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EDITED BY
Kobie van Krieken,
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REVIEWED BY
Renske Van Enschot,
Tilburg University, Netherlands
Brian Houston,
University of Missouri, United States

*CORRESPONDENCE
Arthur A. Raney
araney@fsu.edu

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Exploring the impact of media use on wellbeing following a natural disaster

Arthur A. Raney[1]*, Amy L. Ai[2] and Mary Beth Oliver[3]

[1]School of Communication, Florida State University, Tallahassee, FL, United States, [2]College of Social Work, Florida State University, Tallahassee, FL, United States, [3]Donald P. Bellisario College of Communications, The Pennsylvania State University (PSU), University Park, State College, PA, United States

Media use can be beneficial in many ways, but little is known about how it might improve wellbeing outcomes following a traumatic natural disaster. Survivors (n = 491) of deadly Hurricane Michael, which struck the Florida (USA) coastline in 2018, completed an online survey, reporting indicators of post-traumatic growth (PTG) and stress (PTSS). A serial mediation model explored how hurricane-related stressors were related to both outcomes, as mediated by approach, avoidant, and support-seeking coping strategies and post-hurricane hedonic, eudaimonic, and self-transcendent media use as coping tools. Factors contributing to each type of post-hurricane media use were also explored. Results indicate that hurricane-related stressors were associated with PTG, serially mediated through approach coping strategies and self-transcendent media use, thus providing some of the first empirical evidence of the longer-term, beneficial wellbeing effects of media use on survivors of trauma. Additionally, hurricane-related stressors were associated with avoidant coping strategies, which were associated with increased eudaimonic media use. However, hedonic and eudaimonic media use were not associated with PTSS or PTG. Finally, factors known to be associated with media use were not predictive of post-hurricane media use, perhaps suggesting that media play a different role in survivors' lives in the months following a traumatic event.

KEYWORDS

PTG, PTSS/PTSD, self-transcendent media, eudaimonic media, hedonic media, natural disaster, media use, coping

Introduction

Experiences with media narratives can be beneficial to personal wellbeing in many ways (for an overview, see Reinecke and Oliver, 2016). For instance, numerous studies provide empirical evidence for the role of fun and pleasure-inducing content in the satisfaction of needs related to subjective wellbeing, including mood regulation (e.g., Zillmann, 1988), relaxation (e.g., Rieger and Bente, 2018), and escape from unsatisfying circumstances (e.g., Henning and Vorderer, 2001). In recent years, scholars have also identified how challenging and meaning-inducing narratives can impact psychological wellbeing, such as buffering against anxiety arising from mortality salience (e.g., Rieger et al., 2015),

facilitating self-compassion and emotional self-efficacy (Khoo and Graham-Engeland, 2014), and promoting character development, spirituality, altruism, and human flourishing (e.g., Oliver et al., 2018). Public and scholarly attention to the crucial role that media use can play in the daily pursuit of wellbeing further intensified during the COVID-19 global pandemic (e.g., Eden et al., 2020; Vidas et al., 2021; Nabi et al., 2022). Despite these long-standing and intellectually rich traditions of scholarship, an important phenomenon remains underexamined: media use as a coping tool for wellbeing in the months following a traumatic life event.

In recent years, a few scholars have begun to conceptualize long(er)-term media effects (e.g., Schneider et al., 2019; Reinecke and Rieger, 2021) from a salutogenic perspective (i.e., wellness- rather than disease- or psychopathy-focused; Antonovsky, 1996). Nevertheless, to date, little empirical evidence exists with regard to how media experiences may relate to post-traumatic adjustments, especially among survivors in the months and years following a major trauma (for notable exceptions, see Nabi et al., 2017; Eden et al., 2020). This is not to suggest that scholars have completely ignored the role of media following disasters. In fact, a rich tradition of research has investigated various effects associated with the extensive coverage by and audience attention to news media following both natural and anthropogenic disasters (for a recent review, see Houston et al., 2018). For example, several studies have examined how (social) media have been (or could be better be) utilized to inform on-the-ground crisis responders, emergency management teams, and charitable relief efforts (e.g., Boulianne et al., 2018; Li et al., 2018; Alam et al., 2020). Several others have examined how news coverage might lead to negative mental health outcomes among those directly (and indirectly) experiencing the event (e.g., McLeish and Del Ben, 2008; Ben-Zur et al., 2012; Goodwin et al., 2013; Pfefferbaum et al., 2014); yet, many such studies focused on 9/11 and other terrorist incidents rather than on natural disasters. Though incredibly important in its own right, the extant research record provides little insight into the potential role of media narratives on wellbeing adjustments in the months following a traumatic event. Therefore, in this study, we explored media use in relation to two wellbeing outcomes—post-traumatic stress and post-traumatic growth—among survivors of a catastrophic hurricane.

Study context

On October 10, 2018, Category 5 Hurricane Michael made landfall as the largest tropical cyclone to ever strike the Gulf of Mexico coastal region in Florida (USA). A large portion of the area—which includes the popular tourist destination Panama City Beach and the city of Apalachicola, the center of Florida's oyster industry—was left decimated. Seventy people lost their lives in the storm, with more than 375,000 people forced to evacuate. Direct damages to property, businesses, and infrastructure topped US$25 billion (Bevan et al., 2019; Federal Emergency Management Agency, 2020). More than 3 years later, many communities have yet to complete some of the most visible (and dire) recovery tasks: home and store repairs, school and church re-openings, downed tree removal, and well-water service restoration (Mixon, 2021). Thus, many survivors of Hurricane Michael are reminded daily of the traumatic event. As a result, a principal part of the hurricane's legacy is the ongoing mental health crisis left in its wake (e.g., Travis, 2021; Michalik, 2022). Persons directly impacted by Hurricane Michael participated in this study.

Psychological trauma, post-traumatic stress, and post-traumatic growth

The scientific study of psychological trauma has grown tremendously in the four decades since post-traumatic stress disorder (PTSD) was recognized as a mental health condition (e.g., Brewin et al., 2000; Ozer et al., 2003). At the time, the newly defined condition helped clinicians treating seemingly disparate types of traumatic life events (e.g., physical assault, accidents, combat) to identify commonalities in symptoms, including re-experiencing the trauma (e.g., flashbacks, bad dreams), avoidance (e.g., staying away from places or situations that serve as reminders of the trauma), arousal and reactivity (e.g., being easily startled, feeling tense), and cognitions and mood (e.g., negative thoughts, feeling of guilt). Estimates of the proportion of individuals who have experienced or who will experience an event meeting the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5; American Psychiatric Association, 2013) criterion for trauma vary quite a bit in the clinical literature. The World Health Organization World Mental Health Survey ($n = 68{,}894$) estimated the global rate of trauma exposure at 70.4%, with an average of 3.2 traumas per person (Kessler et al., 2017). By way of comparison, in a study using a representative sample of U.S. adults, nearly nine out of 10 (89.7%) reported exposure to at least one DSM-5 criterion event, with the modal number of events experienced being three (Kilpatrick et al., 2013). Of particular importance to the current study, more than half of the U.S. sample (50.5%) reported exposure to a traumatic disaster (e.g., hurricane, fire, earthquake). The research record documents prevalent and persistent post-traumatic stress symptoms (PTSS) and other maladaptive wellbeing outcomes following natural disasters, the effects of which can last for years—even decades—after the event (e.g., Kessler et al., 1995; Ai et al., 2011a;

Tracy et al., 2011; Goldman and Galea, 2014; Tang et al., 2014)[1].

