoded.

STUDY 3: CONSEQUENCES OF PERCEIVING EMOTIONAL NEGATIVITY IN OLDER NEUTRAL FACES

Study 3 examines a potential consequence of perceiving older neutral faces as expressing negative affect. Specifically, we predicted that older adult neutral faces would be avoided to a greater extent than younger adult neutral faces, and that older adult neutral faces would be avoided in a manner similar to other negative emotions.

Method
Participants and Stimuli
Participants (N = 52; females = 19, males = 32, M_{age} = 19.26) were college students.

Stimuli were 575 old and young adult emotional (angry, fear, joy, sad) and neutral faces from the FACES image set (Ebner et al., 2010) for a total of 174 old female adults, 150 old male adults, 174 young female adults, and 174 young male adults. We included expressive faces to compare neutral face responses to positive and negative expressive faces.

Procedure
Participants were instructed to imagine for each trial (face) that they were in a digital face-to-face meeting (e.g., Skype) with the individual presented. Participants were then told that for each trial they should use the mouse to place the individual presented at a distance that they felt comfortable interacting with that person. The experimental stimulus size was mapped to the participant's mouse movements such that pushing the mouse upward (away) made the image smaller, and thus appear as if it were further in the distance. Likewise, pulling the mouse downward (toward) made the image larger, and thus appear as if it were closer. Each trial started with the image presented focally but at a random distance (size). This procedure is a modified approach-avoid task whereby participants get stimulus-level feedback during each trial (see, Phaf et al., 2014).

During each trial one of five random hallway backdrops appeared behind each image to add to the illusion of depth. Background images had no effect on the results, and thus were collapsed during analysis, $F(4, 3860.5) = 1.18$, $p = 0.32$. In-between each mouse movement trial there was a 200 ms fixation dot. Participants completed 100 trials and randomly saw 100 images from the total pool of images. On average, participants saw approximately 5.2 (SD = 0.26) images from each emotion by image gender by image age category.

Results
In order to fully explore the relationship between emotion, age, and approach/avoidant behavior, we first analyzed participant-level data for each age group and emotion expression. Following this, we analyzed the results at the stimulus-level using a mediation to examine the effect of each stimulus' likelihood of expressing a given emotion on approach/avoidant behavior in relation to age of the stimulus itself.

Avoidant Behavior
We conducted a two (image age: old, young) by five (image emotion: angry, fear, happy, neutral, sad) linear mixed effects model with fixed effects for image age and image. We included random intercepts for each participant and image, and random slopes within image age group. The scale factor for the image (smaller values = stimuli placed farther away) was used as the dependent variable for all analyses.

There was a main effect for image emotion, $F(4, 519.37) = 213.35$, $p < 0.001$. There was also a main effect of image age, $F(1, 47.33) = 41.75$, $p < 0.001$, such that older adult images (EMM = 0.26) were placed further away compared to young adult images (EMM = 0.31), $t(4200) = -6.46$, $p < 0.001$. There was also an image emotion by image age interaction, $F(4, 519.16) = 3.39$, $p < 0.001$ (see **Figure 2**).

There was also an image emotion by image age interaction, $F(4, 519.16) = 3.39$, $p < 0.001$. *Post hoc* analysis of this interaction revealed that across all emotion types older adults were placed farther away than younger adults, p's = 0.02–0.0001. Of the five

TABLE 2 | Pairwise comparisons for Study 2.

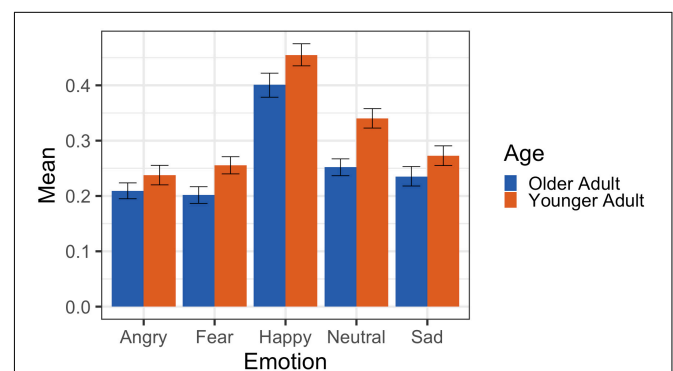| Rating	Older adult EMM	Younger adult EMM	Estimate	t-value	p-value
Anger	3.32	2.38	0.95	15.57	<0.001
Disgust	3.16	2.54	0.62	10.32	<0.001
Fear	2.75	2.55	0.19	3.22	0.001
Joy	1.92	2.75	−0.83	−13.80	<0.001
Sad	3.58	3.04	0.54	9.05	<0.001
Surprise	2.02	2.11	−0.09	−1.51	0.132
Neutral	4.07	4.17	−0.10	−1.66	0.097
Feminine	3.71	3.70	0.01	0.16	0.873
Masculine	3.97	3.98	−0.01	−0.17	0.864

FIGURE 2 | Participant response means and 95% CIs for Study 3 approach/avoid mouse placement task. *Y*-axis represents relative size of the stimulus, with smaller values indicating the stimulus being placed further away. Placement values range from 1 (largest size) to 0 (smallest size).

emotions that participants saw, neutral faces showed the largest difference between old (EMM = 0.25) and young (EMM = 0.33) faces, $t(4200) = -6.55$, $p < 0.001$. Indeed, participants' responses to older adult neutral stimuli were significantly more similar to negative emotion faces [$r(40) = 0.86$, $p < 0.001$] than they were to positive emotion faces [$r(40) = 0.38$, $p < 0.001$], $z = 4.65$, $p < 0.001$. Participant responses to young adult neutral faces followed a similar pattern, with a higher correlation with negative expressions [$r(40) = 0.65$, $p < 0.001$] than with positive expressions [$r(40) = 0.38$, $p = 0.012$]. Critically, however, the difference between these two similarity correlations only approached significance, $z = 1.84$, $p = 0.07$. Additionally, when we controlled for differences in approach/avoidant behavior between old and young expressive faces, there was still a significant difference between the distance participants placed older adult neutral faces compared to younger adult neutral faces, $F(1, 66.44) = 30.28$, $p < 0.001$.

Together, these results suggest that while there may be a general negativity bias toward older adults, this bias alone cannot fully explain the large differences observed for placement of neutral faces. The full linear mixed effects model and all of the pairwise comparisons are reported in **Supplementary Materials 5**.

Stimulus-Level Characteristics

While our participant-level data suggests that there are nuanced differences for older adult neutral faces, we wanted to further examine the causal effects of stimulus-level characteristics on approach/avoidance behavior. We computed a single negativity index by taking the averaged emotion scores (positive emotions reverse scores) provided by participants in Study 1 for each image used in Study 3 and summing. We then conducted a simple mediation to evaluate whether the negativity index mediated the relationship between stimulus age (old versus young) and distance participants placed the neutral face image (approach/avoid behavior). In line with our hypothesis, greater perceived negative emotional disposition on older adult neutral faces mediated the relationship between stimulus age and placing those faces further away. The standardized indirect effect was 0.04, and was significant with 10,000 bootstrapped samples, $F(2, 112) = 31.34$, $p < 0.001$, $R^2 = 0.36$, CIs [−0.1, 0.1] (see also **Supplementary Figure S1**).

GENERAL DISCUSSION

Across three studies we presented data that shows the inherent compulsion of observers to perceive more negative emotion in non-expressive age-related appearance. In a preliminary study we showed that participants believed that neutral faces of all age groups provided little useful information, but in particular older adult neutral faces. Despite this, in Study 1 when participants were presented with older and younger adult neutral faces and asked to rate enduring emotion dispositions, observers consistently reported that older adults were expected to experience more negative emotions (e.g., anger, disgust) and surprise. This is likely due to older adult neutral faces

containing more aging cues that can be misinterpreted as emotion cues, which was underscored by an objective computer vision approach also reading relatively more negative affect in older versus younger neutral faces. This result conceptually replicates previous research that has found a similar effect for perceptually based negative, age-related stereotypes, while also extending it to enduring emotion dispositions regarding age-related, everyday beliefs about emotional experience (Hess et al., 2012; Adams et al., 2016).

In Study 2 we found that participants also hold internal mental representations of "typical" older neutral faces that–although rated as appearing neutral–contain more negativity than younger adult internal representations. Given evidence in Study 1 that older faces objectively contain more negative emotion-resembling cues than younger faces, Study 2 goes one step further to show that these cues appear to be encoded into memory becoming part of one's facial aging prototype.

Lastly, in Study 3 we examined one potential consequence that these everyday beliefs about age and perceived emotion cues in a neutral face can have on real-world behavior. Utilizing a modified approach/avoid task whereby the participant must place an older or younger adult face either closer or further away, participants consistently and across all emotions (including neutral) placed older adults further away, suggesting a tendency to avoid. Importantly, the largest of the observed effects was for neutral faces, and overall emotional disposition negativity mediated the relationship between stimulus age and the distance at which neutral faces were placed.

It is important to note that despite our mediational evidence showing that observers use negative emotion appearance to make judgments of older adults' neutral faces, there are likely other contributing mechanisms at play as well. In particular, the results may also be in part due to an in-group bias, or due to some other characteristic about older adult neutral faces, such as resemblance to anomalous faces or attractiveness. Indeed, work has shown that both resemblance to anomalous faces and attractiveness mediated the relationship between age and negative traits (Zebrowitz et al., 2003; Palumbo et al., 2017). In our studies, all of our participants were college-aged students rating faces of younger and older adults. While it is certainly possible that an in-group bias may be contributing to our observed effects, our data suggest that negative emotion appearing cues are a large contributor. Indeed, two mediation models show that objective negative valence (Study 2) and perceived negative emotion disposition (Study 3) mediate (negative) participant responses to older adult faces.

In sum, we provide evidence that individuals ascribe enduring emotion traits as a function of age based on the physical appearance of an actor with a neutral visage. Importantly, engaging in a face-specific fundamental attribution error influences everyday beliefs about the emotional lives of older versus younger adults, and in turn has real behavioral consequences, such as a tendency to avoid actors that present with neutral displays that contain more negative-appearing face cues.

That individuals are so tuned to extract any socially relevant and useable information from even a non-expressive face emphasizes just how important it is to understand what cues

observers utilize from the face to form beliefs about the individual, and the consequences that these beliefs have on real-world behavior (regardless of their accuracy). Indeed, the way in which we form everyday beliefs about an individual (via emotion cues) can have a profound impact on behavior, and in the case of aging, negative, avoidance-related consequences.

DATA AVAILABILITY STATEMENT

The datasets generated for this study are available on request to the corresponding author.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Office for Research Protections Pennsylvania State University. Written informed consent for participation was not required for this study in accordance with the National Legislation and the Institutional Requirements.

AUTHOR CONTRIBUTIONS

DA and RA contributed to the conception and design of the studies and contributed to writing, revising, and approving the manuscript. DA ran the studies and analyzed the data under the supervision of RA.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2020.00264/full#supplementary-material

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Teachers' Beliefs About Children's Anger and Skill in Recognizing Children's Anger Expressions

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Everyday beliefs often organize and guide motivations, goals, and behaviors, and, as such, may also differentially motivate individuals to value and attend to emotion-related cues of others. In this way, the beliefs that individuals hold may affect the socioemotional skills that they develop. To test the role of emotion-related beliefs specific to anger, we examined an educational context in which beliefs could vary and have implications for individuals' skill. Specifically, we studied 43 teachers' beliefs about students' anger in the school setting as well as their ability to recognize expressions of anger in children's faces in a dynamic emotion recognition task. Results revealed that, even when controlling for teachers' age and gender, teachers' belief that children's anger was useful and valuable in the school setting was associated with teachers' accuracy at recognizing anger expressions in children's faces. The belief that children's anger was harmful and not conducive to learning, however, was not associated with teachers' accuracy at recognizing children's anger expressions. These findings suggest that certain everyday beliefs matter for predicting skill in recognizing specific emotion-related cues.

Keywords: emotion, beliefs, emotion recognition, teacher-student relationship, emotion understanding

INTRODUCTION

Emotion-related beliefs are thought to play an integral role in organizing individuals' behaviors, motives, and goals (Lozada et al., 2016; De Castella et al., 2018; Oertwig et al., 2019). Beliefs may also play a crucial role in interpersonal relationships, as they likely guide individuals in understanding the emotions of others, and in deciding whether to approach or avoid the emotional content they express. Indeed, associations between emotion-related beliefs and subsequent behavior and skill have been demonstrated in a variety of studies, particularly in the field of parenting (Halberstadt et al., 2008; Dunsmore et al., 2009).

Despite research linking beliefs to behaviors in the parenting world, we know little about how beliefs function when adults are engaged in other roles or how beliefs might be specific to particular emotions. For example, we know very little about teachers' emotion-related beliefs, despite their importance as educators and socializers of young children. The beliefs that teachers bring into the school setting every day may well be relevant to the ways in which teachers engage in their instructional practices and support the socioemotional tenor of the classroom. Teachers' beliefs may also be specific to the classroom environment, which generally involves one adult and many children, and the multiple responsibilities of keeping the many children in that setting not only safe, but also educationally engaged.

In the current study, we were particularly interested in exploring teachers' beliefs about anger as a specific emotion relevant within the classroom. First, teachers might have differing views about

anger, as some individuals appraise anger as "unsafe" or harmful in interpersonal relationships, others perceive anger as serving no adaptive function, and others view anger as an opportunity to motivate positive action (Averill, 1982; Tavris, 1982; Miller and Sperry, 1987; Leonard et al., 2011). Second, teachers are encouraged to explain or offer direct instruction about appropriate ways of expressing and managing negative affect, often without their own clarity of what they believe about the emotion (Yelinek and Grady, 2019). Anger might also be an emotion about which teachers have some ambivalence, thinking that low-level anger in students might best be ignored and left unidentified in order to avoid having to issue consequences which might then escalate anger further. Thus, although teachers may widely share the goals of fostering children's academic, social, and intrapsychic growth, they might have different types of emotion-related beliefs, which then differentially guide their attention to and skill in understanding emotion in the classroom.

