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Do Gender Conformity Pressure and Occupational Knowledge Influence Stereotypical Occupation Preferences in Middle Childhood?

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This study investigates how perceived occupational knowledge, gender stereotypes, and pressure to conform to gender norms influence children's career interests in a sample of fourth and fifth grade children (n = 178, M_{age} = 9.78 years, 46.6% girls). Children were interested in and perceived that they knew more about own gender dominated occupations, compared to other gender dominated occupations. Gender moderated the effect of gender conformity pressure and gender stereotypes on interest in female-dominated but not male-dominated occupations. Boys were less interested in female-dominated occupations when they felt pressure to conform to gender norms and held more stereotypical beliefs about those occupations. These results suggest that perceived occupational knowledge is an important, yet overlooked, factor in understanding gender differences in children's occupational interests.

Keywords: children, gender differences, gender roles, stereotypes, occupational interest

INTRODUCTION

Middle childhood (7–12 years old) is a unique time to explore how gender influences occupational interests. Elementary aged children hold less rigid gendered attitudes than younger children in some domains, yet their behaviors and interests tend to be gender-typed (Blakemore, 2003). Occupational gender stereotypes from the larger culture impact children's occupational interest, which remain relatively stable from early adolescence to middle adulthood (Low et al., 2005). Thus, gender differences in children's early occupational interests may have a lasting impact. This study examines several socialization factors associated with the emergence of these gender differences, including perceived pressure from parents, teachers, and peers to conform to gender role norms, perceived knowledge about occupations, and gender stereotypes, and further extends previous research that has focused primarily on middle class samples to children attending lower SES (socioeconomic status) schools.

Gender socialization and stereotypes are central to three major theoretical perspectives of the development of career interests. Gottfredson. (1981) circumscription and compromise theory proposes that social experiences shape children's perceptions of gender-typical behavior and roles, and as children grow, they increasingly rule out occupations that are atypical for their gender. Middle childhood is a critical time point as older elementary aged children start to consider the social desirability of occupations for their own gender. Additionally, social cognitive career theory (Lent et al., 1994) and the expectancy value theory (Eccles et al., 1983) point to gender socialization and related gender stereotypes to explain gender differences in academic and

occupational interests, proposing that gender socialization and stereotypes affect interests through academic or career self-concept and efficacy.

The current study extends this work and considers that knowledge of careers develops outside the influence of key socializing agents and is gendered in other ways. Gender as a social category is salient to children and affects their attention to people in their world, even when there is little pressure to conform to gender norms. According to social role theory (Eagly, 1987) and social cognitive theory of gender development (Bussey and Bandura, 1999), youth naturally attend to same-gender role models, supporting the idea that gendered knowledge of careers may emerge independent of social pressure from others. Gender differences in occupation interests may emerge due to many factors, some of which are captured by gender socialization measures and some that occur outside of the influence of salient social agents. In this study, we examine if felt pressure to conform to gender norms and perceived knowledge contribute to explaining gender differences in career interests in addition to more frequently studied constructs, such as gender stereotypes. Additionally, because socioeconomic status is related to children's occupational aspirations (Weinger, 2000), and lower SES groups are less represented in previous research in this area, this study focused on children attending lower SES schools.

Gender Socialization

Gender socialization, or the messages an individual receives about what behaviors and roles are culturally appropriate for one's gender, is a powerful influence on career choice (Eccles, 1987; Lent et al., 1994). Early socialization about what occupations are considered appropriate for one's gender may be especially impactful on later interest (e.g., Antecol and Cobb-Clark, 2013). In the current study, gender socialization was conceptualized as children's felt pressure to conform to gender norms. Although there is a host of empirical evidence investigating the impact that felt pressure to conform to gender norms has on children's educational (Vantieghem et al., 2014) and psychosocial outcomes (Corby et al., 2007; Masters et al., 2020), less work has examined how felt pressure to conform to gender norms impacts children's occupational interests. It should be noted that girls often report feeling less pressure to conform to gender norms than boys (Egan and Perry, 2001; Masters et al., 2020), suggesting that there may be differences between boys and girls with respect to the degree to which social pressure plays a role in their career interests.