However, not all wellbeing trajectories following trauma are negative. Post-traumatic growth (PTG) is an adaptive outcome to trauma exposure characterized as a positive psychological change arising from one's struggle following adversity, resulting in a greater appreciation for life, an increase sense of one's own strengths, and/or closer personal relationships, among other outcomes (e.g., Tedeschi et al., 1998, 2018). For PTG to occur, one must endure and emerge from a struggle following a traumatic event that challenges core beliefs. Numerous studies have evidenced PTG among survivors of natural disasters (for a recent overview, see Riffle et al., 2020).

As consequences of traumatic events, PTSD and PTG are often conceptualized in relation to different scholarly traditions on what constitutes wellbeing. The hedonistic paradigm places emphasis on maximizing personal interests, including attaining happiness and avoiding pain. Subjective wellbeing (Diener, 1984) is the goal, reflected in the pursuit and satisfaction of primary human needs leading to what most people think of as "happiness:" increased life satisfaction, the presence of positive emotions, and the absence of pathological symptoms. Because PTSD reflects *dissatisfaction* across these domains, it has often been associated with decreased subjective wellbeing (e.g., Joseph and Linley, 2005), including following disasters (e.g., Bonanno et al., 2015; Brooks et al., 2020).

On the other hand, the eudaimonic paradigm conceptualizes wellbeing in relation to the pursuit of virtue, wisdom, and optimal experiences. Psychological (or eudaimonic) wellbeing (e.g., Ryff, 1989; Waterman, 1993) goes beyond subjective happiness and is characterized by self-realization, self-acceptance, personal expressiveness, and purpose in living. PTG is often associated with the eudaimonic tradition and psychological wellbeing, as the growth process underscores the centrality of struggling with challenges, positive gains after facing adversities, striving for meaning, and moving beyond the absence of pathology (Linley and Joseph, 2004).

Despite being related to differing notions of wellbeing, PTSD and PTG are not thought to be opposing processes. In fact, Linley and Joseph (2004) and Joseph and Linley (2005) highlighted five similar theories that underlie the two outcomes, arguing that both emerge in response to adversity. Further, a meta-analysis examining a variety of traumatic events revealed a significant positive relationship between PTSD symptoms and PTG ($r = 0.315$) across 42 studies ($N = 11{,}469$) (Shakespeare-Finch and Lurie-Beck, 2014). Indeed, a dichotomized view of PTSD and PTG is not supported by the empirical evidence following natural disasters either (e.g., Ai and Park, 2005; Ai et al., 2013). Furthermore, studies have consistently shown that both PTG (e.g., Dekel et al., 2012) and PTSS (given certain factors; e.g., O'Donnell et al., 2007) can intensify over the months following a traumatic event, a finding particularly important to the current study.

Coping with trauma-induced stress

Numerous theoretical perspectives have emerged to explain PTG (Schaefer and Moos, 1992, 1998; Tedeschi and Calhoun, 1995, 2004) and PTSD (for an overview, see Brewin and Holmes, 2003). One core component found in most theories of post-traumatic adjustment is the psychological process of coping with stress induced by the traumatic event.

According to the transactional stress model (Lazarus and Folkman, 1984), coping refers to the actions and cognitive adjustments used to manage and control stressful situations. That is, coping reflects a transaction between a person and the stress-inducing circumstances. As such, the pathways to post-traumatic outcomes for any one individual are highly influenced by *in situ*, subjective experiences during or in the immediate aftermath of the traumatic event. Within the disaster literature, several studies have linked specific, event-related stressors—death of loved ones, property or job loss, gas and food shortages, to name a few—with long-term mental health outcomes (Ai et al., 2013; Cerdá et al., 2013; Nillni et al., 2013). For instance, peritraumatic daily stressors predicted PTSS up to 18 months following Hurricane Ike (Cerdá et al., 2013). Similarly, hurricane-related stressors predicted greater PTSS and PTG ~3 years after Hurricane Katrina (Lowe et al., 2013).

In an attempt to cope with and manage trauma-related stress, individuals employ various strategies (e.g., Glass et al., 2009; Ai et al., 2011a, 2013; Bistricky et al., 2019). Those coping strategies are often characterized as either avoidance- (i.e., withdrawing from or denying the stressor) or approach-oriented (i.e., seeking to alleviate stress by actively engaging with the stressor), though such categorizations tend to oversimplify the complex nature and use of certain strategies (Skinner et al., 2003). Nevertheless, avoidant coping strategies (e.g., denial, substance use, self-blame) are generally thought to contribute to detrimental psychological outcomes (Krause et al., 2008; Cherry et al., 2015); for example, following natural disasters, avoidant coping has been positively associated with PTSS (Bistricky et al., 2019; Brooks et al., 2020) and depression (Appel et al., 2021). In contrast, approach coping strategies (e.g., positive reframing, acceptance, support seeking) can contribute to beneficial outcomes like PTG (e.g., Schaefer and Moos, 1998; Yeung et al., 2016).

Media use for coping

The use of media as a means for coping with (daily) stress has been studied for many decades (for a recent summary,

1 The data reported herein were not collected in a clinical setting; therefore, no inferences of PTSD diagnoses were or should be made. Because of this, focus is placed on PTSS throughout.

see Wolfers and Schneider, 2020). In fact, a few studies have explored coping with/through media following a trauma life event. For example, Nabi et al. (2017) found that media use was among the top four coping strategies used by adult women previously diagnosed with breast cancer. A few studies have even examined media use for coping following a natural disaster, with survivors reporting how they turned to news and social media as a coping mechanism during and in the days immediately following Hurricane Georges in Puerto Rico (Perez-Lugo, 2004) and Typhoon Haiyan in the Philippines (Tandoc and Takahashi, 2017), respectively.

In a study perhaps most similar to the current one, Eden et al. (2020) surveyed U.S. college students during the first 6 weeks of forced social distancing and stay-at-home orders during the COVID-19 pandemic, exploring how stress and anxiety might have led to strategic use of different types of media for coping, leading to impacts on psychological wellbeing. Of particular interest, greater stress was positively correlated with more use of pleasure-based, hedonic media and less use of meaning-based, eudaimonic media use (more on this distinction is provided below). Stress was also associated with greater use of avoidant coping through media, which in turn was associated with less psychological wellbeing.

In the current study, we similarly examined the use of different types of media content among hurricane survivors. However, our approach to measuring coping differed slightly. Eden et al. (2020) adapted the wording of an existing (general) coping scale to specifically measure the use of media for different coping purposes (e.g., media use for self-distraction, media use for positive reframing); we used a version of the same general coping scale without adaptation. In doing so, we adopted the position forwarded by Wolfers and Schneider (2020), who noted that media use can be related to many coping strategies, some considered avoidant and other approach. Because of this, the researchers argued that media use should not be considered a coping strategy *per se*, but rather a coping tool. Coping tools are "instruments through which (a) a coping goal can be achieved and (b) a coping behavior can be performed … Different tools can be used for different strategies" (p. 1,222). We too considered media as a coping tool in the current study. However, given the breadth of media motivations, uses, forms, and formats, it was important to acknowledge potential differences in the use of media as a coping tool across diverse media narrative experiences.