Understanding others' emotions is considered to be a foundational skill of emotional competence that allows for assessing and anticipating the behavior of others, and then adapting one's own behavior to achieve one's interpersonal goals (Mayer et al., 2001; Hall et al., 2009; Castro et al., 2016). Although children, or even adults, do not often show what they are feeling in highly prototypical ways (Reisenzein et al., 2013; Castro et al., 2018; Barrett et al., 2019), teachers need to accurately monitor students' emotions during their many individual and classroom-level interactions throughout the day (Garner et al., 2019a). Further, teachers and other childcare professionals who understand students' emotions seem to more effectively manage children's emotions and classroom behaviors, and enjoy strong, positive relationships with students (Hargreaves, 2000; Demetriou and Wilson, 2010; Garner et al., 2019b; Valente et al., 2019). Thus, we tested whether teachers' beliefs about anger might have implications for teachers' understanding of students' emotions, and specifically, teachers' recognition of anger expressions as they develop in children's faces.

Teachers' Beliefs About Emotions

Early work on teachers' beliefs about emotions focused on teachers' beliefs about whether and how early childcare teachers should instruct children about emotional expression (Hyson and Lee, 1996). Beliefs about *how* emotions should be socialized are decidedly different from beliefs about *value or harmfulness* of children's emotions, so two studies adapted this measure to examine teachers' value-related beliefs and socialization behaviors with children. With a small sample of prospective teachers, accepting beliefs about children's emotions were positively associated with their labeling of children's emotions during teacher-child interactions (Swartz and McElwain, 2012), a teaching activity known to increase emotion understanding skill (Dunsmore and Karn, 2001). In a second study, teachers' belief that teachers should protect children from negative emotions was associated with their devaluing or ignoring children's emotion (Ornaghi et al., 2019), behaviors found to suppress emotion understanding in children (Katz et al., 2012). These findings suggest two important types of emotion beliefs, which were also identified in qualitative work of teachers' beliefs about

their *own* expression of negative emotions (Jiang et al., 2019), and a variety of qualitative and quantitative assessments of parental beliefs (Halberstadt et al., 2008, 2013; Parker et al., 2012). Although many beliefs have been studied in the parenting literature, these two beliefs have been found to support a variety of parenting behaviors impacting children's outcomes (e.g., Denham and Kochanoff, 2002; Halberstadt et al., 2008, 2013; Stelter and Halberstadt, 2011; Lozada et al., 2016). Altogether, these studies converge on the utility of exploring teachers' beliefs about emotions being valuable or useful and/or emotions being problematic or harmful.

Teachers' Emotion Recognition Ability

Despite its importance, attending to and identifying students' emotions is challenging while also monitoring the myriad of co-occurring classroom events and maintaining classroom momentum toward planned lessons. Yet, we know of no extant work that assesses precursors of teachers' emotion recognition ability. There is, however, a small body of work relating emotion-related beliefs to recognition skill in the parenting literature. In one study, parents' belief in the value of negative emotions had little impact, but their belief that negative emotions were problematic or even dangerous was negatively associated with their skill in labeling negative emotions during conversations with their children (Lozada et al., 2016). However, individuals who believed that negative emotions were dangerous seemed to recognize negative facial cues very early in an expression and but then quickly disengaged from those cues, so as to avoid them (Dennis and Halberstadt, 2013).

These studies suggest that beliefs about emotions may be associated with emotion recognition and in a variety of ways. Within the context of the classroom, we thought that teachers who value an emotion (e.g., anger) would be more attentive to the presence of expressions of that emotion, welcoming it as useful information, and, thus, would develop accuracy in assessing emotion-related facial cues. This might be particularly true of emotions about which some ambivalence might be expected, with some teachers preferring to avert their eyes from mildly angry expression and others moving toward investigating further. Thus, in this study, we predicted that teachers who value anger as a useful emotion would be more accurate at recognizing expression of that emotion. Given less clear findings regarding the belief that negative emotions are harmful, we were less sure of a prediction. Teachers who think of anger as problematic or harmful might try to ignore mild expressions of anger, whereas others might be more vigilant about them. Extrapolating from the Ornaghi et al. (2019) finding with teachers and what might be attentional avoidance found in Dennis and Halberstadt (2013), we tentatively predicted that teachers who believe that students' anger is harmful might ignore mild anger, and, over time, might develop less accuracy at specifying expression of that emotion.

Current Study

To explore associations between teachers' beliefs about anger and their emotion recognition of children's angry facial expressions, teachers completed a questionnaire assessing their beliefs about students' anger, and participated in judging facial expressions

in a dynamic emotion recognition task. We hypothesized that teachers' beliefs valuing anger would be associated with their skill in recognizing anger expression in children. We tentatively hypothesized that teachers' beliefs about the harmful nature of anger would be associated with having less skill in recognizing anger expression in children.

METHOD

Participants

Participants were 43 fourth- and fifth-grade teachers from seven public elementary schools within four different county districts in the southeastern United States. Of these, 21 teachers were teaching 4th grade, 21 were teaching 5th grade, and one teacher was responsible for a mixed 4th/5th grade class. Teachers self-identified as White (83.7%), Black (9.3%), Hispanic (4.7%), or East Asian (2.3%); mean age was 37.42 years (SD = 9.49 years) and 86% of the sample was female.

Procedure

After obtaining district and school principal approval, we invited teachers to participate, and all 43 teachers in the participating schools provided consent. Teachers completed a web-based survey, which included the emotion recognition task and the measure of teachers' beliefs about anger. Teachers were compensated $80 for the completion of the entire session.

Measures

Perceptions of Children's Emotions in Videos, Evolving and Dynamic (PerCEIVED) Task (Halberstadt et al., unpublished)

This task assesses emotion recognition of the dynamic facial expressions of 72 children (1/2 Black; 1/2 female). The measure was created so that each expression begins with a neutral face and evolves until an intensity threshold set by FACS coding (Ekman and Friesen, 1978) is met. That is, the first round starts at neutral and then includes slight muscle movement toward the intended expression ("A" intensity); the second round starts at neutral and includes a bit more muscle movement ("B" intensity, and so forth until round 5, which is the apex (height) of the intended emotional expression. The neutrality, prototypically, and intensity of these expressions were validated by two independent, FACS-certified coders (using FACS coding, Ekman et al., 2002). For the current study, we provided just the first and second rounds to the teachers, as these rounds are most analogous to children's emotional expressions in real life which tend to be fragmented or masked by late elementary school (Camras et al., 2017; Castro et al., 2018).

Each participant was shown one emotional expression at a time, in the form of a video clip, and asked to select which emotion out of six (happy, sad, angry, fear, surprise, and disgust) they thought the child was displaying. Each video was presented only once and in random order, the videos began automatically, and the participants were not able to replay the videos. Thus, the task mimics real-life experience in that the facial expressions of children in the age group served by the participating teachers tend to be fleeting and occur in somewhat fragmented forms (Castro

et al., 2018). Accurate selections were labelled recoded as "1" and inaccurate selections as "0." For the current study, only accuracy for anger was analyzed, resulting in 24 videos (3 children in each race/gender/emotion group/round).

Stability in skill level across the first three rounds in this task over a 3-month period is strong ($r = 0.70$, $p < 0.001$) as is convergent validity with two other emotion recognition tasks (rs = 0.47 and 0.49, ps < 0.001; Halberstadt et al., unpublished). Although this task is new, there is some construct validity in that the task with three rounds reveals racialized anger bias in a sample of preservice teachers (Halberstadt et al., unpublished), as predicted[1].

Teachers' Everyday Beliefs About Student Anger (TBASE - Anger) Questionnaire (Hagan et al., unpublished)

To assess teachers' beliefs, we created 30 items based on the parental belief literature (particularly Halberstadt et al., 2013; see **Appendix A**), as originally inspired by Hyson and Lee (1996), but focused on the value of emotion and teachers' emotional responsiveness to others' emotions. An exploratory factor analysis with a separate sample of teachers ($N = 225$) produced four factors (Hagan et al., unpublished). To capture the two beliefs of interest for this study, we used the scales "Anger is Useful" (seven items, e.g., "It is useful for children to feel angry sometimes" and "Anger can help me understand what the student is thinking"; α = 0.77) and "Anger is Harmful" (six items; e.g., "Children can think more clearly when anger does not get in the way" and "Anger in children can be emotionally dangerous"; α = 0.72). Teachers responded to the items using a Likert-type scale (1 = "not at all true" to 5 = "very often true"); scores were averaged within scale.

Covariates

We included teacher age as a proxy for teacher experience with children. Although not a pure proxy for teaching experience, the current sample did not include a measure of years spent in the classroom. We also controlled for teacher gender because emotion-related beliefs sometimes vary by gender in the parenting literature. Although our sample included only six male teachers, each teacher reported 24 unique pieces of information (2 rounds containing 12 children each), and MLM nested designs can support this level of gender imbalance. Finally, "round" was entered as a covariate to statistically control for the linear effects of learning between round one and round two, as the emotional expression intensifies.

RESULTS

Analytical Plan

We began by examining descriptive statistics and correlations for the TBASE and anger recognition. Then, to address whether

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[1]The PerCEIVED task also allows for the assessment of anger bias, which is the tendency to perceive anger when it does not exist (e.g., when the participant selects anger when the child is displaying FACS-coded disgust). In analyses, we did not find either belief associated with anger bias (both ps > 0.05), suggesting that teachers' beliefs about anger did not lead to a propensity toward misperceiving anger in a general way (see **Supplementary Table S1**).

teachers' beliefs were associated with their accuracy, we ran two (anger is useful, anger is harmful) multilevel logistic models. Based on the correlations in the descriptive analyses, we entered teacher age, teacher gender, and task round (to control for learning effects) as covariates. To test our multilevel logistic models we used SAS software, Version 9.4. All assumptions regarding univariate and multivariate normality were met. All results are described in terms of odds ratios; "1" indicates and accuracy emotional label for anger and "0" indicates an inaccurate response.

Preliminary multilevel analyses began with a fully unconditional model of accuracy for anger and included only the intercept (accuracy) to partition the variance between within and between person effects. The ICC calculation indicated that 7% of the variance was attributable to between-person differences and 93% of the variance was attributable to within-person variance. The null model indicated that the average odds of accurately identifying anger in children was 0.63 (CI = 0.65, 0.84) and was significant.

Level 1: $ACCURACY_{it} = \beta_{0it} + \beta_1(BELIEF)_{it} + \beta_2(TEACHER\ AGE)_{it} + \beta_3(TEACHER\ GENDER)_{it} + \beta_4(ROUND)_{it} + r_{it}$

Level 2: $\beta_{0i} = \gamma_{00}$
$\beta_{1i} = \gamma_{10}$
$\beta_{2i} = \gamma_{20}$
$\beta_{3i} = \gamma_{30}$
$\beta_{4i} = \gamma_{40}$

In these equations, the within-person effects at Level 1 are modeled by the main effect of Teacher's beliefs about anger (β_1), and the covariates: teacher age (β_2), teacher gender (β_3), and the linear effects of round (to statistically control for increases in accuracy as the expression of the emotion intensifies) (β_4).

Descriptive Analyses

As shown in **Table 1**, the teachers reported beliefs that averaged slightly above the midpoint for both scales and showed variability across individuals. The two beliefs were independent ($r = 0.08$), consistent with previous work with parents (e.g., Halberstadt et al., 2008), and despite the use of factor analyses that allowed for some degree of overlap between the scales (Hagan et al., unpublished). The average individual accuracy for facial anger was 0.43, suggesting skill well above chance (0.167), but also not representing a high level of accuracy. Neither the belief that anger was harmful ($r = -0.13$), nor the belief that anger was useful ($r = 0.01$) was correlated with teachers' age. Gender

mattered in that male teachers were more likely to endorse the belief that anger was useful ($M = 3.78$, $SD = 0.15$) than female teachers ($N = 37$; $M = 3.35$, $SD = 0.38$), $t(41) = 2.73$, $p < 0.05$; there were no gender differences, however, for the belief that anger was harmful.

DO TEACHERS' BELIEFS ABOUT ANGER PREDICT ANGER ACCURACY?

Table 2 reports the odds ratios and confidence intervals for teacher's beliefs about anger as predictors of anger accuracy. Consistent with the parenting literature, teachers' belief that anger is useful was a significant predictor of accuracy in identifying anger expressions, even when accounting for the covariates of teacher age, teacher gender, and round. Teachers' belief that anger is harmful was not associated with anger accuracy.

Teacher age was a significant covariate in the belief that anger is useful but not harmful model, reaching significance at $p = 0.05$. We found this interesting because teacher age was not initially a significant correlate of anger beliefs. Therefore, we ran one additional, *post hoc* model with teacher age predicting anger accuracy (controlling for round) and discovered age was not a significant predictor of anger expression accuracy ($p = 0.07$).

DISCUSSION

Previous research demonstrates that everyday beliefs about emotion play a role in orienting and motivating individuals' attention to and skill in understanding others' emotions (Dennis and Halberstadt, 2013; Castro et al., 2015; Ford and Gross, 2018). However, few studies, if any, explore how beliefs about specific emotions relate to recognition of emotion expressions related to those emotions, especially among teachers. As hypothesized, the belief that anger is useful was associated with teachers' skill in recognizing children's anger expressions as they were forming.

TABLE 1 | Descriptive statistics for teacher beliefs.