In line with social cognitive theory (Bussey and Bandura, 1999), this study examines parents, teachers, and peers as sources of gender socialization (Rice et al., 2013). Adults (Sullivan et al., 2018) and peers (Pascoe, 2012; Heinze and Horn, 2014) respond more negatively to children who engage in gender-atypical activities than those who engage in gender typical activities. Children under pressure to adhere to gender roles may not explore a wide range of options when deciding what interests to pursue (Bem, 1981; Bussey and Bandura, 1999) and in an effort to avoid negative evaluations from parents, teachers, and peers, may adopt gender typical interests. As such, it was hypothesized

that youth who feel a strong degree of gender conformity pressure would be more interested in own-gender dominated occupations than those who report less gender conformity pressure.

Gender Stereotypes

Despite societal changes in men's and women's roles, gender stereotypes have persisted across the decades (Haines et al., 2016). Gender stereotypes impact the development of career interests in a number of ways, including discouraging people from choosing careers considered incongruous with their gender (Eccles, 2011). In accordance with social role theory (Eagly, 1987), occupational interests are correlated with gender stereotyping and work-force gender-segregation, such that boys and girls are more interested in careers they believe are predominately held by their own gender (Hayes et al., 2018). Gender differences in children's occupational interests parallel the adult work world, suggesting that the gender composition of occupations has significant intergenerational effects. In a cyclical manner, as occupational demographics change historically, gender stereotypes should evolve (Koenig and Eagly, 2014). Given that boys are more beholden to strict gender stereotypes than girls (Pauletti et al., 2017), it is important to consider the role that gender stereotypes play in gender differentiated career interests.

Occupational Knowledge

Occupational knowledge is the understanding of information about careers, such as the physical and mental requirements, time, or status (Schmitt-Wilson and Welsh, 2012). Children's occupational preferences are linked to fields in which they feel knowledgeable (Rohlfing et al., 2012; Schmitt-Wilson and Welsh, 2012; Hartung, 2015). The *perception* of occupational knowledge or the amount of knowledge children think they have (Rohlfing et al., 2012), and their *actual* knowledge (Watson and McMahon, 2005) are two distinct factors. Boys tend to think they have more knowledge of masculine occupations than girls (and vice versa), even though boys and girls might be quite comparable in their actual knowledge (Miller and Hayward, 2006). There are gender differences in perceived occupational knowledge, but not in actual knowledge (Ferrari et al., 2015), suggesting that gender stereotypes influence self-perceived knowledge. We focused on perceived occupational knowledge as a factor for understanding gender differences, hypothesizing that children's perception of having more knowledge about same-than other-gender dominated occupations would be positively related to their interest in same-gender occupations. Both perceived knowledge and interests are impacted by gender stereotypes embedded in the larger culture.

Socioeconomic Status

This study investigates gendered career interests within the parameters of perceived occupational knowledge, occupational gender stereotypes, and gender conformity pressure among children in grades 4 and 5. An additional objective of this research is to expand the study of career interests to children in lower socioeconomic status (SES) schools who are less often represented in this area of research. Children from lower SES households receive less information about work (Doyle, 2011),

perceive more barriers towards career attainment (Weinger, 2000), and aspire to less prestigious jobs (Howard and Walsh, 2011) than students from middle to high SES households. Youth from lower SES households have been included in recent work regarding felt pressure to conform to gender norms (Cook et al., 2019; Shroeder and Liben, 2020) but have been less represented in work examining gendered occupational stereotypes and interests (see Patterson, 2012, for an exception). Accordingly, all participants in the study attended Title 1 schools.

Research Aims and Hypotheses

The first aim of this study is to examine the association between perceived occupational knowledge and occupational interest to determine whether our lower SES sample replicates the findings from past research showing that perceived occupational knowledge predicts occupational interest (Rohlgfing et al., 2012). The relationship between occupational knowledge and interest has primarily been investigated in European samples (Rohlgfing et al., 2012). Our work expands upon current literature by examining this effect in a sample of lower SES students residing in the U.S.