Differentiating media narrative experiences

Contemporary studies of the beneficial effects of media use—particularly, entertainment narratives—generally rely upon dual-process models (e.g., Bartsch and Schneider, 2014; Lewis et al., 2014) to differentiate between two broad types of experiences: those primarily associated with pleasure (i.e., hedonic media experiences) and those primarily associated with meaningfulness (i.e., eudaimonic media experiences). This distinction is reflected in the aforementioned Eden et al. (2020) study. For most people, hedonic experiences are more typical. Many individuals turn on a streaming service or a music playlist at the end of a long day to unwind; some scroll social media sites looking for a laugh; others play a casual game to pass the time. Such experiences—which are thought to demand relatively less overall (or more intuitive) cognitive processing—help us to temporarily satisfy a variety of situational needs (e.g., diversion, escape, mood regulation), while simultaneously addressing more foundational ones (e.g., play, belonging, social comparisons; for a recent overview, see Raney and Bryant, 2020). These outcomes can promote subjective wellbeing (e.g., Diener, 1984), particularly an increase in positive emotions and life satisfaction, in audience members. The majority of entertainment scholarship within media psychology has explored the enjoyment of and other benefits from hedonic entertainment experiences.

Of course, as this special-topic article series attests, people turn to media for more than pleasure and escape. Individuals routinely seek out content that makes them sad or uncomfortable, giving rise to opportunities for reflection upon their own struggles and the meaning of life. Such experiences can contribute to long-term emotional stability and wellbeing by satisfying basic intrinsic needs (see self-determination theory; e.g., Ryan and Deci, 2000) and strengthening one's ability to cope with and grow through adversity (Wirth et al., 2012; see also Raney et al., 2020 for a recent overview). As a result, they are thought to promote psychological (or eudaimonic) wellbeing, which is characterized by self-realization, self-acceptance, personal expressiveness, purpose in living, and personal growth (Ryff, 1989; Waterman, 1993).

Further, some eudaimonic media experiences—self-transcendent (Oliver et al., 2018; Janicke-Bowles et al., 2021a) ones—also kindle a sense of connectedness with others or nature, compassion and care, and a desire to be a better and more altruistic person. They are typified by the portrayal of, and promote reflection upon, the virtue of transcendence; that is, they depict and orient users to matters beyond themselves and their daily concerns. They are further typified by the experience of self-transcendent emotions (e.g., moral elevation, awe, gratitude, hope, admiration). As a result, they are considered a particular type of eudaimonic media experiences, ones that fall at the far end of a continuum ranging from self-related and inner-focused to others-related and outwardly focused (see Oliver et al., 2021).

To summarize to this point: Stress induced by a natural disaster leads survivors to pursue various coping strategies that impact PTG and PTSS. To date, though, the role of media in positive and negative psychological adjustments in the months following such a trauma has not been explored. Literature on

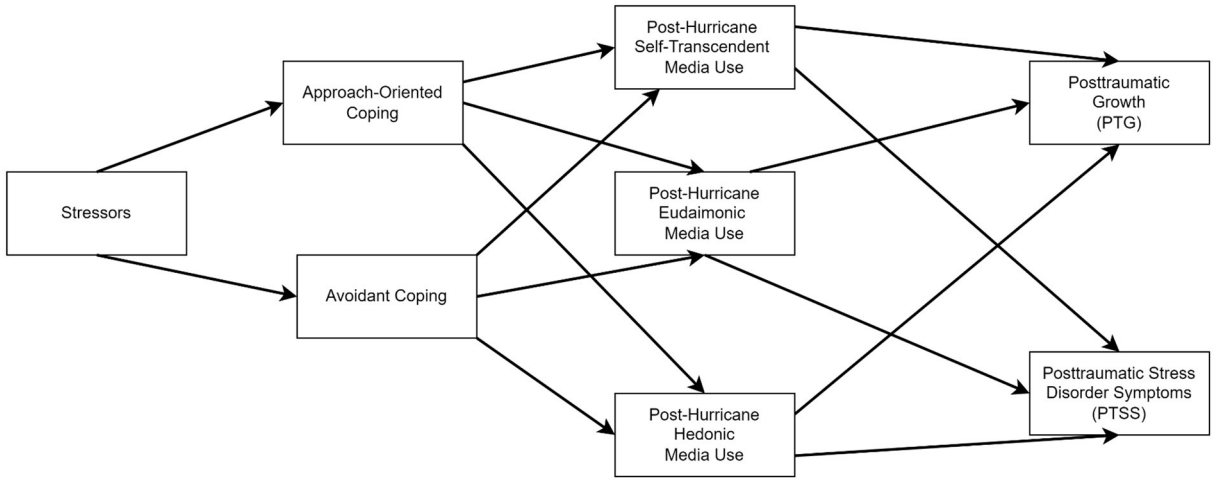

FIGURE 1
Conceptual model.

media coping in general suggests potential positive benefits, which are likely bound to the nature of those media experiences.

Exploring post-trauma media use

In light of the philosophical parallels between the hedonic paradigm/PTSS/subjective wellbeing/hedonic media experiences and the eudaimonic paradigm/PTG/eudaimonic wellbeing/eudaimonic and self-transcendent media experiences, one might expect corresponding effects: Hedonic media use might be associated with (and perhaps buffer against) PTSS, whereas eudaimonic and self-transcendent media use might be associated with (and perhaps amplify) PTG. However, such relationships are likely influenced by the stressors experienced following the hurricane and the coping strategies pursued in response. Those associations are graphically presented in the conceptual model that guided the study (see Figure 1). Based on PTG and PTSD theories, we broadly reasoned that hurricane-related stressors would be associated with coping strategies, and that coping strategies would predict media use as a coping tool. Media use, in turn, would then predict PTSS and PTG.

To our knowledge, no direct empirical evidence currently exists with regard to the specific role that hedonic, eudaimonic, and self-transcendent narrative experiences can play in these two particular wellbeing adjustments following a major life trauma. Therefore, offering directional hypotheses seemed a bit premature. Thus, in an initial attempt to explore these issues, we interrogated a broad research question:

RQ1: To what extent were hedonic, eudaimonic, and self-transcendent media narrative use associated with positive wellbeing adjustments (i.e., post-traumatic growth) and/or negative wellbeing adjustments (e.g., post-traumatic stress) among survivors of a natural disaster?

Furthermore, given the exploratory nature of this study, we thought it advisable to examine trauma-related factors that might be correlated with post-traumatic media use, primarily as a heuristic tool for future research. Specifically, we explored the extent to which hurricane-related stressors, peritraumatic emotional responses to the event, and time (i.e., days between hurricane landfall and data collection) predicted hedonic, eudaimonic, and self-transcendent media narrative use. When doing so, we controlled for factors previously identified in the entertainment literature as being related to media use: gender, age, trait hedonic and eudaimonic entertainment use motivations, and personality traits related to eudaimonic media use (i.e., hope, optimism, gratitude, spiritual support see Oliver et al., 2018; Raney et al., 2018; Eden et al., 2020; Janicke-Bowles et al., 2021b). Our goal was to identify:

RQ2: What factors were most associated with hedonic, eudaimonic, and self-transcendent media narrative use among survivors of a natural disaster?