	Descriptives		
	M	**SD**	**Range**
Belief: Anger is Useful	3.41	0.39	2.57–4.29
Belief: Anger is Harmful	3.42	0.40	2.33–4.17

The possible range for the two beliefs was 1 to 5.

TABLE 2 | Teachers' beliefs about emotion predicting anger expression recognition.

	Outcome: Anger Expression Recognition			
	Anger is Useful		**Anger is Harmful**	
	OR	**CI**	**OR**	**CI**
Intercept	0.10	0.02, 0.78	1.00	0.14, 7.40
Teacher Belief	1.82*	1.08, 3.05	0.96	0.59, 1.55
Covariate				
Teacher Age	0.98*	0.96, 0.99	0.98	0.96, 1.00
Teacher Gender	1.12	0.63, 1.98	0.86	0.49, 1.50
Round	1.41**	1.09, 1.83	1.41**	1.09, 1.83

*Gender: "0" = Male, "1" = Female. For odds ratios, values above 1 indicate probability of anger accuracy occurring, and values below 1 indicate probability of anger accuracy not occurring. *p < 0.05, **p < 0.01.*

In contrast, teachers' belief that anger is harmful was not associated with skill in identifying anger expressions. It may be that the belief that anger is harmful has no impact on recognition of anger expressions. However, it may also be that some teachers who think of anger as problematic or harmful might avoid thinking about anger, whereas others might be more vigilant about identifying anger early in its development, and these two orientations might cancel out the effects entirely. Because both of these strategies might have merit in the classroom (letting mild anger be expressed and dissipated without responding to it or maintaining early vigilance and resolution), we think continued research about this belief is warranted. Eye-tracking may be particularly useful for gauging how teachers who hold different beliefs (e.g., emotions are of value or are harmful) search faces to identify emotions and engage with or avoid information that is readily available. If patterns do emerge in laboratory studies, next steps might include how beliefs then impact teachers' responses to anger in the classroom.

Overall, our findings suggest that at least some emotion-related beliefs are involved in processes that lead to actual skill and open up a range of possibilities. Future research can explore the pathways and mechanisms of everyday beliefs that create skill in recognizing emotion expression. Although we found that belief in the usefulness of anger is associated with skill in recognizing expressions associated with anger, we still do not know if belief in the value of emotions *in general* is sufficient for all emotion recognition, or if emotion recognition is principally reliant on beliefs specifically valuing discrete emotions. It may also be that the beliefs that teachers and others hold about often-maligned emotions such as anger may be more important for emotion recognition than beliefs about more generally appreciated emotions such as joy and compassion. Given the overall lack of coherence between experiencing and expressing anger in children and adults (Reisenzein et al., 2013; Castro et al., 2018), these teachers may have a "head start" on recognizing what is experienced in the minds of children. Given that lack of coherence, however, skilled teachers may want to invite conversation and confirmation about what children are actually feeling. Another possible avenue for research is to explore how anger beliefs affect other skills comprising emotion understanding, such as emotion knowledge, which involves awareness of the relevant causes for anger, the trajectory of emotion experience in terms of build-up and dissipation, and consequences to the individual and the group when anger is expressed (Castro et al., 2016). Because we now know that at least one anger belief relates to anger recognition, we wonder whether this anger belief and others might relate to increased knowledge of or skill guiding others toward emotion regulation. Certainly, the motivational role that everyday beliefs play suggests that beliefs about emotion could be a motivational force to building skills that encompass emotion understanding.

Our exploratory study certainly has its limitations. Although multi-level modeling is robust with small samples, the belief that anger is harmful might have achieved significance with a larger sample and more statistical power. Further, with only 12 different actors displaying anger and with FACS-coded rules for prototypicality, it would surely be advisable to replicate by incorporating displays of felt anger in the classroom and at different ages, thus increasing representation of a variety of expressions of anger, and investigating how different beliefs might matter when working with students from different developmental periods. We also acknowledge that teachers in our study were tasked with identifying only facially expressed anger. Clearly, vocal, bodily, behavioral, situational, and physiological cues provide important and distinct emotional information that allow for holistic judgments about emotions (Yeh et al., 2016), especially for anger (Cacioppo et al., 2000). In fact, these different modalities of emotion expression may be particularly important cues for some emotions (Schirmer and Adolphs, 2017).

Although our study included teachers from seven different elementary schools and four different districts, and thus, has some generalizability, we lacked the sample size to examine whether school emphasis on socio-emotional learning could influence teachers' beliefs about anger or anger recognition. Because socio-emotional training is very under-represented in teacher education programs and continued education (Schonert-Reichl et al., 2017; Garner et al., 2018), the differential attention to socio-emotional skills that is then fostered within schools and school districts may create systemic, macro-level differences in teachers' own emotion-related belief systems and skills as well as those of their students (Bronfenbrenner, 1979; Garbarino et al., 2005; von der Embse et al., 2016).

We note that teachers may also differ with regard to whether they view students' emotions as destructive or constructive. Broadly speaking, these variations have to do with the extent to with students' emotions and emotion-related behaviors are perceived as being beneficial to teachers' classroom and instructional goals (Frenzel, 2014). Because we did not contextualize students' emotions in our belief measure, our findings may underestimate associations between teachers' emotion beliefs and their anger recognition. That is, teachers' ability and willingness to respond to students' anger with a fair, calm, reasoned approach may be dependent upon their causal attributions of student anger, an element that we did not consider.

Finally, although many studies demonstrate the utility of emotion recognition skill in interpersonal relationships, business, and medical settings (DiMatteo et al., 1986; Byron et al., 2007; Gollan et al., 2010; Mier et al., 2010; Hall, 2011; Israelashvili et al., 2020), we do not actually know whether teachers' emotion recognition also provides benefit to them and their students, thus this is a limitation within our study. An important next step would be to test whether teachers' beliefs about anger impact teachers' skill in recognizing children's anger expressions and experiences in the classroom and teachers' effective responses to their students. For example, it would be useful to know whether teachers who have value-oriented beliefs about anger, and/or who can recognize early-forming anger expressions (as in Rounds 1 and 2 with only partial expressions), are better able to facilitate students' emotion regulation by identifying and guiding students' expression and experience more effectively. It would also be ideal if teachers could use early recognition of facial expressions to better scaffold lessons that do not overwhelm students with

emotions detrimental to learning. Whether they do or not are important testable questions.

Despite these limitations, our findings suggest the importance of studying specific beliefs about the value of emotion, and in the understudied context of teaching. In so doing, this study underscores the potential of research studying emotion-related beliefs in the development of emotion-related skills of educators, and most likely adults in general. We hope that our study, with both a new conceptualization about teachers' beliefs about the value and harm associated with anger and a measurement tool with which to assess those two beliefs, will invite further exploration of beliefs about anger and their outcomes at both the individual and organizational levels in educational settings.

DATA AVAILABILITY STATEMENT

The datasets generated for this study are available on request to the corresponding author.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by North Carolina State University IRB Board. Written informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements.

AUTHOR CONTRIBUTIONS

CH and AH conceived of the present study idea. AH obtained district, school, and teacher consents and coordinated data collection. CH and AC also provided considerable support for data collection, including developing the qualtrics programs that teachers used. AC helped CH with the analyses to answer the research questions and provided edits to the results section. PG contributed substantially to the introduction and provided edits and critical feedback throughout the manuscript. CH took the lead in writing the manuscript with substantial editing from AH.

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Everyday Life Theories of Emotions in Conflicts From Bali, the Spanish Basque Country, and the German Ruhr Area

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This article presents findings from a cross-cultural study on emotions in conflicts in Bali, the Spanish Basque Country, and the German Ruhr Area. The study had two aims: (1) to investigate the ways in which individuals make sense of how emotions, their expressions, and interaction conflicts are interrelated and (2) to compare the findings from the three regions. A particular interest was to explore and compare everyday life emotion theories. Ten semistructured interviews were conducted in each region. This method was triangulated with cross-cultural narrative interpretations and the task of relating emotion words to conflicts. The data were subjected to qualitative content analysis. The results show that partly different emotions were related to conflicts in the three datasets and that similar emotions may differ in antecedents, conceptual foundation, and behavioral consequences. Emotions similar to anger were commonly related to conflicts. In Bali, this emotion was mainly expressed through silence and rather hypocognated. The respective emotions received a deeper conceptual analysis and also served as conflict models in the other regions. Emotions similar to pride were related to the prolongation of conflicts in the Basque Country, considered causes of conflicts in the Ruhr Area, but were not related to conflicts in Bali. All three datasets show that the main indicators used to ascribe emotions to others are not facial expressions but subtle nuances and omissions of typical behavior and conventionalized signs. In the Basque Country, the emotions *respeto* and *confianza* form a continuum for the codification of interpersonal distance that produces different levels of expressiveness. These emotions act as a culture-specific socioemotional means of emotion regulation. The Balinese emotion *lek* has a similar function, as it neutralizes emotions similar to anger at their onset, acting as a substitute for deliberate forms of emotion regulation. All three datasets indicate that a hydraulic model is employed to conceptualize emotions, although the suppression of expressions is not pathologized in Bali but considered rather difficult to achieve. The communicative imaginaries of how emotions are experienced were surprisingly similar, with the exception that in Bali emotions are situated in the liver and described with a gustatory nomenclature.

Keywords: emotion, culture, everyday life theory, conflict, emotion regulation, Bali, Germany, Basque Country

INTRODUCTION

Emotion and conflict appear together on the very first page of European history (Homer, 1928) and have been its loyal companions ever since. In fiction, arts, sciences, and humanities, the nexus between emotions and conflicts is a reoccurring motif. There is, however, a considerable amount of cultural differences regarding both emotions and conflicts.

This article aims at tracing the cultural differences of how people from the Spanish Basque Country, the German Ruhr Area, and Bali make sense of the relations among emotions, expressions, and interaction conflicts, focusing on everyday life theories of emotion. Conflicts have been chosen as a point of reference because they are part of the *conditio humana* and as such provide a common context of action with similar parameters in different cultural conditions with reference to which the performances of emotions become comparable. To further reduce the possibility of an ethnocentric bias, not two but three cultural contexts have been chosen as the base for comparisons.

From the range of the author's knowledge of and access to different cultural contexts, two of the three regions (Bali and the Basque Country) were chosen according to the principle of maximum difference to account for high levels of cultural variation. The secondary, pragmatic reasons for the choice of the three regions lie in my institutional affiliation in Germany as well as my knowledge of languages, customs, and cultures. The study's preconceptions were derived from ethnographic observation, participation in everyday life of each field for a period of at least 1 year, and ethnographic literature. It was assumed, among other things, that the cultural contexts comprise sufficient variation for a cross-cultural study of emotions, emotionally guided models of conflict, conflict-related action strategies, and ways of regulating emotions and conflict.

The classical ethnographic literature on Bali depicts life on the island as an absolute harmony between individuals and society. Bateson (1999) did not encounter processes of symmetric schismogenesis in Bali and describes the society as system in a steady state. According to Geertz (1987a), Balinese people are masters of disguise and ambiguity who almost compulsively avoid open conflicts. Considering their lack of expressiveness, Mead (1942) ascribes a "schizoid" character to the Balinese. To Geertz (1987b), Balinese people owe their compliance with a strict etiquette of expressiveness to their fear of demons and to the emotion *lek* that Geertz (ibid.) translates as stage fright. This translation implies that the Balinese are constantly acting as on a theatrical stage to control expressions of emotions. The description of the Balinese strict etiquette of avoiding the expression of so-called negative emotions has not been challenged until today (Beatty, 2005, 2014; Howe, 2005; Haley and Richeport-Haley, 2015). Through her studies of a predominantly Muslim community in Northern Bali, however, Wikan (1987, 1989, 1990) came to the conclusion that Balinese people do not behave like actors in their own understanding. According to Wikan, the expression etiquette is rather maintained through fear of others and of sorcery. For fear of negative consequences of their own expressions, Wikan assumes, Balinese people engage in a constant procedure of

"managing the heart," that is, in emotion regulation to keep their expressions within an accepted range.

In contrast to Bali, interactions in the Spanish Basque Country can be prone to emotional outbursts. Loud conflicts, however, tend to disappear rather quickly without permanently damaging interpersonal relations. In the German Ruhr Area, in turn, open conflicts are not uncommon but mostly not as expressive as in the Basque Country and tend to last longer. A common reason for conflicts in public is the transgression of norms. If anyone ignores a red traffic light and just walks over the street, he/she is likely to be criticized by bystanders, which is very unlikely to happen in the Basque Country. This sketch of differences between the three cultural contexts is sustained by participant observation and provided the author with sufficient confidence that a comparison would be fruitful.

The study is based on the assumption that emotions are social phenomena in two respects: (1) they serve social functions, particularly on the interaction level; (2) they have a social origin. The first assumption is based on Bühler's (1978) pragmatist account according to which emotions as well as their expressions facilitate the coordination of social action. From this viewpoint, the expression of anger in conflicts, for example, appears as an instrument or means of conflict, aimed at guiding the behavior of others. The assumption of emotions being social fabrications builds on the epistemological implications of social constructivism and not so much on the regulation of emotions through "feeling rules" in the sense of Hochschild (1979). It is simply assumed that "emotions can only be fully understood as part of the culture as a whole" (Averill, 1980) and are thus culturally and historically variable. Evidence for the social nature of emotions is provided by, for example, Levy (1973), Luhmann (1983), Lynch (1990), Suryani and Jensen (1993), Stimilli (1996), Mees and Rohde-Höft (2000), Schröder (2004), Rousseau (2009), Harbsmeier and Möckel (2009), Sundararajan (2015), and Crivelli et al. (2017).

The design of the study was developed to suit three requirements: it should (a) pay attention to actual social practices, not only linguistic models; (b) be faithful to the inside views of individuals and collectives; and (c) provide a basis for the comparison of different cultural contexts. In the following three paragraphs, I will briefly elaborate on these points, indicating some of the research this study critically builds upon.