The second aim is to examine gender differences in perceived occupational knowledge, occupational interest, and felt pressure to conform to gender norms. It was hypothesized that girls would have greater perceived occupational knowledge and interest in female-dominated occupations, compared to boys, and there would be comparable findings for boys for male-dominated occupations. In line with prior work, we expected that boys would experience gender conformity pressure to a greater degree than girls (Egan and Perry, 2001; Masters et al., 2020).

Most importantly the third aim is to examine the combined effects of perceived occupational knowledge, felt pressure to conform, and gender stereotypes on occupation interests. Analyses tested the hypothesis that perceived knowledge may capture unique variance relative to the other measures. These analyses also tested for gender differences in the effects of the three factors.

METHODS

Participants

Participants were 178 fourth and fifth grade students (53.4% boys, 53.9% fourth graders; M_{age} = 9.78 years, SD = 0.717; range 9–11) recruited from four local schools and after-school programs in the U.S. Southeast. All elementary schools were Title 1 schools, with a range of 55–69% of students qualifying for free/reduced lunch. The ethnic makeup of the final sample was 65.2% White, 23% Black, 2.2% Latinx/Hispanic, 3.4% Native American, and 5.6% were another race. This is similar to the racial demographics of the participating schools.

The initial response rate was 61.2% of the 374 potential students. Of the 229 parent consent forms returned, 211 (92.3%) gave consent. From this group 178 (77.7%) completed surveys. Four children declined to participate, and the rest were absent the day the survey was administered. An a priori power analysis (G*Power; Faul et al., 2007) was conducted with α = 0.05 and power set to 0.80. To detect a small to medium effect size

(0.15) a sample of 130 participants was needed, and the actual sample size was larger.

Procedure

Data collection occurred during the fall semester of school. Surveys were administered to all assenting students during school hours. Participants were informed that participation is optional, their responses would be kept confidential, and participation could be terminated at any time during the study, for any reason and without penalty. After reviewing the assent statement, students completed the paper survey on their own. Research staff were available to address questions and ensure that students stayed on task and did not share their answers. Teachers remained in the room during the survey as required by school district policy. However, they were not involved in the administration of the survey and were generally sitting at their desks away from students.

Measures

Knowledge, interest, and stereotype questions were asked for four male-dominated (Construction worker, Fire fighter, Engineer, Computer Programmer) and four female-dominated (Elementary School Teacher, Nurse, Librarian, Hair Stylist) occupations. Male-dominated and female-dominated occupations were selected based on current data from the Bureau of Labor Statistics (2016). Similar to Fulcher (2011), there was very little difference between the combined four-male and combined four-female occupations on salary and required education. Participants had to have answered 75% of the items on a scale to receive a score for that scale.

Occupational interest. Children were asked: "How much would you like to be a(n) (occupation)?" Participants responded using a 6-point scale (1 = not at all to 6 = very much). Summary scores of participants' interests in masculine and feminine occupations were computed by averaging responses to the four items of each type, with higher scores indicating a greater preference for feminine or masculine occupations. This measure was adapted from the Occupations, Activities and Traits - Personal Measure (Liben and Bigler, 2002). In the current study, reliability estimates were moderate for the four feminine items (ω = 0.66; α = 0.66) and the four masculine items (ω = 0.62; α = 0.61). The internal reliability for occupational interest is similar to those in other studies with children who were enrolled in fourth, fifth, or sixth grades (Spence and Hall, 1996; Barth et al., 2018; Pacilli et al., 2019).

Occupational knowledge. The Rohlfing et al. (2012) Occupational Knowledge Scale was adapted to measure perceived occupational knowledge. For each occupation, children rated "About how much do you already know about what people in this job do?" on a 6-point scale (1 = not very much; 6 = a lot). Scores were averaged to create a male-dominated (ω = 0.65; α = 0.66) and a female-dominated scale (ω = 0.69; α = 0.68). Each respective scale was four items each.

Occupation Gender Stereotyping. Similar to Liben and Bigler (2002), participants were asked "who would like to have this job" to evaluate to the extent to which each job is perceived as being gender segregated. Response options ranged

TABLE 1 | Bivariate correlations among measures for boys and girls.