Method

As a part of a larger research project, online survey data were collected from individuals living in the northern coastal region of the Gulf of Mexico in Florida (colloquially known as "the Florida Panhandle") who were directly affected by Hurricane Michael ($n = 491$). Data collection occurred between April and December 2019. Respondents received a $10 gift card for their participation. The majority of respondents self-reported to be women (80.0%) and White (82.7%; Black, 6.5%; Hispanic, 3.5%; Other 6.9%). The average age was 43.2 (range 16–78).

Of the sample, 92.9% reported losing electricity for more than 48 h following Hurricane Michael, 85.7% reported experiencing gas shortages, 80.0% reported losing personal property, 55.8% reported subsequent financial problems, and 54.0% reported food shortages. With regard to the mental toll of the storm, 74.5% reported guilt about not being able to do more to help others, whereas 72.3% reported compassion fatigue and emotional overload for caring for others.

A complete table of demographic information for the sample, correlation matrix, survey items, and dataset (with codebook) can be accessed at our Open Science Framework project page: https://osf.io/snwp2/?view_only=97d876ae7d294708b5ee6da718069768.

Primary measures

Hurricane-related stressors

An 18-item checklist developed by investigators for use after disasters (Plummer et al., 2008) measured event-specific stressors. Respondents indicated (0 = *No*; 1 = *Yes*) which stressors they experienced during the month immediately following the hurricane (e.g., being an evacuee, loss of personal property). Responses were summed, with higher scores reflecting more stressors experienced ($M = 8.19$, $SD = 2.41$, *range* = 1–15).

Coping strategies

Types of coping strategies used by the respondents were measured with the 30-item Brief COPE (Carver, 1997). Respondents indicated the frequency with which they relied on each specific coping strategy since Hurricane Michael on a 4-point scale (1 = *Not a lot*; 4 = *A lot*). The scale contains conceptually distinct approaches to coping with a stressful life event. As a result, many previous studies have presumed that certain items reflect avoidant-oriented coping behaviors, whereas other items reflect approach-oriented ones, leading to the computation of corresponding factors. However, this approach has been criticized as oversimplifying the complex nature and use of certain strategies (e.g., Skinner et al., 2003). Therefore, in the current study, a principle component analysis (with oblimin rotation) was conducted, with the expectation that a constellation of factors would emerge to represent avoidant- and approach-oriented coping strategies (as reflected in Figure 1).

The procedure yielded an initial solution of five factors with eigenvalues > 1.0. Upon inspection, two factors were found to consist of a small number of items, all of which significantly counterloaded (>0.40) on other factors. Therefore, a three-factor solution—collectively explaining 54.8% of the variance—was adopted, with items loading at >0.60 and counterloading at <0.40 retained. Twelve items measured strategies conceptually associated with avoidance coping ($M = 1.62$, $SD = 0.67$, $\alpha = 0.92$), including self-distraction (e.g., "turning to work or other activities to take my mind off things"), denial (e.g., "saying to myself, 'this isn't real'"), and behavioral disengagement (e.g., "giving up trying to deal with it") strategies. Eight items measured strategies conceptually associated with approach coping ($M = 2.65$, $SD = 0.74$, $\alpha = 0.88$), including the use of positive reframing (e.g., "looking for something good in what is happening"), planning (e.g., "trying to come up with a strategy about what to do"), and acceptance (e.g., "I've been learning to live with it") strategies. Four items measured coping strategies conceptually associated with support seeking ($M = 2.13$, $SD = 0.85$, $\alpha = 0.89$), including pursuing emotional (e.g., "getting emotional support from others") and informational (e.g., "getting help and advice from other people") support. As a result, the final model tested three coping strategies, rather than the initially anticipated two.

Post-hurricane media use

A 14-item scale was developed to explore how particular motivations for consuming two specific types of media—television and film—had changed since the hurricane. For each media form, respondents indicated on a 7-point scale (1 = *Decreased significantly*; 7 = *Increased significantly*) the extent to which their use of media for relaxation and for escape/to get my mind off things had changed (i.e., post-hurricane hedonic media use). They also rated how much their media use to feel more hopeful, feel better about their own life, feel thankful/grateful, meet their spiritual needs, and experience inspiration had changed since the hurricane (i.e., post-hurricane eudaimonic media use). A principle component analysis (with oblimin rotation) of the scale yielded two factors, with 69.8% of the variance explained. After two items that counterloaded at >0.40 were dropped, responses were averaged for each participant to yield the two factors: post-hurricane hedonic media use (4 total items; $M = 3.83$, $SD = 1.33$; $\alpha = 0.88$) and post-hurricane eudaimonic media use (8 total items; $M = 3.42$, $SD = 1.34$; $\alpha = 0.96$). Higher scores were associated with greater media use for the respective purposes.

The frequency of self-transcendent media use was measured with three items: how often respondents encountered inspiring content in television/streaming services, film, and social media/other internet outlets since the hurricane [The more colloquial term "inspiring" was used for these items for the sake of clarity among participants; scholars in this area routinely use the terms "self-transcendent" and "inspirational" interchangeably; e.g., Oliver et al., 2018, 2021]. Responses were recorded on a 5-point scale (1 = *Never*; 5 = *Always*) and summed to yield a single factor, with higher scores reflecting greater post-hurricane inspiring media use ($M = 6.83$, $SD = 2.86$; $\alpha = 0.73$).

Post-traumatic stress disorder symptoms

Current post-traumatic stress symptoms were measured with the 17-item Modified PTSD Symptom Scale (MPSS-SR; Falsetti et al., 1993). Respondents indicated how often during the previous month they had experienced symptoms on a 4-point scale (1 = *Not at all/Only one time*; 4 = *5 or more times a week/Almost always*). Sample items included "Feeling irritable or having fits of anger" and "Having bad dreams or nightmares about the hurricane." As is customary, responses were summed ($M = 30.21$, $SD = 12.30$; range = 4–68, $\alpha = 0.94$), with higher scores indicating more PTSS.

Post-traumatic growth

The 21-item Posttraumatic Growth Inventory (Tedeschi and Calhoun, 1996) was used to measure PTG. Each item noted a possible life change that had occurred as a result of the hurricane; sample items included "I can better appreciate each day" and "I discovered that I am stronger than I thought I was." Respondents rated the extent to which each change had occurred on a 6-point scale (0 = *I did not experience this change as a result of my crisis*; 5 = *I experienced this change to a very great degree as a result of my crisis*). As is customary, responses were summed for each item ($M = 77.64$, $SD = 26.74$, *range* = 9–126, $\alpha = 0.96$), with higher scores reflected greater PTG.

Additional measures

To interrogate RQ2, we explored the impact of various hurricane-related factors on hedonic, eudaimonic, and self-transcendent media narrative use, while controlling for factors identified in the previous literature as being associated with that use (see Oliver et al., 2018; Raney et al., 2018; Eden et al., 2020; Janicke-Bowles et al., 2021b).

Hurricane-related factors

In addition to the following factors, the number of hurricane-related stressors experienced (see above) was included in the RQ2 analysis.