Studies on linguistic localizations of emotions in different parts of the body are of interest for the study as long as they do not ignore social practices that differ from linguistic descriptions. Gerber (1985), Heelas (1986), Harré and Finlay-Jones (1986), Wierzbicka (1995), and Omondi (1997) trace how emotions are localized in different parts of the body through language. Lakoff (1987) and Kövecses (2000) pay special attention to the use of metaphors. These studies, however, are prone to confuse two logical levels or to "confound the map with the territory." It is rather unlikely that social practice can be described or even planned and exercised with the help of propositions, reflective discourse, and linguistic models alone. As a consequence, research has to pay attention to emergent social processes, as they might take other paths than their linguistic depictions would suggest.

Ethnographic studies provide detailed descriptions of the role of emotions in conflicts in different cultural contexts that go beyond linguistic models of social practices and highlight cultural features. Rosaldo (1980, 1997), Lutz (1998), Röttger-Rössler (2008), and Busher et al. (2018) surely give faithful accounts of emotions and their relations to conflicts in the fields they studied. Their work does, however, raise questions concerning the comparability with other fields.

Nonethnographic studies of the emotion dynamics of conflicts often disregard the inside views of individuals and collectives but bear an advantage in view of comparability. To Retzinger (1991) and Scheff (1997), unacknowledged or bypassed shame turns into anger and fuels conflicts. This model renders the socioemotional dynamics of certain conflicts comparable, but it is immune to counterevidence stemming from the inside views of individuals. There are a number of studies on intercultural communication, negotiation, and conflict resolution that suffer from a similar problem. Allred et al. (1997), Rahim et al. (2002), Bell and Song (2005), Maoz and McCauley (2005), Kopelman and Rosette (2008), Zhang et al. (2014), and Luomala et al. (2015), among others, use a quantitative and/or experimental approach to investigate cultural differences in the relations among emotions and conflicts. Categories are not derived from the data but determined *ex ante*. This results in an increased degree of comparability but, at the same time, also in a lack of faithfulness regarding the inside views of collectives and individuals. If the researchers do not know the relevant categories, the results are necessarily biased, maybe ethnocentrically. Researchers following this approach can only reap what they sow. Moreover, the categories that quantitative cross-cultural research on emotions in conflicts commonly projects onto its subjects entail objectivistic notions of culture. It is not necessarily clear that the differentiation of collectivistic and individualistic cultures or independent and interdependent selves makes a difference in social practice. Similarly, it remains doubtful that cultures can be identified with national or continental borders and that the talk of "Western" and "non-Western" cultures has any analytic value considering nowadays' global social and cultural interconnectivity and hybridity.

To reach its goals, the present study faced the task of balancing the antagonism between faithfulness and comparability. To tackle this methodological challenge, a qualitative approach has been chosen that generates data from three different cultural contexts. In addition, local narratives on emotions and conflicts were interpreted from participants of other cultural contexts to highlight differences in sense-making in a cross-cultural way. Like Frevert (1991) in her study of the historical development of duels in European history and Röttger-Rössler (2008) in her ethnographic research, I pay special attention to cultural interaction models and their influence on social practice and emotions without disregarding that they are placed on two different levels of analysis. Following Simmel (1908) in view of jealousy and Luhmann (1983) regarding love, however, some emotion terms receive a double consideration—as referring to emotions and to models for social action that are employed to structure social intercourse and fabricate emotions.

MATERIALS AND METHODS

The study has a two-fold general aim: (1) to investigate the ways in which individuals make sense of how emotions, their expressions, and interaction conflicts are interrelated; (2) to compare the findings from the Basque Country, the Ruhr Area, and Bali. A particular interest was to explore and compare everyday life theories of emotion.

Hypotheses were developed during research in orientation on an abstract theoretical frame that allows for specifications in a variety of empirical fields. In the process of hypotheses generation, the theoretical frame was concretized and tested with empirical data. This qualitative methodology is best understood as "empirisch begründete Theoriebildung" in the sense of Kelle (1997), who critically builds upon not only Glaser and Strauss (2009) and Strauss and Corbin (1998), but also Popper's (2002) conception of a "quasi-inductive evolution of science." From the viewpoint of quantitative methodology, approaching the fields in this manner can serve exploratory purposes.

Methods

In order to account for cultural differences but simultaneously provide for comparability, I conducted semistructured qualitative interviews with a special focus on personal narratives on emotions in conflicts. The interviews were triangulated with two other methods. Participants also related emotion words to conflicts and were asked to interpret the narratives from the other two cultural contexts and, except for Bali, their own.

The main function of the interviews was to stimulate seminatural talk on emotions in conflicts in view of a variety of topics detailed in the interview guide (**Table 1**). The interview guide was modified and elaborated during research to include topics that were not expected prior to the study and thus enhance theoretical saturation in the sense of Saunders et al. (2018). A special section for Balinese people was also included because of preconceptions derived from the literature and further elaborated in view of unexpected findings from the interviews. The order of questions was subject to interaction dynamics and did not necessarily follow the order envisioned in the guide. At the beginning of most interviews, however, participants were asked to tell stories from their daily lives in which emotions and conflicts played major roles. Interviewees detailed the roles emotions play in workplace conflicts, marital quarrels, conflicts among friends and family, politically driven conflicts, public conflicts in a village, quarrels during gambling, conflicts of opposing fractions of a youth organization, and so on.

Members of each field interpreted the stories from the other fields and sometimes their own cultural context in order to highlight cultural differences in interpretation. This method required an iterative procedure. The first interviews were recorded in the Basque Country when no data were available from the other two regions, so that no interpretations of narratives could be included at that time. Before the interviews were recorded in Bali, two Basque stories about envy and jealousy had been obtained from an informant and discussed with another person in order to test if the interpretation made sense for others. As there were still no data from Germany, one story was obtained

TABLE 1 | Interview guide.

Introduction

Objective of the interview: Research on emotions in conflicts from the viewpoint of communication studies

Timeframe: approximately but not reduced to 45 to 90 min (depending on the willingness of the participants and the productivity of the conversation)

Details: The focus lies on interaction conflicts with two or more participants – face to face, on the phone, at home, at work etc. Political and group conflicts have a secondary status. The interviewees' personal experience is at the center of attention.

Explanation of the procedure, the recording devices, and the confidential handling and storage of personal data

Informed consent

Phase I: Conflict stories

Conflicts are a delicate subject that can be very disruptive but, at the same time, is also very common. What conflicts do you know from your own experience? It does not make a difference whether you were involved in those conflicts yourself or one of your acquaintances. What happened? What was the trigger? How did participants treat each other? When was the conflict over? Was there a winner and a loser?

Examples to stimulate the conversation: conflicts among couples, at the workplace, within the family, in literature, film, and television.

Do you know more of these stories that are either very similar to or very different from this one?

Phase II: Conflict types

You have told me about (number) conflicts. Are there more typical conflicts? We had the couple conflict, the conflict among friends in front of a group, the conflict with your daughter...

In what way do these conflicts differ from each other?

How does the behavior of individual participants differ regarding situations and roles?

What has to be avoided in conflicts? Who has the right to do what?

You surely know typical patterns of conflict: A father prohibits his daughter to do something, and she runs into her room and slams the door. The father's wounded pride leads him ground his daughter. The daughter starts to weep, which might lead the father to have a bad conscience... Please describe such a pattern.

How would you describe the participants of different kinds of conflict? What are their characteristics?

Phase III: Conflict strategies and emotions

When there were emotions involved in your conflicts, which emotions were these?

How did the emotions make themselves noticeable? Did you have difficulties in communicating them? Did you even want that?

How do you quarrel? How does one avoid quarrels? Does it make sense to avoid quarrels?

Do you and others tell each other what you think and feel during a quarrel?

When does it make sense to communicate, to hide, to camouflage etc. emotions in conflicts? Are there any 'home recipes' for different situations?

How does the role of emotions change in the different conflicts we have been talking about? If you were really upset about something, you wouldn't let yourself go at work in the same way you would among friends, would you?

What types of people who behave always similarly in conflicts do you know? The fear biter, the master of avoidance...

What types of emotional conflict strategies in which emotions are openly communicated do you know?

What persons show their emotions in what manner? How do people react to that?

How does one handle emotions in conflicts if these are not supposed to surface? How does one recognize if someone suppresses his or her emotions?

How does one react in what situation in what conflict in what role to a certain communicated emotion?

What do you do if you find that an emotion is not justified?

Phase IV: Forms and vocabulary

Different words refer to interaction conflicts and may also designate different kinds of conflict. Take, for instance, "quarrel," "disagreement,""marital row", etc. Which ones do you know?

In which situations do these forms occur? A marital row in a three star restaurant, at home, or at work – does that make a difference?

There are also typical participants in those conflicts. It is rather unlikely, although not impossible that a quarrel at the workplace takes place between father and son, which would rather be typical for a family quarrel. Who are the participants in the case of conflicts of type x, who are the participants of a conflict of type y? What strategies do participants apply? How do they communicate?

Please attribute emotions to individual participants and justify your decision.

There are surely more signifiers of emotions that are related to conflicts. Which ones are there?

How are these individual emotions related to conflict strategies? To make this simpler, let's start with the types of conflict in specific situations with different participants that we just talked about. What emotions would you attribute to person x in conflict y and situation z? How do participants communicate or suppress their emotions?

Why? What for?

We have now a list of emotion words, conflict forms, actors, and communication strategies. Please tell me how this all fits together. In a given conflict, which emotion triggers what behavior in which actor, or which behavior triggers which emotions?

(Continued)

TABLE 1 | Continued

Phase V: Emotion dictionaries

Lists of emotion terms derived from three emotion dictionaries were presented to the participants. The task was to specify if the individual emotions on the lists was a cause, an instrument, or an outcome of a conflict.

Special questions for Balinese people

How can one explain a behavior that is not guided by intentions?

What role does nonverbal action play in conflicts – is it more an expression or an instrument of interpersonal guidance?

Who is in control of the body?

Do people rather express their emotions in quarrels or do they rather complain about the other?

What is the authentic? A seemingly fake smile or the emotion that might be hidden by the smile?

Why do Balinese people smile so often and hardly show aggressive behavior?

from German news media and another one from a personal account of a German acquaintance. Balinese participants were asked to interpret these four narratives from their own points of view. Three additional stories were extracted from the Balinese data before the interviews took place in the Ruhr Area. German participants interpreted the two Basque, two German, and three Balinese stories (**Table 2**). As the original participants from the Basque Country had not interpreted any stories, additional interviewing took place in the Basque Country with seven new and one of the original participants. These interviews focused exclusively on the interpretation of the seven narratives.

The third method employed in the frame of the interviews consisted in conceptually relating emotion terms to conflicts. These terms were derived from Heider's (2006) maps of emotion clusters for Indonesian, Marina and López (2007) "diccionario de los sentimientos" for Spanish, and the "Affektives Diktionär Ulm[1]" for German. When participants did not find any relations between emotions and conflicts from a reflective point of view, they were given the options of emotions being a cause, a result, or a means of conflict to stimulate the conversation. Especially the Indonesian and the German emotion words had to be reduced to a smaller number with the help of informants from the regions because they were originally too numerous to be handled in the interviews without overwhelming the interviewees.

Participants

In each of the three fields, I conducted 10 interviews. One interview of each field could not be processed due to technical difficulties, so that only nine interviews were subjected to analysis [Ruhr Area: $n = 9$, 55.56% female, mean = 29.45 years, SD = 5.14 years, range = 23–39 years, higher education[2] (HE) = 66.67%; Basque Country: $n = 9$, 55.56% female, mean = 28.55 years, SD = 5.85 years, range = 21–40 years, HE = 77.78%; Bali: $n = 9$, 11.11% female, mean = 34 years, SD = 14.16 years, range = 20–63 years, HE = 33.33%]. In the Basque Country, I conducted eight additional interviews that focused on the interpretation of narratives ($n = 8$, 37.5% female,

mean = 29.38 years, SD = 4.74 years, range = 23–40 years, HE = 37.5%). Because of the study's cross-cultural orientation, factors such as milieu were set aside regarding the selection of interviewees. A relative heterogeneity of sociodemographic criteria guided the search. In order to include an outsider's perspective, one person with a migratory background was recruited in each field. Public postings, word of mouth, and spontaneous inquiries helped to facilitate the recruitment process. Local dispersion served as an additional recruitment criterion in Bali, as more traditional perspectives were expected in the rural areas than in the urban and touristic areas.

Procedure

Participants received printed and verbal participant information, and their full and informed consent was obtained. Informal settings not uncommon to the participants' life worlds were chosen for the interviews in all fields to facilitate seminatural communication. The interviews were conducted in Spanish, German, and Indonesian. Whereas in the Basque Country and the Ruhr Area all interviews took place between the interviewee and the interviewer as sole participants, the personal context sometimes interfered in the interviews in Bali. Instead of limiting or impeding the remarks of third parties, they have simply been accepted to avoid interference with local habits of communication. Small mp3 devices recorded the interviews in an unobtrusive manner. The interview guide was handled flexibly in the sense that its chronological order remained open to communication dynamics. Because of these dynamics and individual communication styles, the interview lengths varied between 30 and 120 min, differing from the initially estimated time frame of 45 to 90 min.

Analysis

The recorded audio documents were transcribed with the help of the software EXMARaLDA. The author created a simplistic notation tool to highlight salient linguistic features such as silences of different lengths or peaks of voice.

The author read the transcripts multiple times while picturing the interview situation. This first step of analysis led to the formulation of content paraphrases for each transcript. In a second step, the paraphrases were again paraphrased and canonized. In order to ensure that the second paraphrasing did

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[1] The "Affektives Diktionär Ulm" has been kindly provided by Dan Pokorny.