Measure	1	2	3	4	5	6	7
Male-dominated occupations							
Knowledge	—	0.63***	0.05	0.31**	0.12	0.05	0.12
Interest	0.41***	—	−0.08	0.14	0.09	0.03	0.06
Stereotypes	<0.01	−0.13	—	0.12	0.04	0.28**	0.35**
Female-dominated occupations							
Knowledge	0.38**	0.11	−0.05	—	0.39***	−0.14	0.05
Interest	0.18	0.38***	−0.33**	0.27**	—	−0.08	0.14
Stereotypes	0.08	−0.11	0.54***	−0.09	−0.45***	—	0.27*
Felt pressure to conform	0.06	<0.01	−0.25*	−0.02	−0.22*	−0.03	—

Numbers represent the Pearson product moment correlation coefficients between designated scales. Below the main diagonal are results for boys, above are the results for girls.
*p ≤ .05 **p ≤ .01 ***p ≤ .001.

from 1 = only men to 7 = only women. Separate scores were averaged for male-dominated (ω = 0.70; α = 0.68) and female-dominated (ω = 0.70; α = 0.70) occupations, such that higher scores are consistent with the gender stereotype for the occupation. Each respective scale was four items each.

Felt Pressure. The measure was adapted from Patterson. (2012) revision of Egan and Perry. (2001) original scale (Patterson, 2012). In separate items, children rated on a 4-point scale (1 = really would not to 4 = really would) how they anticipated parents, teachers, and peers would respond if they engaged in gender non-conforming behaviors. Children indicated how likely each social agent would respond by 1) teasing, 2) being upset or unhappy, 3) trying to stop the behavior, and 4) trying to get them to act more like others of their own gender (total of 12 items; ω = 0.83; α = 0.83). A sample item from the girl's form is: "If you wanted to do something that boys usually do (but girls don't do), how much do you think other kids would try to stop you?" "Other kids" was replaced by parent and teacher to address the influence of each social Scores were the mean responses across the 12 items. Higher scores indicated greater perceived pressure.

RESULTS

Overview of Analysis

Data were analyzed in three phases that align with our aims. In the first phase, we explored whether there was a correlation between perceived knowledge and interest in occupations. In the second phase, we tested the hypothesis that there will be gender differences in occupational knowledge and interests using a series of independent samples *t*-tests. In the final step, we used hierarchical regressions to understand the combined predictive ability of perceived occupational knowledge, felt pressure, and gender stereotypes on occupational interests. Gender was dummy coded for all analyses (1 = girl; 0 = boy). All data analyses were carried out using SPSS statistical software and PROCESS macro for SPSS (Hayes, 2013).

Relation Between Perceived Knowledge and Interest

Correlations were calculated between perceived knowledge and interest for each set of occupations separately for boys and girls (**Table 1**). As expected, perceived knowledge was positively

correlated with interest for both male- and female-dominated occupations for both boys and girls.

Gender Differences in Interest and Knowledge

It was expected that boys would have a greater interest in, and knowledge of male-dominated occupations compared to girls, and that the opposite would be true for female-dominated occupations. A series of independent samples *t*-tests confirmed the hypothesis (**Table 2**). Boys, compared to the girls, had more interest in and perceived knowledge of male-dominated occupations. Compared to boys, girls had more interest in and knowledge of female-dominated occupations. In addition, boys reported higher conformity pressure levels than girls. There were no gender differences in the stereotype measures.

Hierarchical Regression Analyses Testing Predictors of Occupational Interest

Hierarchical regression models examined the combined predictive ability of perceived occupational knowledge, felt pressure, and gender stereotypes on occupational interests. Additionally, models assessed if these effects differed for boys and girls. Separate models were calculated for interest in male- and female-dominated occupations. In each model, gender was entered in the first step. In the second step, perceived occupational knowledge, felt pressure, and gender stereotyping were entered. The interaction terms between gender and the primary variables were entered in the final step to test for moderation. The PROCESS macro (Hayes, 2013) was used to probe marginal and significant interaction terms. Data were mean centered. **Table 3** presents the standardized regression coefficients for each step of the models.