Peritraumatic emotional responses

Negative emotions (e.g., fear, anger, sadness) during and in the immediate aftermath of trauma are risk factors for maladaptive outcomes (Ozer et al., 2003; Ai et al., 2005, 2011a; Craparo et al., 2014). However, positive emotions can also arise during trauma (e.g., gratitude toward relief workers, compassion for others), which may trigger an upward spiral of human flourishing and improved wellbeing (Fredrickson and Joiner, 2002). Immediate emotional reactions to the hurricanes were measured with the 12-item Types of Peritraumatic Emotional Responses checklist (Lemieux et al., 2010). Respondents indicated on a 4-point scale (1 = *Not a lot*; 4 = *A great deal*) the extent to which they experienced five negative (e.g., horror/shock, anger/hatred) and seven positive (e.g., admiration for the first responders, appreciation for the safety of myself) emotional reactions during the month following the storm. Responses were averaged for each participant, yielding two factors: negative (five items; $M = 2.76$, $SD = 0.81$, $\alpha = 0.84$) and positive (seven items; $M = 3.34$, $SD = 0.56$, $\alpha = 0.79$) emotional responses.

Days since hurricane

Studies show that PTG (e.g., Dekel et al., 2012) and PTSS (e.g., O'Donnell et al., 2007) can intensify over the months following a traumatic event. Furthermore, in order to reach a sufficient number of eligible respondents, data collection took a number of months to complete. Therefore, the number of days since the hurricane—that is, the difference between the date that Hurricane Michael made landfall (October 10, 2018) and the date of data collection—was calculated. The average days between the hurricane experienced and each survey response was 221.31 ($SD = 50.16$, range = 196–434).

Media-Related controls

Demographics

The demographic characteristics analyzed included gender (dichotomized for analyses, with responses from $n = 6$ non-binary respondents omitted from gender analyses due to insufficient sample size) and age.

Trait hedonic and eudaimonic media use motivations

To examine general inclinations for seeking out different type of media experiences, Oliver and Raney's (2011) 12-item motivations for entertainment consumption scale was utilized. Six items measured hedonic motivations (e.g., "It is important for me to have fun when watching a movie"), and six measured eudaimonic motivations (e.g., "I like movies that challenge my way of seeing the world"), using a 7-point Likert scale. Responses were averaged, with higher scores reflecting greater general motivation to seek out hedonic ($M = 5.47$, $SD = 1.12$; $\alpha = 0.88$) and eudaimonic ($M = 4.61$, $SD = 1.41$; $\alpha = 0.94$) media experiences.

Gratitude

The extent to which respondents were prone to feel and experience gratitude in their daily lives was measured using a 6-item scale, developed by McCullough et al. (2002); responses were indicated on a 7-point Likert scale. Sample items included "I have so much in life to be thankful for" and "I am grateful to a wide variety of people." As is customary, responses to the items were summed to create a single factor ($M = 37.33$, $SD = 5.69$; $\alpha = 0.83$), with higher scores indicating greater trait gratitude.

Hope

The 12-item Hope Scale (Snyder et al., 1996) was used to gauge dispositional hope. A sample item was "Even when others get discouraged, I know I can find a way to solve problems." The scale contained eight items; the four filler items were not included in the survey due to concerns over participant fatigue. Participants reported how they had felt about each statement during the past month on a 5-point scale (1 = *Definitely false*, 5 = *Definitely true*). Responses to the items were averaged to yield a single measure ($M = 3.94$, $SD = 0.67$; $\alpha = 0.89$), with higher scores reflecting greater trait hope.

Optimism

Optimism was assessed with the 12-item Life Orientation Test (Scheier and Carver, 1985). Sample items included "I always look on the bright side of things" and "In uncertain times, I usually expect the best." Using a 5-point Likert scale, respondents stated the extent to which they agreed with each statement ($M = 3.67$, $SD = 0.79$, $\alpha = 0.87$), with higher scores reflecting greater trait optimism.

Spiritual support

This factor was measured with the 12-item Perceived Spiritual Support Scale (Ai et al., 2005). A sample item was "My religious or spiritual faith has provided me with comfort in uncertainty." Respondents indicated their agreement with each item on a 4-point Likert scale. Responses to the items were averaged, with higher scores reflecting more perceived spiritual support following Hurricane Michael ($M = 4.55$, $SD = 1.16$; $\alpha = 0.99$).

Statistical analysis

Using SPSS version 25, we first conducted hierarchical regression procedures to judge the similarity in predictors of PTSS and PTG between Hurricane Michael and past research. In both analyses, the first step introduced demographic and psychographic factors; the second step introduced hurricane-related factors. We used a similar approach to examine predictors of post-hurricane hedonic, eudaimonic, and self-transcendent media use: three hierarchical regression procedures, introducing demographic and psychographic variables in Step 1 and hurricane-related factors in Step 2. We used IBM SPSS AMOS Version 28 to conduct a serial mediation analysis of our conceptual model. A power analysis of the conceptual model showed a power of 0.71 to test the RMSEA fit indicator using a null RMSEA = 0.05 and an alternate RMSEA = 0.08. The power was 0.98 when the alternate RMSEA = 0.10 was employed (Preacher and Coffman, 2006).

TABLE 1 Hierarchical regression on post-traumatic stress and post-traumatic growth.

	PTSS β	PTG β
Step 1		
Gender	−0.08^	−0.09*
Age	−0.04	−0.16***
Gratitude	−0.06	0.11*
Hope	0.04	0.08
Optimism	−0.33***	0.08
Perceived spiritual support	0.05	0.20***
R^2	0.12***	0.14***
Step 2		
Days since hurricane	−0.03	0.11*
Hurricane stressors	0.22***	0.18***
Peritraumatic negative emotions	0.46***	0.13**
Peritraumatic positive emotions	0.09*	0.25***
ΔR^2	0.45***	0.26***

For this analysis, Gender (Female = 0, Male = 1) was coded as binary. ^p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001.

Results

Preliminary analysis

In an attempt to judge the similarity between Hurricane Michael outcomes and past research, we first sought to get a broader picture of the variables associated with PTSS and PTG. In addition to the event-related factors discussed above, several demographic and psychographic characteristics have been shown to predict one of or both post-traumatic outcomes. Specifically, identifying as a woman and being a younger age have routinely been positively correlated with increased PTSS. In contrast, personality traits associated with positive character strengths (e.g., hope, gratitude, optimism; see Peterson and Seligman, 2004), as well as social and spiritual support (Ai et al., 2005, 2011b, 2013), have been found to buffer against PTSS, while also promoting PTG following disasters. Thus, we employed hierarchical regression, with gender, age, and the trait variables of gratitude, hope, optimism, and perceived spiritual support entered on the first step. Step 2 included the number of days since the hurricane, hurricane-related stressors, and peritraumatic negative and positive emotions. The results of these analyses can be found in Table 1.

For PTSS, Step 1 of the analysis ($F_{6,446} = 10.19$, $p < 0.001$) revealed that higher scores were associated with significantly lower levels of optimism. There was also a tendency for women to report higher scores than men, though this only approached statistical significance. The second step showed that higher levels of PTSS was predicted by greater hurricane stressors and

with higher levels of both peritraumatic negative and positive emotions, though the association was substantially higher for negative than positive emotions ($F_{4,442} = 65.75$, $p < 0.001$).