[2] The numbers regarding higher education also include participants who are currently students or have never completed their degrees. For Bali, the numbers are estimates derived from the current professions of the participants and have to be considered the minimum share of participants with higher education.

TABLE 2 | Stories on emotions in conflicts.

Basque story 1

A couple goes shopping. Suddenly, the woman starts to shout: "Why the heck do you have to look at other women all the time? You stare at them and even smile once you notice that they like being looked at by you!" The man tries to justify himself by stating that he only wanted to be nice when he realized the woman had smiled at him. But it seems to be too late for an excuse: "You nasty piece! How could you have noticed that she was smiling, had you not looked at her first?"

What happened to the woman?

What did she feel?

Why can't the man look at other women?

How should he react now?

Was the woman's final utterance appropriate?

What type of utterance was it, and to what consequences do such utterances lead usually?

What will happen next in view of the utterance?

How should the man be feeling?

Are such situations common here?

Basque story 2

Two girls lie on the beach. A young man comes by, kisses both girls on the cheeks and then almost exclusively talks to one of the girls. The other girl remains silent during the conversation. When the man departs, his interlocutor seems rather pleased. She enthuses about him, saying he was so nice and good-looking. The other girl, however, does not to share the same opinion: "I have met this guy before, and he did not make a good impression on me from the start. He does not look like somebody you can trust." But this does not bring the other girl's enthusiasm to an end: "Aha. Anyway, I guess I will find out myself when I meet him this evening." Thereafter the other just remarks that she only wanted to warn her friend and changes the topic abruptly.

What happened to the girl that kept silent while her friend was conversing with the young man?

Why didn't she say anything?

What did she feel?

Why didn't she share her friend's enthusiasm?

What could be her hidden intention?

Can you identify a hidden conflict and the corresponding behavior in the story?

What did the girl feel when she told her friend that the man could not be trusted?

What did the silent girl feel when her friend remarked she was going to meet the man in the evening?

Are such situations common here?

German story 1

Two young men with a migration background travel by metro. An old man tells them that they are not allowed to smoke in the metro. Unimpressed by this, the men insult the old men who stands up to take another seat. When the old man leaves the train he provokes the two implicating their descent: "You are the people (Volk) that causes us problems here. Subsequently, the two men pursue the old man and almost beat him to death."

What die the old man feel when commenting on the ethnic origin of the two?

Why did he talk to them like that?

What does it mean if someone talks to others like that and to what consequences does it lead?

How did the two men feel when they were addressed like this by the old man?

Why did they almost kill the old man?

How would one react normally in such a situation?

Are such situations common here?

German story 2

A 12-year-old boy burns a sticker that hangs at the glass walls of a bus stop with a lighter. A middle-aged man passes by and shouts at the boy. The boy says: "I have not placed the sticker there, but I am cleaning the wall with my lighter." The man hits the boy into his face. Coincidently, a slightly older friend of the boy comes by and asks what is going on. The man just keeps screaming/shouting. The boy's friend tells the man that he should treat him more respectfully (addressing him as "Sie" instead of "Du"). The man hauls off to hit the boy's friend. But the kid is faster, getting out a can of tear gas of his pocket to threaten the man. Seemingly surprised, the man turns around and walks away, still shouting and complaining about nowadays' youth.

What does the man feel when he sees the boy burning the sticker?

Why does he hit the boy?

Would one normally react like that?

What does the man feel after the boy's excuse?

Why became the friend of the boy interested in the incident?

What did the friend feel and why?

(Continued)

TABLE 2 | Continued

German story 2

Why didn't the man also hit the friend of the boy?

What did the man feel when he refrained from hitting the boy?

Why was the man still shouting when he left the scene?

Are such situations common here?

Balinese story 1

Two men meet at a cockfight. One of them has just lost a bet. The other one asks him what he was doing at the cockfight. He had thought he was long dead because he had not seen him in a long time. Subsequently, the other man starts a discussion/turns around and walks away.

What does the man feel who has just lost a bet?

What does he feel when he hears that the other man thought he was dead?

Was the utterance about his death appropriate?

Is it normal here that people ask whether one was not dead already?

How could the story continue?

Are such situations common here?

Balinese story 2

A father loses his money gambling. When he comes home, he reprimands his wife who cannot comprehend how her husband could gamble with let alone lose the tuition fee of his children – without consulting her fist. Despite his rough behavior, she feels for her husband and tries to understand him. Nevertheless, the couple separates during the ensuing quarrel. After a while the wife returns to the shared household because her husband promised her that he will gamble less, find a job, stop disregarding his children, and stop to harm them through his behavior.

What does the father feel when he loses the money?

Why does he reprimand his wife?

How does his wife feel when he reprimands her?

What does the man feel when he reprimands his wife?

What does the woman feel when she finds out that her husband lost the tuition fee of their children through gambling?

Why does the couple separate temporarily?

What does the woman feel when she goes back to her husband?

What does the man feel when he promises to become a better person?

How does the story continue?

Are such situations normal here?

Balinese story 3

One of the two youth organizations of a village caricatures a politician by building a statue of him from papier-mâché that depicts him as a monster. When the politician finds out about the work on the statue, he complains about it and tells the members of the organization that they cannot continue their work and have to find another subject. As the politician also holds the dignified status of a priest, some members of the organization agree with his demands. In the end, the incident appears to escalate. People threaten with physical violence and almost recur to it when suddenly the police enter the scene, probably notified by neighbors sympathetic to the politician.

What does the politician feel when he finds out about the statue?

What accounts for the different reactions among members of the youth organization?

How do the different camps within the organization feel? Why?

What does the politician feel when he finds out that the majority of the organization is not on his side?

How does the politician feel when he sees himself confronted with physical violence?

What could have been his reaction to violence?

Why is violence used (as a threat)?

How did participants feel when the police arrived?

Are such stories common here?

not estrange the results from the transcripts, the transcripts were used to validate the second paraphrases. Individual topics were condensed to broader themes. Actual theme clusters were constructed in the third step of analysis. The nature of the data made it necessary to allow for individual themes to appear in various clusters.

After the clusters for each interview were completed, the clusters of all interviews from one field were interrelated. Special attention was paid to disconfirming cases to improve the validity of the findings. To validate the soundness of interpretation on this level of analysis, the original transcripts were consulted. The thereby emerging clusters provide the foundations of the results concerning each field as a whole. On the basis of these results and the paraphrases that helped generate them, the three fields were compared to each other. I am confident that the data have been sufficiently interpreted regarding the theoretical

frame of the study. Saturation may, however, not have been reached regarding all possible topics that might still emerge from the data but do not concern the focus of research. I discussed the results with different individuals from each cultural context, which strengthened my confidence in the findings.

A communication-theoretical conceptual framework guided the analysis of empirical data. From the viewpoint of an orthodox qualitative approach, this might resemble an attempt to imitate the methodology of quantitative research. Lamnek (1995), for example, refers to this point in his critique of Mayring's content analysis. The described way of analysis is indeed loosely based on Mayring's (2010) content analytical procedures. The conceptual framework, however, does not consist of a fixed set of hypotheses that were developed prior to the empirical study. It is rather situated on an abstract level that leaves sufficient variability to be specified in view of cultural variation. Such an explication of theoretical assumptions prevents researchers from the epistemologically very questionable notion that knowledge emerges purely from data.

RESULTS

A thorough discussion of all details and implications of the results would exceed the scope of this article; see Kurilla (2013a,b) for a contextualization of the results within a historiographic and communication-theoretical frame. This section focuses on field-specific relations among emotions and conflicts, forms of emotion regulation, and everyday life theories of emotion from each field. **Table 3** shows all theme clusters that emerged from the data. For each of the three cultural contexts, I start with individual emotions and their relation to conflicts and come then to broader themes such as emotion regulation and everyday life theories of emotions. Whenever direct speech is reported, it refers to what individual participants said during the interviews and, at the same time, is paradigmatic for a given cluster. It is, however, not representative in the sense of quantitative research but rather depicts what some individuals believe. The section concludes with a comparison of the findings.

Emotion Theories in the Spanish Basque Country

The 19 clusters that emerged from the Basque data comprised 14 different emotions, namely, *celos, confianza, enfado, envidia, ira, ansiedad, angustia, miedo, nerviosismo, orgullo, rabia, rencor, respeto,* and *tristeza.* The remaining clusters concern gender stereotypes, regulation of emotion and conflict, everyday life theories of emotion, and so on.

Confianza and Respeto

Confianza (confidence, trust, faith) and *respeto* (respect) are the emotional manifestations of the continuum of interpersonal proximity and distance. The more *confianza* people feel toward each other, the closer their relationship is. Some interviewees stated that true *confianza* exists primarily between friends rather than romantic partners. The duration of relationships projected into the future is an indicator of *confianza*. Consequently, the

family and old friends are the main addressees for this emotion. *Confianza* enables individuals to communicate more openly with each other. From this angle, *confianza* is comparable to Scheff's (1997) conception of pride as the emotional manifestation of a secure social bond. Unlike this concept of pride would suggest, however, the interviewees correlated high levels of *confianza* with a particularly harsh and loud conflict style. To put it another way,

TABLE 3 | Theme clusters from each field (with approximate translations of the emotion words).

The Basque Country	Bali	The Ruhr Area
Emotions in conflicts		
angustia (anguish)	amarah (anger)	Angepisstsein (pissed off/to be pissed on)
ansiedad (anxiety)	benci (hatred/dislike)	Angst (fear/angst)
celos (jealousy)	emosi (emotion)	Ärger (anger)
confianza (trust/confidence)	hormat (respect)	Aufgebrachtsein (to be upset)
enfado (anger)	iri (envy)	Aufregen (to be upset)
envidia (envy)	jengkel (annoyance)	Ehre (feeling of honor)
ira (rage)	kasihan (pity)	Eifersucht (jealousy)
miedo (fear)	kecemburuan (jealousy)	Enttäuschung (disappointment)
Nerviosismo (nervousness/edginess)	kecewa (disappointment)	Frustration (frustration)
orgullo (pride)	kesal (grudge)	Hass (hatred)
rabia (rage)	malu (shame)	Mitleid (pity)
rancor (grudge)	takut (fear)	Neid (envy)
respeto (respect/regard)		Respekt (respect)
tristeza (sadness)		Sauersein (to be sour)
		Scham (shame)
		Sich-verarscht-Fühlen (to feel fooled)
		Stolz (pride)
		Stress (stress)
		Trauer/Traurigkeit (sadness)
		Vertrauen (trust/confidence)
		Wut (fury/rage)
Other clusters		
Gender stereotypes	Gender stereotypes	Gender stereotypes
Regulation of emotions and conflicts	Regulation of emotions and conflicts	Regulation of emotions and conflicts
Everyday life theories on emotion, conflict, and communication	Everyday life theories on emotion and conflict	Everyday life theories on emotion and conflict
Emotion and context	Emotion and context	Emotion and context
Tears and crying	Expression vs instrument	Expression vs instrument
	Process gestalts in conflicts	Process gestalts in conflicts
	Authenticity	Proximity-distance
	Change of emotion through aging	The others
	Mediated conflicts	Phenomenal descriptions
	karma	Emotion sequences
	ilmu hitam (black magic)	Public vs private
	Memedi (devil)	
	hati (liver)	

confianza enables people to express their emotions more freely. Accordingly, quarrels with family members, close friends, and romantic partners are considered more expressive. Screaming and shouting are more common in these relationships than in conflicts at the workplace. These findings correspond to Simmel's (1908) depiction of close relationships as the base for more intense conflicts.

Respeto is the emotional opposite of *confianza* in the sense that it codifies interpersonal distance. It helps to regulate emotions in formal contexts. *Respeto* is particularly connected to interpersonal relations at the workplace and in the general public.

At the same time, it acts as the source of conflict in some cases. Various interviewees described how a lack of *respeto* (*faltar al respeto*) is held responsible for aggressive conflict styles where anger and rage are freely expressed.

"Entonces las broncas siempre eran [...] porque una persona tiene que respetar a la otra, y en el punto en que esa persona deja de respetar, yo salto." "Entonces a mi me pone muy nerviosa cuando, si alguien [...] me conoce y sabe que yo tengo unas costumbres y que yo las respeto, esas costumbres de las otras personas [...] Eso es, que me, que me fallen, entonces grito. Y yo tengo unas peleas de gritos, que me ataco, vamos. [...] 'pero que... que eso es mi intimidaaad,' '¡que respetes!' Entonces yo de esas broncas he tenido muchas. Sì, no son conflictos de, no sé, no son conflictos graves pero me enfada mucho, cuando alguien no respeta cosas, que yo creo que son, pues, de la viida de cada uno, [...] me pone muy nerviosa o discuto mucho [...]."

These examples indicate that a lack of *respeto* is ascribed to people who transgress personal boundaries of intimacy or distance. Other symptoms of a lack of *respeto* are insults and violence. At the same time, *respeto* acts as a social regulation of human relations with emotional manifestations. *Respeto* as an emotion seems to assist in the personal downward regulation of violent emotions and recognition of interpersonal boundaries.

Orgullo

According to most interviewees, *orgullo* (pride) propels the escalation of conflicts and acts as an obstacle of reconciliation. On the one hand, *orgullo* is considered as the reason to include more and more issues into conflicts; on the other hand, *orgullo* stimulates the desire to win conflicts. When *orgullo* is ascribed to others, this may render the own willingness to initiate acts of reconciliation more likely because the others cannot be expected to do so. For this reason, *orgullo* can serve as a strategic façade that leads others to accept one's own claims. From the inside view of a person who actually feels *orgullo*, however, this emotion cannot just be "swallowed":

"[...] unos valores que te marcas tú..... ¿Sabes? que si yo creo que tengo razón en una cosa y la veo totalmente clara, y otra persona me me dice que no es así.... Tú puedes llegar a entender unas cuantas cosas, pero ese [...] círculo que está ahí que tú consideras tu orgullo, tus valores, tu honor... es algo que es difícil de [...] desmentir, decir que eso [...] no es así. Algo como que lo que tú [...] lo entiendes como tus pilares como persona[.]"