Predicting interest in female-dominated occupations (**Table 3**). We hypothesized that gender stereotypes and felt pressure would positively predict girls' interest, and negatively predict boys' interest, in female-dominated occupations. In the first step of the model, gender was a significant predictor, $F(1, 157) = 63.71$, $p < 0.001$, $R^2 = 0.29$. As expected, girls had a greater interest in female-dominated occupations than boys.

TABLE 2 | Mean gender differences in measures.

Measure	Boys M(SD)	Girls M(SD)	t	d
Perceived occupational knowledge				
Male-dominated occupations	2.95 (1.25)	2.18 (1.03)	4.49***	0.66
Female-dominated occupations	2.89 (1.34)	3.94 (0.95)	−5.98***	−0.87
Occupational interest				
Male-dominated occupations	2.31 (1.06)	1.65 (0.74)	4.85***	0.71
Female-dominated occupations	1.66 (0.81)	2.88 (1.02)	−8.87***	−1.33
Gender stereotyping				
Male-dominated occupations	5.33 (0.86)	5.18 (0.91)	1.16	—
Female-dominated occupations	5.31 (0.99)	5.36 (0.81)	−0.33	—
Gender socialization				
Felt pressure to conform	2.50 (0.63)	1.95 (0.64)	5.36***	0.85

Higher scores indicate greater perceived occupational knowledge, interest, stereotypes and felt pressure.
***$p \leq .001$.

TABLE 3 | Hierarchical linear regression model predicting occupational interest.

Dependent Variable/Predictors	Step 1	Step 2	Step 3
Female-Dominated Occupations[a]	$R^2 = 0.28^{***}$	$\Delta R^2 = 0.12^{***}$	$\Delta R^2 = 0.08^{***}$
Gender	0.53***	0.43***	−1.22**
Felt pressure	—	−0.01	−0.20*
Knowledge	—	0.28***	0.17*
Gender stereotype	—	−0.18**	−0.33***
Pressure x gender	—	—	0.21*
Stereotype x gender	—	—	1.01**
Knowledge x gender	—	—	0.65**
Male-dominated occupations[b]	$R^2 = 0.13^{***}$	$\Delta R^2 = 0.22^{***}$	$\Delta R^2 = 0.01$
Gender	−0.37***	−0.24***	−0.97*
Felt Pressure	—	−0.02	−0.09
Knowledge	—	0.47***	0.40***
Gender Stereotype	—	−0.22*	−0.23**
Pressure x Gender	—	—	0.04
Stereotype x Gender	—	—	0.55
Knowledge x Gender	—	—	0.17

*Entries are beta coefficients. Participant Gender was coded dichotomously (0 = boy, 1 = girl).*
[a]*For the full model,* F (7, 151) = 19.86, p < .001, $R^2 = 0.48$.
[b]*For the full model,* F (7, 152) = 8.34, p < .001, $R^2 = 0.36$.
*$p \leq .05$, **$p \leq .01$, ***$p \leq .001$,[m] $p < .08$.

There was a significant increase in variance explained from the first to the second block, $\Delta R^2 = 0.11$, ΔF (3, 154) = 9.60, $p < 0.001$. Gender remained a significant predictor. Perceived knowledge was positively associated with interest and stereotypes was negatively associated with interest. Felt pressure was not a significant predictor in the second step.