The first step in the analysis of PTG showed that higher levels of gratitude and spirituality were positive predictors, whereas age was a negative predictor. Women reported greater PTG than did men ($F_{6,446} = 11.91$, $p < 0.001$). Step 2 showed that more days since the hurricane, higher levels of hurricane stressors, and both positive and negative peritraumatic emotions were positively associated with PTG. Furthermore, peritraumatic positive emotions were a substantially stronger predictor than were negative emotions ($F_{4,442} = 20.99$, $p < 0.001$). As anticipated, these findings mirror those reported in previous research examining PTSS and PTG following natural disasters (e.g., Brewin et al., 2000; Ozer et al., 2003; Prati and Pietrantoni, 2009).

Stress, coping, media use, and PTSS/PTG

Informed by existing theory and past research, our conceptual model (see Figure 1) proposed relationships between trauma-related stress and PTSS/PTG, mediated by coping strategies and media use as a coping tool. An analysis of the factor structures in the data indicated that one change to the conceptual model needed to be made before testing. As reported in the Methods section, principle component analysis of the coping strategy data suggested that a three-factor solution (i.e., avoidant, approach, and support seeking strategies) was superior to the anticipated two-factor solution (see Figure 1).

After making this adjustment to the model, we conducted a serial mediation analysis to explore RQ1. Prior to running the model, we first examined missing data and used expectation maximization imputation on missing values. This analysis of missing data indicated that the data were missing at random, Little's MCAR $\chi^2_{(44)} = 50.08$ $p = 0.245$. Additionally, to control for gender, age, and days since the hurricane, we regressed each variable on these controls, saving the unstandardized residuals for each one, with these residuals then employed as the variables in the model (see Gunther et al., 2006).

The initial model showed poor model fit $\chi^2_{(11)} = 476.88$, $p < 0.001$; RMSEA = 0.29[90% CI: 0.27, 0.32]; CFI = 0.60; SRMR = 0.15. Consequently, we referred to modification indices that were reasonably plausible, adding each suggested path one at a time. The resultant model showed strong fit, $\chi^2_{(6)} = 10.02$, $p = 0.12$; RMSEA = 0.04 [90% CI: 0.00, 0.08]; CFI = 1.00; SRMR = 0.02.

Figure 2 shows the final model, with non-significant paths illustrated *via* grayed, dotted paths. This figure shows that hurricane stressors were positively associated with all three types of coping. Stressors were also directly and positively associated with both PTSS and PTG. Approach coping and support-seeking coping were directly and positively associated with PTG, whereas avoidant coping was directly and positively associated with PTSS.

In terms of the media variables, avoidant coping was positively associated with both post-hurricane eudaimonic and hedonic media use. In contrast, approach coping was positively associated with self-transcendent media use, with this use, in turn, positively associated with PTG. Using bootstrapping with 2,000 samples and bias-corrected confidence intervals, we found that there was a significant, albeit weak, indirect positive association between stressors and PTG *via* approach coping and self-transcendent media use, $B = 0.002$, $SE = 0.001$, $p < 0.01$.

Post-hurricane media use

Finally, to examine how trauma-related variables were associated with post-hurricane media use (RQ2), we conducted a series of hierarchical regression analyses, using two predetermined steps. The first step included factors previously found to been associated with media use: demographic traits of gender and age, trait-level motivations for eudaimonic and hedonic media use, and the personality factors of gratitude, hope, optimism, and perceived spiritual support. The second step involved variables pertaining to the hurricane and post-hurricane responses. Table 2 provides the findings of these analyses.

For post-hurricane hedonic media, Step 1 ($F_{8,442} = 1.95$, $p = 0.05$) of the analysis showed that greater hedonic media use was positively associated with higher levels of trait hedonic motivations and, to a lesser extent, by younger ages. Step 2 ($F_{4,438} = 2.98$, $p < 0.05$) showed that hedonic media use was marginally negatively associated with hurricane-related stressors but was positively associated with peritraumatic negative emotions.

Post-hurricane eudaimonic media use was predicted by greater perceived spiritual support and trait eudaimonic motivations, and marginally so with trait hedonic motivations (Step 1: $F_{8,439} = 3.55$, $p < 0.001$). Eudaimonic media use was also positively associated with the number of days since the hurricane, though no other hurricane-related variables were significant (Step 2: $F_{4,435} = 1.87$, $p = 0.114$).

Finally, post-hurricane self-transcendent media use was positively associated with higher trait eudaimonic motivations and (marginally) with younger ages (Step 1: $F_{8,418} = 7.23$, $p < 0.001$). The only hurricane-related predictor post-hurricane self-transcendent media use was a longer number of days since the hurricane (Step 2: $F_{4,414} = 1.63$, $p = 0.166$).

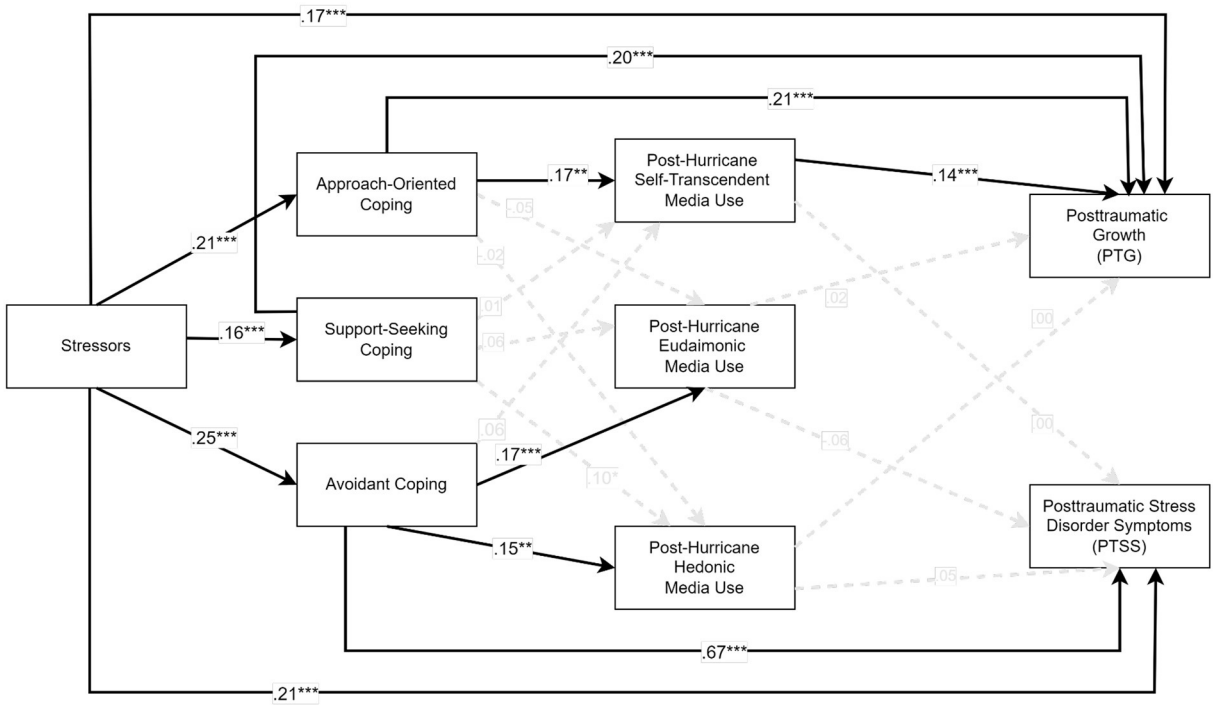

FIGURE 2
Final model. This model was associated with a model fit of $\chi^2_{(6)} = 10.02$, $p = 0.12$; RMSEA = 0.04 [90% CI: 0.00, 0.08]; CFI = 1.00; SRMR = 0.02. Path coefficients are standardized. $^{**}p < 0.01$, $^{***}p < 0.001$.