According to this statement, *orgullo* is related to personal values as the pillars of the individual. To injure one's *orgullo* is thus an affront to the core of the self. Because of its relations to values, *orgullo* bears also positive connotations despite its capacity to impede reconciliation. People seem to appreciate others who are able to become *orgulloso* to a certain degree, as it shows that they actually stand for their personal values. These twin faces of orgullo were confirmed by a reviewer of the article who differentiates between "ser orgulloso" and "estar orgulloso," the latter of which bearing more positive connotations. Coincidently, the other reviewer pointed at the double meaning that "pride" seems to have also in English. When it is related to personal accomplishments, it appears to be socially endorsed, whereas it seems to evoke negative connotations when it "gets in the way of interpersonal relationships." Unlike Scheff's (1997) concept of pride as a manifestation of secure social bonds that helps to act out conflicts openly in a rational and respectful manner without being corrupted by bypassed shame, at least the negatively evaluated face of *orgullo* is rather prone to stimulate and prolong emotionally charged conflicts.

Tristeza

Participants described *tristeza* (sadness) as a means to soothe conflicts. One's own sadness may lead individuals to hold back strong opinions and violent emotions that are directed at others. Conversely, the *tristeza* of others may elicit the same effect in oneself. The latter makes it possible that the expression of *tristeza* is strategically employed in conflicts to escape one's own social or communicative obligations at least temporarily.

"Es un mecanismo de defensa [...] para evitar una discusión o para no asumir una culpa cuando veo que no tiene ninguna justificación y llora es como intentar sacar la pelota de su tejado. Yy entonces pues bajo mucho el tono para que para que no sea por la agresividad del lenguaje lo que está causando pero si tengo alguna reclamación o tengo ae un desacuerdo en otros términos más suaves o lo que sea, o cambio el tema o o cierro el tema y vuelve a él más suavemente cuando se pueda, pero no me no suele funcionar conmigo como para evitar el problema. Se puede aparcar pero no se evita."

One interviewee compared the *tristeza* of others to a powder keg that has to be handled with care. Another interviewee stated that her *tristeza* might lead to conflicts when it is transformed into *rabia*.

Rabia

Besides slamming doors, shouting, and screaming, *rabia* (rage) is counterintuitively often expressed through tears, just like *tristeza*. From the perspective of one interviewee, *tristeza* and *rabia* are closely connected and not always separable in experience. Transformations from *tristeza* to *rabia* seem to be expectable in certain interaction dynamics according to two interviewees. Other interviewees related *rabia* to helplessness:

"[...] la rabia [...] un sentimiento ya de desesperanza [...], es algo desesperado. O sea la rabia [...] está asociada a un sentimiento de impotencia, entonces, en el momento que estés, te sientas impotente, [...] que no puedes hacer algo así, te puede salir la rabia."

Participants also held *rabia* responsible for people's flight behavior that creates some interruption in conflicts, which prevents them from further escalation. While the personal

emotion regulation can guide conflictive interactions, these interactions also serve as a form of emotion regulation. Following two interviewees, *rabia* is primarily a feminine emotion that leads opponents to drag more and more people into conflicts. The conversation with third parties who start to react emotionally seems to facilitate the regulation of *rabia*. The degree to which *rabia* can be felt in conflicts apparently depends on factors such as proximity and distance, that is, *confianza* and *respeto*. One interviewee recounted that, unlike in professional relations, she finds it relatively easy to feel *rabia* in personal relations. The dimension of interpersonal distance and proximity seems to be positively correlated with the dimension of low and high intensity of emotionality.

Enfado

The interviewees related *enfado* (anger) in so many ways to conflicts that it is impossible to discuss all of its facets here. Some remarks, however, seem important. Some interviewees found it difficult to imagine a discussion without the visceral experience of *enfado*. Apart from the typical relations between *enfado* and different conflict models, *enfado* itself acts as a cultural model of conflict. Almost all interviewees used "enfado" for both an emotion and a conflict model. The difference between both is not always evident because the antecedences of *enfado* as an emotion and as a conflict model are virtually identical.

Emotion Regulation

Both emotions and conflicts are tied to interaction dynamics and thus interrelated with each other. A differentiation between forms of emotion regulation within and outside of conflicts emerged from the data.

Interviewees described a variety of ways to regulate emotions outside of conflicts, such as cleaning, sports, mass communions, creative action, conversations with others, and gossip. Gossip with others sometimes leads to the phenomenon that the people entertaining gossip enter a conflict although the original conflict took place between one of the interlocutors and someone else. Interviewees described conversations at work as well as with friends as places where such seemingly cathartic phenomena occur.

The distinction of hot and cold was very common in the interviews and will consequently be used to distinguish between hot and cold ways of emotion regulation within conflicts. Employing a hot way of emotion regulation means to give in to emotions. This is a form of emotion regulation in which individuals actively commit to their emotions. In everyday life language, this active commitment to emotion is sometimes expressed through "soltar las emociones," which resembles the action of cutting loose a dog. Such upward regulation may be achieved through emulating the expression of emotion, which, assisted by escalating interactions, turns into the expression of real emotions, as one interviewee described.

In many cases, a Freudian hydraulic model of the psyche guides the everyday life conception of emotions in conflict. One participant stated that it is not always good to suppress *enfado* in public, because one would otherwise explode when home alone with his/her conflict partner. Someone else described how it helps her to "relieve tensions" when she just hangs up on someone in the middle of a conflictive phone call. Interviewees also mentioned slamming doors, aggressively placing a bottle on the table, and so on, as forms of emotion regulation with potential effects on the conflict dynamics. Even violence was conceived of as a means of emotion regulation. Interestingly, one participant stated that she used conflicts to regulate her personal emotions. By entering conflicts, she escalates her emotions interactively but subsequently feels relieved.

Cold forms of emotion regulation suppose a more distanced relationship to the experience of emotions and consist in personal control in a stricter sense of the word. An interviewee mentioned the "beso de Judas" as one example. This concept describes how others are treated nicely on the surface only to abuse their trust in order to ridicule them in the next possible occasion. Another example is the emotionally distanced emulation of emotional expressions. In some cases, enfado is only enacted expressively to conform to social expectations. To maintain herself calm in conflict situations, one interviewee takes the perspective of her antagonist who becomes even more *enfadado* when she stays calm, which gives her some relieve from her own *enfado*. Another interviewee knows that apparent indifference can elicit *rabia* in her interlocutors. Under these premises, it results less complicated to substitute hot through cold ways of emotion regulation. Indifference seems to foster similar interaction consequences such as the expression of *enfado* and *rabia*, which might make it easier to employ cold forms of emotion regulation. Other rather cold ways of emotion regulation include the anticipation of vengeance at a later point in time or refraining from benevolent gestures such as bringing lunch for colleagues.

Everyday Life Theories of Emotion

Many expressions suggest a psychoanalytical hydraulic or "steam boiler" model of emotions, according to which emotions have to be set free before they create too much pressure. One interviewee indicated with the word "salir" (come out) that she cannot hold back her tears. More personal activity is implied in the word "sacar" that indicates that emotions have to be brought out. The word "soltar" (to release) implies less activity than "sacar" (to dig out/to bring out) but more than "salir" in the process of experiencing and expressing emotions. All three terms were commonly used in the interviews. Alternative forms are "liberar" (to free), "desahogar" (to vent), and "echar balones fuera" (lit. to throw out balls) to describe the reduction of pressure caused by emotions. The hydraulic model is expressed even more clearly through "válvula de escape" (exhaust valve) and "canalizar" (to channel).

The term "tensiones" is often used to refer to the pressure that can supposedly be reduced by engaging in emotional behavior. Boiling blood is a typical image of the pressure character of emotional experience. While the forms of reducing tensions are conceived of as more or less deliberate, the tension is perceived of as building up without personal involvement. The expressions "me entra mala hostia" (bad mood enters), "me da asco" (it gives me disgust), and "me entra tristeza" (sadness enters) indicate that emotions are forced upon individuals and

not the product of their own choice. In cases where no "valve" can be found, they might also be suppressed with a certain effort, which is expressed, for example, through terms like "tragar" (to swallow), "oprimir" (to oppress), and "contener" (to contain). One interviewee described a gesture of containment that indicates that emotions are suppressed.

Interviewees depicted most emotions as rather transitory states that get hot very quickly but also cool down fast. Women were depicted as having a rather cold relationship to their emotions, while men would handle their emotions while still hot, which was sometimes considered as more pure or clean (*puro y limpio*)[3]. Hot people were also considered more spontaneous than cold people. Sometimes, however, very hot manners of regulating emotions appeared unhelpful to participants regarding conflict resolution.

Like in the psychoanalytical version of the hydraulic model, interviewees based their reasoning on a biologistic foundation: "[L]os niños son más primitivos, ¿no? Son más limpios, más puros en verdad los sentimientos. Pero para mi tienen [...] los mismos sentimientos casi, ¡casi!, que los adultos. Pero son más puros [...]. O sea, tú en un niño ves mucho más claro la envidia, el miedo ae el respeto, la alegría, la amistad. [...] Es algo como innato desde pequeño. Si alguna amiga suya tiene algo, tiene envidia porque ya lo quiere tener." According to this statement, most emotions are innate and can be observed best in their natural and pure form in children.

From this perspective, there is consequently little room for historical variation. Emotions are modeled as constant in time. Only their expressions seem to vary according to gender-specific, ethical, and aesthetical conventions. Participants described emotions as idiosyncratic phenomena that can only be typified, not constituted by language.

Emotion Theories in Bali

Twenty-five theme clusters have been synthesized from the Balinese data, 11 of them refer to emotions: *benci*, *hormat*, kecewa, *iri*, *kecemburuan*, *jengkel*, *kasihan*, *kesal*, *malu*, *amarah*, and *takut*. The other clusters concern, among other things, the difference of public and private, *ilmu hitam* (black magic), *karma* (as a religious concept), *hati* (liver), authenticity, *memedi* (the devil), and *banjar* (local community).

Hormat

Hormat is located in the proximity of respect and honor. Some interviewees named people of old age in general and one's own parents in particular as addressees of *hormat*. Others also included guests, strangers, and ancestors. Unlike *respeto* in the Basque Country where some degree of *respeto* among

interlocutors establishes the working foundations and is as such a prerequisite for nonconflictive everyday life interactions, the right to be treated with *hormat* is considered an achievement in Bali. One interviewee stated that a bad *karma* results from not complying with *hormat*-related obligations. Correspondingly, *hormat* bears religious connotations.

Following the interviewees, *hormat* helps to soothe or even prevent conflicts. *Hormat* fosters a friendly and polite conversation style and helps to prevent violence. People who are treated with *hormat* are considered good conflict mediators, as their advice is generally accepted. Especially older people from the *banjar* (local community) or the village are supposed to be addressees of *hormat*. An ascribed lack of *hormat*, however, may lead to sanctions. *Hormat* was treated as both an emotion and the corresponding decent behavior.

Iri

The emotion *iri* (envy) was described as triggered by a mother favoring one sibling over another or by the property of others. Sometimes *iri* is treated as a problem that is tackled by religion. Like envy in the capital sin catalogs of medieval Catholicism, *iri hati* (lit. envious liver) is listed among the six depravities (*enam busuk*) that can be cured via the cutting of teeth (*potong gigi*) as part of a rite of passage in the transition to adulthood that has come out of fashion lately. *Iri* is related to the emotion *amarah* (anger).

Amarah

"Amarah" is typically translated into "anger." The antecedents of these emotions seem to be similar indeed. Interviewees mentioned the transgression of norms such as a lack of manners, laziness, deliberately produced loud engine sounds, lying, and so on. Put differently, the disappointment of expectations elicits *amarah* just like the frustration-aggression hypothesis (Bateson, 1941; Miller et al., 1941; Dollard et al., 1971) suggests. Participants also discussed humiliation and spiritual possession as triggers of *amarah*.

Unlike the ethnographic literature suggests, *amarah* does lead to outbursts of expression in conflict situations. Interviewees stated that *amarah* could lead people to throw tools around, shout, rage, and even resort to violence. Outbursts of expression, however, are not very common. The typical way of expressing *amarah* consists in slight modifications of habitual actions. People do not attend meetings, do not converse as freely as usual, and, most prominently, remain silent. Silence seems to be the most conventional way of expressing *amarah*. A matrimonial quarrel coined by *amarah* typically follows the pattern of mutual silence that might every now and then be interrupted by hesitant talk when guests are visiting. Couples eventually start to talk again when their *amarah* has vanished after some days.

Interviewees found it very difficult to suppress *amarah* or to control the related expressions. It was generally considered a tough task to keep *amarah* in the inside or the self (*di dalam diri*) or in the liver (*di dalam hati*). Interviewees stated that it would be impossible to suppress it entirely, as traces of its expressions would involuntarily appear on people's faces. Some interviewees considered age as an important factor to conduct downward

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[3]Stereotypes in general and gender stereotypes in particular are devices to talk *about* people and not to interact *with* them, which hints at the fact that stereotypes are not useful to coordinate social action. As a result, social practices are governed by stereotypes only in very few cases, even though participants might agree that they share the same stereotypes. In this particular case, the stereotypes were shared by both male and female participants, the latter of which seemed to stigmatize their own gender. With his distinction of readiness-to-hand and presence-at-hand, Heidegger (1967) provides a theoretical base to differentiate on two levels of analysis between prereflective and emergent social practices on the one hand and their reflexive objectifications on the other.

regulation of *amarah*. For that reason, communication and encounters with the addressees of *amarah* are rather avoided whenever possible. There is, however, an emotional antagonist of *amarah* that seems to neutralize it at its onset: *malu*.