Discussion

The current project aimed to add to the growing evidence regarding the effects of media experiences on wellbeing. To our knowledge, this exploratory project is the first to investigate the effects of media use on post-traumatic stress symptoms (PTSS) and post-traumatic growth (PTG) in the months following a natural disaster. Survivors ($n = 491$) of deadly Hurricane Michael that struck the southeastern United States in October 2018 were interviewed via an online survey.

Numerous studies have previously explored PTG and PTSS following natural disasters (see Brewin et al., 2000; Ozer et al., 2003; Prati and Pietrantoni, 2009). The current findings echo past results. With regard to PTG, gender (being a woman), age (being younger), trait gratitude, perceived spiritual support, time since the hurricane, hurricane-related stressors, and both positive and negative peritraumatic emotions all predicted the outcome. In contrast, none of the demographic or other individual differences variables positively predicted PTSS (though women trended toward more symptoms); trait optimism negatively predicted PTSS. Hurricane-related stressors and peritraumatic emotions positively predicted stress symptomatology. Thus, as has been observed with previous natural disasters, evidence of both complex mental-health outcomes emerged in survivors of Hurricane Michael and did so based on similar factors as past traumatic events. As in previous studies, the two outcomes were significantly correlated as well ($r = 0.18$, $p < 0.01$). Furthermore, the similarity in contributory variables lends further credence to the position, discussed in the review of literature, that both PTSS and PTG are borne out of the struggle to overcome adversity (Linley and Joseph, 2004; Joseph and Linley, 2005). These findings contribute additional evidence to the understanding of these phenomena among clinical and trauma psychologists. Although important, these findings are secondary to the current study.

The primary question (RQ1) we sought to address was the extent to which hedonic, eudaimonic, and self-transcendent media narrative use was associated with negative (i.e., PTSS) and positive (i.e., PTG) wellbeing adjustments among survivors of Hurricane Michael. Based on existing theory and empirical findings, we proposed a model (see Figure 1) in which hedonic, eudaimonic, and self-transcendent media use were conceptualized as tools associated with various strategies used to cope with stress in the months following Hurricane Michael, with potential impacts on PTSS and PTG. To address RQ1, a test of the model revealed that hurricane-related stressors were positively associated with the use of avoidance-oriented coping strategies (e.g., denial, behavioral disengagement); such strategies reflect a withdrawal from or a denying of the trauma-induced stress. In turn, persons using avoidance coping were

TABLE 2 Hierarchical regression on post-hurricane media use.

	Post-hurricane hedonic media use	Post-hurricane eudaimonic media use	Post-hurricane self-transcendent media use
	β	β	β
Step 1			
Gender	0.05	0.08	−0.05
Age	−0.08^	−0.06	−0.08^
Gratitude	0.05	−0.04	0.06
Hope	−0.01	−0.03	0.04
Optimism	−0.04	−0.03	0.07
Perceived spiritual support	0.02	0.13**	0.02
Eudaimonic media motivations	0.08	0.18***	0.29***
Hedonic media motivations	0.12*	0.09^	−0.04
R^2	0.03^	0.06***	0.12***
Step 2			
Days since hurricane	0.06	0.11*	0.10*
Hurricane stressors	−0.09^	−0.08	0.04
Peritraumatic negative emotions	0.17**	0.04	−0.00
Peritraumatic positive emotions	−0.05	−0.02	0.04
Δ R^2	0.03*	0.02	0.01

For this analysis, Gender (Female = 0, Male = 1) was coded as binary. ^$p < 0.10$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

more likely to use hedonic and eudaimonic media. This finding echoes the decades of media research on the use of media as an escape, diversion, or distraction in general (e.g., Blumler, 1979; Henning and Vorderer, 2001) and in specific response to stress (e.g., Zillmann, 1988), though admittedly most studies in that tradition have examined situational or short-term media use. These findings seem to point to a persistence to those effects, as an ongoing, months-long stressful situation appears to have chronically triggered media use for the sake of escape and diversion. The fact that hedonic media use became a tool for avoidant coping is quite understandable, as such experiences are more commonly associated with escapist media use motivations. The fact that more emotionally and cognitively taxing eudaimonic media use also increased with avoidance coping may seem odd at first glance. However, given Zillmann's (1988) arguments for and evidence of the mood-altering benefits of highly absorbing content, it stands to reason that the increased cognitive investment in eudaimonic fare may also serve as a way for one to avoid hurricane-related stress (so long as the content itself does not re-traumatize the audience member). Recent work on the benefits of eudaimonic media use for recovery and vitality also support these findings (e.g., Rieger et al., 2014, 2017).

The use of avoidance coping strategies was directly and positively associated with greater PTSS, similar to past studies (e.g., Pina et al., 2008; Sprang and LaJoie, 2009). However, media use was not the path through which this effect was observed. That is, increased hedonic and eudaimonic media use as a tool for coping with hurricane-related stress did not facilitate PTSS. We interpret this finding as underscoring and highlighting the beneficial (or, at a minimum, non-detrimental) strategic use of media to address (ongoing) situational needs.

Perhaps unsurprisingly, greater media use as a tool for avoiding stressors was unrelated to PTG. As a process of struggling through adversity, PTG requires and reflects psychological change with regard to an appreciation for life and new possibilities therein, spirituality, personal development, and relationships with others (Tedeschi and Calhoun, 1996). Avoiding or denying the struggle cannot lead to growth. This is not to suggest that using media as a tool for avoiding stress cannot be beneficial, especially in the short term (e.g., Zillmann, 1988). However, at least in the case of Hurricane Michael survivors, those benefits do not appear to lead to long-term psychological growth.

The model test further revealed that hurricane-related stressors led to support-seeking coping strategies (i.e., pursing emotional, social, informational support), which were directly related to increased PTG. Curiously, though, support-seeking coping was not related to any form of media use. In retrospect, the most likely explanation for this is the measurement of media use, which exclusively probed use for entertainment purposes. Of course, decades of research evidences how entertainment narrative worlds and the characters who inhabit them can serve as (para)social support for individuals (for a recent meta-analysis, see Tukachinsky et al., 2020), though such a media function—at least as a tool for support seeking—is not reflected in these data. On the other hand, previous studies have reported how survivors turn to news and social media as a coping mechanism during and in the days immediately following of natural disasters (e.g., Perez-Lugo, 2004; Tandoc and Takahashi, 2017). Whereas, post-disaster information seeking was not a focus of the current study, future projects should consider exploring the long-term effects of doing so on wellbeing.

Finally with regard to RQ1, hurricane-related stressors were positively associated with approach-oriented coping strategies (i.e., actively engaging with the stressors). This finding is similar to results from other studies of trauma survivors (e.g., Scrignaro et al., 2011; Akbar, 2014). In turn, persons using approach coping strategies were more likely to use self-transcendent media

(only). Given that some scholars consider self-transcendent media experiences to be a particular type of eudaimonic ones (e.g., Oliver et al., 2018), it is perhaps unexpected that the approach coping-eudaimonic media use path was not also significant. No explanation is readily available for this finding.

Further, increased use of self-transcendent media as a tool for approach coping was positively associated with increased PTG. We consider this finding to be of considerable importance. The observation is in line with experimental studies that have identified short-term benefits of self-transcendent media experiences (for a recent overview, see Janicke-Bowles et al., 2021a). But more importantly, it provides some of the first empirical evidence of the longer-term beneficial effects of those experiences. In so doing, the findings offer support for the relationships between media use and growth recently proposed in the recovery and resilience in entertainment use model (R^2EM; Reinecke and Rieger, 2021), which argues that individuals seek out entertainment for psychological growth (connected to eudaimonic experiences) that aid in short-term recovery (e.g., relaxation, mastery), ultimately leading to the development of resilience-related factors (see also Hartmann, 2013).

The specific relationship between increased self-transcendent media experiences and increased PTG makes strong conceptual sense. Oliver et al. (2018) differentiated self-transcendent media experiences from other eudaimonic ones as "involving one or more of the following elements: interconnectedness, human virtue and altruistic motivations, and spirituality" (p. 384). As noted above, PTG reflects psychological change with regard to spirituality, personal development, and relationships with others (Tedeschi and Calhoun, 1996). Thus, the use of the former as a tool to bring about the latter seems entirely reasonable. Of course, given the cross-sectional nature of our data, causation cannot be inferred. We acknowledge that selective exposure to self-transcendent media might be an outcome of (rather than a catalyst for) growth; in fact, the relationship may be reciprocal, as proposed by the reinforcing spirals model (Slater, 2007, 2015) and the broaden-and-build theory (Fredrickson and Joiner, 2002). Regardless, observing evidence of longer-term effects from such experiences on positive mental-health and wellbeing outcomes is promising for content providers, clinicians, and audience members alike.

In addition to these relationships, we also sought to identify the factors most associated with hedonic, eudaimonic, and self-transcendent media narrative use among survivors of Hurricane Michael (RQ2). Interestingly, many of the factors previously found to predict media use in general were not observed herein. As one would expect, post-hurricane hedonic media use was significantly predicted by hedonic media use motivations; similarly, post-hurricane eudaimonic and self-transcendent media use was predicted by eudaimonic media use motivations. However, none of the demographic variables or personality traits measured significantly predicted any sort of post-hurricane media use (save for spiritual support predicting eudaimonic use). We think that this may be an important finding, perhaps highlighting how trauma impacts individuals in previously unobserved ways. For example, what scholars may think of as consistent patterns of exposure, particularly for non-hedonic media (e.g., persons higher in optimism and gratitude are more likely to seek out eudaimonic fare, persons higher in spirituality are more likely to seek out self-transcendent media), may become less stable following a traumatic life event. Future studies are encouraged to explore this phenomenon.

Furthermore, hurricane-related factors also played little role in post-hurricane media use. After controlling for the influence of demographics and personality traits, we found that negative emotions experienced during and in the immediate aftermath of the storm predicted hedonic media use. Also, more time since the hurricane predicted greater eudaimonic and self-transcendent media use, though the added variance explained was quite minimal. In light of the results of the model testing, these findings are perhaps not so unexpected, as the impact of the event-specific factors appear to have the most direct effect on coping strategies, which then influence the use of specific types of media.

Taken as a whole, the results of this exploratory study offer initial evidence in support of the use of media narratives as a means toward post-traumatic growth but place doubt on its use as a buffer against post-traumatic stress, at least in the months following a traumatic natural disaster. Eden et al. (2020) offered a more hopeful—though still complicated—picture of the latter in a recent study of media use among college students during the COVID-19 pandemic. Such work further offers support to emerging theories and models of the salutary effects of media use (e.g., Oliver et al., 2021; Reinecke and Rieger, 2021), in particular over time and in response to life stressors.

Despite these contributions, the current study has its limitations. First, as a contribution to a special topic issue dedicated to narrative types, we admit that the current study offers limited insight into the role of specific narratives, narratives types, or narrative devices on post-traumatic outcomes. As previously discussed, the terms "hedonic," "eudaimonic," and "self-transcendent" refer to distinct media experiences. Narratives within each category, thus, share some similarities: hedonic narrative are light-hearted, fun, and easily processed; eudaimonic narratives are relatively more serious, complex, evoking mixed affect, promoting contemplation, and requiring more taxing cognitive effort; self-transcendent narrative feature moral beauty and human virtues, promote connectedness, and motivate altruistic and spiritual thoughts and actions. Thus, the findings paint with broad brushstrokes the impact of certain types of media use—which surely included related narratives—on post-traumatic outcomes. But, admittedly, the narratives within each category can also be highly varied in terms of content and structure;

the present findings cannot directly speak to that variability. Broadly speaking, hedonic and eudaimonic narratives may have provided survivors of Hurricane Michael a significant outlet to disengage or be distracted from the aftermath of the storm. Similarly, self-transcendent narratives may have provided survivors with a means to actively process the trauma, leading to psychological growth. Nevertheless, these data cannot speak to the specific narratives that served these purposes more or less effectively. Future studies are needed to explore these issues.

A second limitation relates to the media measures. Use of all three media types was gathered in terms of "frequency since the hurricane." However, self-transcendent use was expressed as "how often," whereas hedonic and eudaimonic use was expressed as a change in frequency (i.e., increase/decrease). The measure of self-transcendent media also captured social media use, whereas the measures of hedonic and eudaimonic use did not. Future studies should consider developing scales to measure all three types of media experiences in the same manner. On a related noted, we also acknowledge that the observed hedonic and eudaimonic media use average values indicated a slight decrease in both types of media use following the hurricane. Given the continuous nature of the variables, the relative importance of this fact in a between-subjects analysis was minimal. However, future studies should explore whether this finding is replicated following other natural disasters.

Third, as with any cross-sectional survey, the data are correlational in nature; causal inferences should be avoided. Further, PTG and PTSS—and in fact all the measures—were self-reported; drawing inferences about actual diagnoses should also be avoided. Fourth, despite strong support from local agencies, we were unable to recruit a representatively diverse sample, thus limiting our demographic analyses. Finally, despite measuring a host of factors previously found to be related to the two outcome variables, the final models (especially for PTG) explained less variance than anticipated; other unmeasured influences—perhaps related to media use—need examination.

In conclusion, mental health outcomes like PTG and PTSS are incredibly complex and multifaceted. Nevertheless, it should be taken as encouraging from a media-psychological and public-health perspective that self-transcendent media use might serve a community-wide, across-the-age-range benefit to trauma sufferers. For this reason, experiences with media that inspire and help us transcend our self must continue to receive scholarly attention. Admittedly, the amount of variance explained by media factors in the current study is relatively small. But, in truth, this is the case in most studies of media use and broad psychological and social phenomena (e.g., Valkenburg and Peter, 2013). Much more work is needed for these effects—and the psychological mechanisms and processes facilitating them—to be more fully understood. Our hope is that this study motivates others to join these efforts.

Data availability statement

The dataset presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found at: https://osf.io/snwp2/?view_only=97d876ae7d294708b5ee6da718069768.

Ethics statement

The studies involving human participants were reviewed and approved by Office for Human Subjects Protection, Florida 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

AR and AA designed the study and oversaw data collection. MO performed the statistical analysis. All authors contributed to writing the manuscript revision, read, and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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