Malu

Interviewees related how difficult it appears to them to experience *amarah* in public, as the public sphere would elicit an emotional antagonist of this emotion. *Malu* (shame) seems to neutralize *amarah* at its onset as a sociocultural mechanism of emotion regulation that renders deliberate efforts of emotion regulation unnecessary. Particularly in public, *malu* helps to soothe conflicts counteracting the experience of *amarah*. One interviewee stated how he learned to be silent while feeling *amarah* because his outbursts had led him to feel *malu* in the past. *Malu* also interferes in insults that, when occurring in public, do not provoke *amarah* but *malu*.

Emosi

When contrasted with the Basque Country, the relations between emotions and conflicts seemed rather hypocognated in Bali. Participants used the term "emosi" primarily as a generic term with negative connotations to refer to nonbenign aspects of conflict. As such interviewees often used it interchangeably with *amarah* or attributed it to the devil (*memedi*). In some cases, it appeared that the interviewees did not try to stay clear of particular emotions but of all emotions during conflicts. Interviewees had trouble relating individual emotion terms to conflicts in general or particular stages of conflict in particular. Instead, they offered often rather general views on emotions without any reference to concrete situations, which sharply contrasts with the elaborate and detailed talk about emotions in conflicts from the Basque Country.

Memedi

The term "memedi" refers to the devil or Satan in Balinese. Compared to secular standards, the belief that *memedi* influences in everyday affairs is widely spread in Bali. One interviewee described how *memedi* takes possession of individuals by entering their self (*diri*), causing mental chaos (*kacau*) and craziness (*gila*).

Amarah is considered the result of *memedi*'s influence in some cases that are, apart from a general disorientation, not easily discernable, so that *memedi*'s presence can advance to a constant concern to some who might turn to an expert to get assurance about the state of affairs. *Memedi* is supposed to lead people, among other things, to grab a weapon in order to hurt themselves and others. In case of the slightest traces of *memedi*'s emotional manifestations, one participant stated that people would refrain from introspection to avoid contact with alien elements that could interfere with personal thought.

One interviewee gave a rather profane explanation for the assumption that *memedi* preferably appears in the evening. He sees *memedi* as the result of an empty stomach that has to be filled in order to avoid the manifestations of *memedi* in one's actions. Interviewees stated that most people would simply react with indifference and stay silent when facing emotional outbursts in order to reduce the influence of *memedi* on emotion and conflict.

There are also more elaborate ways to contain the influence of *memedi*. One interviewee talked about a technique of mutual introspection that has to be conducted by an expert in order to avoid grave consequences. Another referred to the ritual practice of employing bloody fetal water to protect the house of a newborn. Regarding such practices, mistakes have to be painstakingly avoided to keep *memedi* away. Offerings and cleaning ceremonies were mentioned as other ways to contain *memedi* and other spirits (*roh–roh*), as well as their emotional manifestations.

Emotion Regulation

Considering their mostly moderate and calm habitual expressiveness, Balinese people might appear as experts of expression control at first sight. Closer examination reveals, however, that the underlying techniques concern emotions in the first place, not expressions. Interviewees considered Balinese conflicts as characterized by silence and retreat rather than by direct confrontation. Even the relatively rare occasions of emotional outbursts are followed by a period of silence and retreat. Communication among opponents was described as difficult in conflict situations and is thus avoided. Representatives of the traditional order (*adat*) as well as the state often serve as mediators in conflicts. Both the high status of these mediators and the fact that mediation is often conducted publicly are likely to produce *malu* in the opponents, which neutralizes *amarah* at its onset. Resulting from a particular sociocultural disposition, *malu* acts as a substitute for deliberate efforts of emotion regulation.

Interviewees mentioned many ways to regulate emotions outside of conflict situations. These range from fishing and playing chess to tossing stones, socializing with friends, and creativity. All of these forms concern the emotions and not their expressions. Interviewees related the capacity of emotion control to age and education. Especially children are considered to have difficulty regulating their emotions. One interviewee mentioned the philosophy of Catur Guru, according to which emotions could be tamed with the help of four types of teachers: Guru Rupaka (the parents), Guru Pengajin (school teachers), Guru Wisesa (governmental representatives), and Guru Swadhyaya (god). *Hormat* toward these institutions is supposed to help regulate emotions and conflicts. A dogmatic orientation on traditional hierarchies and representatives of hegemonic belief systems seems to be treated as an alternative to a mature emotionality.

Hormat and *malu* appear to be the emotional companions of this rather cognitive orientation on traditional hierarchies and representatives of belief systems. This renders intelligible why for one interviewee praying serves as a means to regulate his emotions. Another interviewee connects the religious aspect of emotion regulation to the communal life in the village (desa). According to this interviewee, the experience of communion is based on the god Wisnu as the preserver of the world, while ceremonies serve as reinforcing agents to soothe conflicts and facilitate emotion regulation. At sacred places such as temples, violence is virtually impossible. These places are regarded as the gates to ancestors who are addressees of *hormat*. It seems that

some places trigger *hormat* and thus neutralize emotions like *amarah* and prevent conflicts.

The ritual practice of cutting teeth in males at traditionally 16 years of age is supposed to protect individuals from the six depravities (*enam busuk*). As already mentioned, one of these depravities is the emotion *iri*. The ceremony is considered a rite of passage that marks the transition from childhood to adulthood. The practice has become less popular recently, as it is expensive and time consuming.

Authenticity

Talk about authenticity was partly restrained through misunderstandings. Clarifying conversations showed that the notion of, for example, an inauthentic smile did not make sense to some interviewees, as they perceived of emotional expressions as not subjected to voluntary control. Participants stated that only very few people, particularly people of old age, were able to control their expressions. According to the participants, it is very difficult to smile while experiencing *amarah*. And in cases when this is actually achieved, the interviewees expected to see traces of the true emotion or gestures of containment. Participants saw the only feasible way of regulating emotional expressions in overcoming the corresponding emotions through the already mentioned techniques of emotion regulation or through the cultural regulation mechanisms of *hormat* and *malu*.

The notion of authenticity as inner feelings that are not influenced by others seems not to be applicable in Bali. At least, emotions do not appear to belong to the substantial core of the authentic self, as they are envisioned as volatile in nature. In addition to character and temperament, the authentic was identified with the intentional or ideal self or behavior. Surprisingly, it seems to be subject to the will and to be identified with less short-lived phenomena.

Everyday Life Theories of Emotion

One interviewee considered emotions as tied to their expressions with little variance in view of situational factors. Interpersonal differences were attributed to personal traits such as the soul (*jiwa*) or problematic states of *jiwa* (mental problems). Another participant depicted the passivity with which emotions are experienced metaphorically. He described emotions as water: While a small stone causes small waves when thrown into water, a big stone causes bigger waves. Unlike the classical ethnographical literature suggests, one interviewee attests Balinese people a very explosive emotion world. For that reason, people would have to be treated with special care during conflicts to prevent them from, for example, weeping.

Metaphors and expressions used during the interviews were very consistent across participants. The term "emosi" (emotion) clearly has a European root. Like "gefühl" in German and "feeling" in English, there is, however, another term that is often used as a synonym for "emotion": the word "perasaan" and its derivates. Unlike *gefühl* and feeling, *perasaan* does not evoke the notion of haptic but of gustatory sensations. In some Roman languages such as French, for example, "sentir" can refer to feeling an emotion but also indirectly to taste, which is to some extent comparable with the Indonesian metaphor.

Unlike in present-day Europe, however, the emotions are located not in the heart but in the liver (*hati*) like in ancient Greece. Accordingly, "broken heart" is translated into "sick liver" (*sakit hati*). The reflective localization of emotions in the liver does not necessarily imply that emotions are also prereflectively experienced in this body part like Lakoff (2016) would suggest. Balinese people translate "hati" regularly into "heart" without experiencing any estrangement from the original meaning. On a more general level, interviewees located emotions with the help of a topographical model. Emotions are placed on the inside (of *diri* or *hati*) and either find their way from there to the outside (*keluar, mengeluarkan, timbul*) or are hidden (*terpendam*), buried (*memendam*), or kept (*menahan, ditahan*) on the inside.

Emotion Theories in the German Ruhr Area

A total of 32 clusters emerged from the data from the Ruhr Area. Out of these, 16 clusters were concerned with different emotions such as *ärger, sauersein, traurigkeit, angst, scham, neid, eifersucht, hass, stolz*, and *mitleid*.

Ärger

Ärger serves as an emotion (anger) and a conflict model. One interviewee distinguished between *streit* (quarrel) and *ärger* by defining *streit* as necessarily overt, whereas *ärger* could also be a latent form of conflict. Apart from this specification, "ärger" and "konflikt" appear to be interchangeable in some contexts. At least one participant considered the emotion *ärger* a component of all forms of conflict. Others viewed anger as typical for different forms of conflict but not as a necessary component.

Just like the main antecedents of anger, *ärger* seems to occur preferably in situations where norms are transgressed. Also disappointed expectations seem to play a role in eliciting *ärger*. *Ärger* is considered a short-lived emotion but, as one interviewee states, can be lasting in the sense that it reemerges in interactions with people the anger is directed at.

Participants find other people's *ärger* to be justified in some situations, not in others. As a result, the expression of *ärger* is occasionally conceived of as a claim to be right. *Ärger* can consequently become the topic of concern in conflicts, substituting the original issues. The statements of interviewees led to the conclusion that sometimes the conflictive issues can be resolved as soon as an agreement is reached concerning the justification of *ärger*.

Vertrautheit and Respekt

One participant discussed *vertrautheit* (intimacy, familiarity) as the reason why he would not quarrel with certain people. In relationships with high levels of *vertrautheit*, it seems to be virtually impossible for him to enter into conflicts due to the amount of *respekt* he experiences in these relationships. This conception differs from the Basque views on *confianza* and *respeto* as opposite poles with differing consequences for conflicts. Unlike the Basque interviewees, German participants considered *respekt* as something to be gained by achievements rather than as a universal base for relationships.

Stolz

Participants depicted *stolz* (pride) primarily as a cause of conflicts. Especially *gekränkter stolz* (wounded pride) was treated as a conflictive emotion. Interviewees mentioned insults, disappointed expectations, a lack of recognition, and belittling acts as triggers for wounded *stolz*. Wounded *stolz* was also considered as an obstacle for reconciliation. *Stolz* was sometimes related to masculinity and not always recognized as justified, which some participants held accountable for conflicts. One interviewee described that he considers people who express phony pride as nonpersons or pathologizes their behavior in order to be able to ignore them. Justified *stolz* results from personal achievements and does not bear as negative connotations as unjustified *stolz*.

Emotion Regulation

Participants presented many examples of uninhibited expression of emotions in conflicts. This behavior was mainly justified with the help of a steam boiler model, often implied by the term "valve." One interviewee stated that he tries to dispose of certain emotions through violence just as recommended by his martial arts coach. He justified that by mentioning that he did not want to regret not having let out his emotions and thus having to feel them in future situations.

Not all participants, however, consider direct expressions of emotions the best choice. Two interviewees stated that the verbalization of emotions would sometimes be more effective in conflict situations, as it signals a certain ability to control one's emotional states, whereas the opponent still struggles to do so and can hence be labeled too emotional to solve conflicts, which places the blame on this person. As a result, the own emotions might become less intense. One interviewee mentioned slander and mobbing as ways to regulate his emotions in conflicts, which would help him to "vent" (*luft ablassen*). Another interviewee devaluates his opponents cognitively or through conversations with others to cope with his emotions. Some interviewees choose retreat from conflicts as a means of emotion regulation. They prefer to be left alone to think about conflict issues rather than communicatively processing them.

Other participants employ the more classical ways of inhibition or camouflage of expressions or apply emotion work. The underlying techniques were often depicted stereotypically. Participants recommended counting to a certain number, taking deep breaths, or employing respiration techniques. Others mentioned "runterschlucken" (to swallow), "verkochen lassen" (to let boil down), physical exercise, making a fist in the pocket, or just "beherrschen" (to keep under control) as ways of emotion regulation. In most cases, interviewees were convinced that there are certain ways that they use to downward regulate their emotions without being able to describe them reflectively.

Everyday Life Theories of Emotion

Many expressions suggest that participants used a hydraulic model to conceptualize emotions: "sich Luft machen" (to give vent to something), "in sich hineinfressen" (to bottle up something) "anstauen" (to bottle up one's feelings), "geladen" (charged), "platzen" (to burst), "das Fass zum Überlaufen bringen" (lit., to bring the barrel to overflow), "angestaute Wut rauslassen" (let out pent-up rage), "Ventil" (valve), and "angestaute Energie" (pent-up energy). A topographical model of inside and outside is often connected to the hydraulic model. This topographical model can, however, also be employed without relation to this model such as in the expression "Wut nach außen tragen" (to carry rage to the outside).

Besides the hydraulic model, descriptions of situations help to depict emotions. Instead of naming particular emotions, interviewees stated they felt "ungerecht behandelt" (treated unjustly), "angegriffen" (attacked), "verarscht" (pranked), or "vernachlässigt" (neglected). These expressions underline that people make use of situations to reflect upon their emotions. Some interviewees found it difficult to find an emotion term and referred either to the situation or people's intentions to describe emotions.

One interviewee felt that she "could not get through" to her interlocutor, which she equated with the feeling of *traurigkeit* (sadness). For some interviewees, *wut* (rage) is characterized through rising body temperature and an elevated heart rate. One interviewee narrated that she constantly thinks about the trigger of *wut* when she experiences this emotion; another interviewee described that *wut* made her go weak at the knees. One participant recounted that, in one situation, *wut* did not let her sleep until she shouted at her partner, as a result of which she finally fell asleep.

Despite the large variety of linguistic tools to depict emotions, to some participants, emotions remain idiosyncratic phenomena that cannot be reduced to only one dimension: "[Eine Emotion] ist ja immer aus Tausenden von Teilen zusammengesetzt. Eindimensionale Emotionen gibt's nicht. [...] [E]s ist nie der gleiche Gefühlsmischmasch." The speaker is convinced that each emotion is a unique composite of heterogeneous building blocks, which implies that individual emotions cannot be adequately described by a single emotion term. Other statements suggest that emotions are independent of language.

Some statements are symptomatic for a biologically founded understanding of emotions. One participant attributes the emotional fluctuations his partner experiences to hormonal changes. Apart from biological interpretations, traces of psychiatric, psychoanalytical, and psychological explanations appear in the data. These were inspired by psychotherapy, education, popular culture, and so on. Some emotions, especially seemingly deviant ones, were also attributed to cultural differences such as the allegedly Turkish emphasis on *stolz* that one participant did not consider genuine.

Cross-Cultural Comparison

The emotions *neid*, *iri*, and *envidia* (envy) seem to evoke negative connotations in all three fields. *Iri* was explicitly related to the concept of six depravities (*enam busuk*). The situations in which these emotions are experienced appear to be similar. Only in Bali, *iri* was more connected to material goods than to interpersonal relations or personal traits. Moreover, the emotion *kecemburuan* (jealousy) was attributed to situations that in the Basque Country would have been probably classified as *envidia*.

Ärger, *amarah*, and *enfado* are perceived of as triggering or being triggered by conflicts. They also seem to appear in similar situations. While *ärger* and *enfado* act as both emotions and conflict models, *amarah* was only discussed as an emotion. Participants related *amarah* more directly to violence than *ärger* and *enfado*. Emotions such as *ira*, *rabia*, and *odio* and, respectively, *wut* and *hass* were more evidently related to violence in the other fields. Consequently, *amarah* bears more negative connotations and is less common than *ärger* and *enfado*. *Amarah* seems to be rather hypocognated in Bali and, additionally, serves as a general term to denote various kinds of similar emotions that occur in conflicts. Interviewees considered *ärger* and *enfado* sometimes as a tool for self-protection or to gain respect, which was not the case regarding *amarah*. Although *enfado* and *ärger* are not typically expressed through silence like *amarah*, they are also ascribed to individuals in situations where they do not behave in their habitual ways, with silence being a possible indicator of deviation.

The Balinese data do not contain a conflict-related equivalent of *orgullo* or *stolz*. Both emotions can fuel conflicts, which is particularly obvious in the case of *orgullo*. Interviewees depicted *stolz*, especially wounded *stolz*, as a cause of conflict in the first place, whereas *orgullo* was rather discussed regarding the extension and escalation of conflicts. Both *orgullo* and *stolz* were also considered an obstacle for reconciliation, because both emotions motivate the desire to win conflicts. Unlike what Scheff's conception of pride suggests, *orgullo* and *stolz* can aggravate conflicts and act as an obstacle to reconciliation. Besides the rather negative aspects of *orgullo* and *stolz*, interviewees also mentioned positive aspects such as ties to personal values. This is particularly true for the Basque Country, where the inside view of *orgullo* received more attention than the inside view of *stolz* in the Ruhr Area, where it was primarily discussed as the wounded *stolz* of others from an external viewpoint.

Participants treated *respeto* as the foundation of human interactions, whereas *hormat* and *respekt* were considered achievements. The data suggest that *respeto* is more reflected upon regarding conflicts when compared to *hormat* and *respekt*. As explained above, interpersonal proximity and distance are emotionally embodied through the axis of *confianza* and *respeto*. In the Ruhr Area, interpersonal distance is rather cognitively codified, although *vertrautheit* bears some similarities to *confianza*. One interviewee from the Ruhr Area stated, however, that *vertrautheit* rather leads him to adopt a calmer conflict style than *confianza* would suggest. *Hormat* seems to have similar consequences as *respeto*, although it does not have a clear opposite and seems to entertain closer ties to general status hierarchies.

Malu moderates conflicts, as it neutralizes emotions such as *amarah* at their onset. This is rather surprising from Scheff's perspective, because unacknowledged shame is supposed to be converted into anger and thus to fuel conflicts instead of moderating them, whereas *malu* seems to be inhibiting certain emotions. Contrary to Geertz' (1987a) view, *malu*, or rather the

Balinese version *lek*, seems not to be translatable into stage fright[4]. "Stage fright" and Geertz' depiction of Balinese cockfights as deep play imply the practice of acting. It might even appear to outsiders that Balinese people employ a kind of method acting to control their expressions. This is, however, not depicted as such in the inside views in Bali. *Malu* seems to authentically modify the emotions, which renders a cognitive orientation on an expressive order unnecessary. Compared to *malu*, *scham* and *vergüenza* (shame, embarrassment) did not receive considerable attention in the Ruhr Area and the Basque Country. A reason for that might be that emotion regulation in Bali is often conducted via a quasi-automatic social–emotional institution that uses *malu* as its medium, whereas participants from the other two cultural contexts treated emotion regulation more as a deliberate individual or interpersonal endeavor.

In the Basque Country and the Ruhr Area, interviewees often referred to psychoanalysis, psychology, biology, and medicine to justify and legitimize their opinions regarding emotions. This might be based on self-help literature, psychotherapy, education, and/or popular culture. Especially one Balinese interviewee also referred to these rather modern sources of legitimization. Generally, however, more traditional categories such as *dharma* (religious norms), *karma-pala* (karma), *ilmu hitam* (black magic), and so on, were prevalent in the data. Participants also mentioned the epics Mahâbhârata and Ramayana as sources of ethical maxims of feeling and behavior. The data from the Basque Country and the Ruhr Area also bear traces of a religious past such as the biblical "eye for an eye," but they occupy far less space and seem to be comparatively irrelevant for the everyday life depiction of emotions in conflict.

Despite these differences in interpretation and legitimization, interviewees from all three fields considered emotions as passive phenomena that are relatively transitory. Even in Bali where outsiders often attribute the moderate expressions of emotions to the intentional orientation on a strict expressive order, emotions are portrayed with a hydraulic model. Surprisingly, however, the inhibition of emotional expressions was not at all pathologized regarding health and quality of human relationships as in the Basque Country and the Ruhr Area. This might be due to differences in the conception of authenticity and the fact that emotional processes seem to neutralize other emotional processes as a form of cultural emotion regulation to a greater extent than in the Basque Country and in the Ruhr Area. The variation encountered here is not so much one of the ability to control emotions; it is rather a variation in degree to which the regulation of emotions and expressions is conceived of as being subject to the individual will. Counterintuitively, this degree was lowest in Bali.

Participants from the Basque Country often chose a rhetorical perspective. They depicted their own emotions and expressions as strategic tools to influence the behavior and emotions of others. In the Ruhr Area, participants related emotions to conflicts from a rather distanced perspective, discussing emotions regarding their functions for social entities and individuals.

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[4]Many Balinese interlocutors confirmed that to them there is no difference between *malu* and *lek*.

Basque participants were able to relate individual emotion terms in a very reflected way to conflicts, whereas participants from the Ruhr Area employed more descriptions of situations to refer to emotions. The conversational handling of emotions and conflict was comparatively restricted in Bali. Unlike the Basque participants, Balinese interviewees do not seem to cultivate a highly elaborate tradition of interpersonal conflicts. When compared to each other, Bali seems to be more Apollonian, and the Basque Country more Dionysian, in the sense of Nietzsche (1907). The Basque level of reflectivity regarding emotions in conflicts and the corresponding articulate contouring of individual emotions contrast sharply with the obscurity in which emotions and conflicts are left as negatively connoting and rather blurrily recognizable phenomena in Bali.

Although this was most obvious in the Ruhr Area, participants from all three fields relied primarily on their interpretations of situations when identifying emotions. The subtle nuances and omissions of behavior as well as conventionalized signs as silence in Bali were the main points of reference for the identification of emotions. Universal expressions might play a role, although identical expressions do not necessarily carry the same meaning and lead to the same consequences independently of the context. As Plessner (1983) puts it, the chemical analysis of parchment does not contribute to deciphering the meaning of the text that is written on it.

DISCUSSION

The study bears a number of limitations. The gender ratio in Bali is unbalanced. A woman would have probably gained access more easily to other women in Bali where only one woman was interviewed. The interview with another woman was aborted because of communication problems.

The languages used during the interviews are the national languages Indonesian, Spanish, and German, not the local languages Balinese and Basque. To minimize the effect of language choice, feedback has been obtained from native speakers regarding the translation of emotion terms. Particularly in Bali, this was a concern. The lists of emotion terms were initially very complex in Bali and in Germany and had to be reduced in order to facilitate navigation during the interviews. The interviews required more effort for some interviewees than for others, so that rather complex tasks, questions, and inconvenient topics were left out in some cases.

The method of interpreting narratives from other fields has to cope with the problem that their linguistic form already provides narratives with a certain degree of interpretation. It has been tried to reduce this bias through behavioral descriptions. Instead of talking about greetings, for example, the Spanish practice of greeting through two kisses on the cheeks has been described in detail. This, however, led to another problem in Bali where the two kisses became the scandalous center of attention, which obscured the primary topic of the story, envy.

The study did not make use of video or audio recordings of natural conversations where emotions were processed in conflict situations. Its results, however, can pave the way for

an interpretation of such material. In this regard, as well as in four other ways, the study serves exploratory purposes. First, the narratives obtained through the interviews can serve as the base for future research of this kind. Second, more criteria, such as milieu, education, and subcultural belonging, can be taken into account in future research. Third, future studies can get by with a leaner research design, building on the results of this study. Fourth, the study enables researchers to use categories and develop field-specific research questions that individuals find relevant.

Although the interview guide was further developed during the study in view of unexpected evidence from the data, readers might reasonably raise questions of theoretical saturation. Because of a lack of resources, a pragmatic end of data collection and interpretation had to be drawn at some point. More theme clusters could have emerged from the data and could also have been more deeply analyzed with the help of additional interviews. There was definitely a trade-off between depth of analysis of the data obtained in each of the cultural contexts and the comparison of the results. I am confident, however, that the results are faithful to insiders' viewpoints because the analysis focused on the most prominent and well-outlined clusters and also because I discussed the findings with individuals from the three regions in different occasions. More iterations of data collection and analysis could, without a doubt, produce more insights but would have required a whole team of researchers and more time resources.

The main insights presented here concern culture-specific socioemotional means of emotion regulation as shown with regard to the emotions *malu* and *hormat*, as well as *confianza* and *respeto*. As a result of the sociocultural configuration in Bali, *malu* seems to neutralize emotions such as *amarah* at their onset, acting as a substitute for deliberate forms of emotion and expression regulation. These findings contrast with Geertz' interpretation of *lek* (i.e., *malu*) as stage fright, which appears to be influenced by his own everyday life theories. Unlike what Geertz suggests, Balinese participants did not interpret their behavior as the result of acting in accordance with a strict expressive order but as guided by unregulated emotions. When compared to the findings concerning *malu* and *orgullo*, Scheff's concepts of shame and pride as indicators of an insecure or secure bond also seem to be ethnocentrically biased. Instead of being converted into anger, *malu* seems to neutralize similar emotions without any pathological connotation as evoked by Scheff's treatment of unacknowledged shame. When compared to *orgullo*, in turn, Sheff's concept of pride does not account for the prolongation and escalation of conflicts that participants in some cases attributed to *orgullo*. It seems to me a promising undertaking to examine socioemotional means of emotion regulation in more detail in different cultural contexts.

The upward regulation of emotions in conflict was particularly present in the data from the Basque Country and should be further examined. Some emotions turned out to serve as frames for cultural models of conflict in the Basque Country and the Ruhr Area. The relations of emotions experienced within these models and the models themselves also deserve further attention in future research. The same is true for the relations among cognitive and emotional representations of

proximity and distance in interpersonal contact. Interestingly, emotions have been considered passions in all three fields despite different sources of building blocks for everyday life theories and their legitimization. Surprisingly, the hydraulic model of emotion was used even in Bali. The similarities regarding the models combined with the fact that emotion regulation takes different paths especially in Bali raise questions regarding the mutual influence of linguistic models and social practices. Following Heidegger (1967), everyday life theories do not directly influence prereflective experience. Whether emotions as objects are metaphorically situated in the liver or the heart has no direct influence on prereflective experience or embodiment of emotions like what Lakoff (2016) suggests. Balinese people seem to be able to translate "hati" into "heart" without experiencing any loss of meaning or sense of inadequacy, which may inspire us to rethink our concepts of embodiment.

The design of the study may invite similar cross-cultural research on emotions in conflicts in other cultural contexts. Regarding the regions under consideration in this study, a higher degree of methodological pluralism could be fruitful. The results presented here could be the foundation of the interpretation of audiovisual data from conflicts in natural settings and/or of quantitative studies for comparisons on a bigger scale and precise analyses of the interrelatedness of the emerged categories and dimensions. The future of cross-cultural research on emotions in conflicts would greatly benefit from a methodologically sound triangulation of qualitative and quantitative methods. Regarding cross-cultural research on emotions in general, the study may inspire examinations of the emotions that were related to conflicts here in relation to other common action contexts (such as care settings, education, and counseling) in order to eventually generate a full picture of individual emotion phenomena across different situations.

DATA AVAILABILITY STATEMENT

The datasets generated for this study are available on request to the corresponding author.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

AUTHOR CONTRIBUTIONS

RK drafted the manuscript, designed the study and participated in each of its phases, and participated in the review and revision of the manuscript, and has approved the final manuscript to be published.

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