The addition of the interaction terms in the final step, resulted in a significant increase in variance explained, $\Delta R^2 = 0.08$, $p < 0.001$, ΔF (3, 151) = 7.50, $p < 0.001$. The interaction between felt pressure and gender was significant. Simple slopes analyses indicated that the effect of felt pressure on interest was marginally significant for boys (b = -0.29, $p = 0.05$) but not girls (b = 0.22, $p = 0.18$). The interaction between gender and stereotypes was also significant. Simple slopes analyses indicated that the effect of gender stereotypes on interest was significant for boys (b = -0.37, $p < 0.001$) but not girls (b = 0.10, $p = 0.39$).
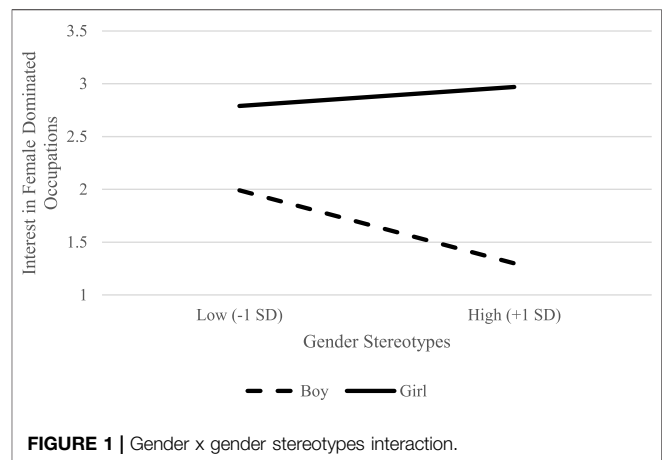
FIGURE 1 | Gender x gender stereotypes interaction.

FIGURE 2 | Gender x perceived occupational knowledge interaction.
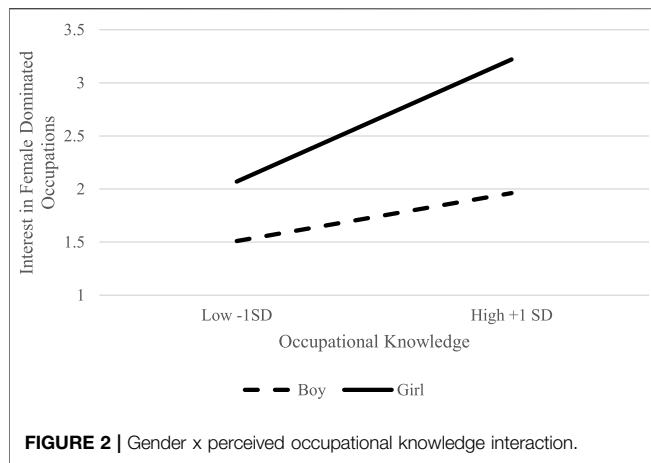
Finally, the interaction between gender and perceived knowledge was significant for girls (b = 0.42, $p < 0.001$), and for boys (b = 0.17, $p = 0.01$). See **Figures 1**, **2**.

To summarize, these results show that the boys who felt less pressure to conform to gender norms were more interested in female-dominated occupations compared to boys who felt more pressure to conform. Additionally, boys were less interested in female-dominated occupations when they viewed them as predominately held by women. Finally, the effect of perceived knowledge on interest in female-dominated occupations was stronger for girls than boys.

Predicting interest in male-dominated occupations (**Table 3**). The first step of the model predicting interest in male-dominated occupations was significant, $F (1, 157) = 24.57$, $p < 0.001$, $R^2 = 0.13$, indicating that gender was a significant predictor. As hypothesized, boys were more interested in male-dominated occupations than girls. Results indicated a significant increase in variance explained from the first to the second block, $\Delta R^2 = 0.22$, $\Delta F (3, 154) = 17.48$, $p < 0.001$. Gender remained a significant predictor. Although knowledge and stereotypes were significant, felt pressure was not. The increase in variance explained from the second block to the third block was not significant, $\Delta R^2 = 0.01$, $\Delta F (3, 151) = 1.00$, $p > 0.05$.

To summarize, gender, perceived occupational knowledge and gender stereotypes were strong predictors of interest in male-dominated occupations. However, felt pressure did not appear to have an impact on interest in male-dominated occupations.

DISCUSSION

Gender differences in career interests that align with the segregated workforce are evident in children at early ages and remain relatively stable across the lifespan. As a result, these early career preferences may have a lasting impact and perpetuate the existing gender divide in work. Although researchers have extensively studied the impact of gender stereotypes (Oswald, 2008) on occupational interests, less work has examined how other facets of socialization, such as felt pressure to conform to gender norms and perceived occupational knowledge, may contribute to gender differences in children's occupational

interest. The current study investigated whether gender, perceived occupational knowledge, occupational gender stereotypes, and as felt pressure to conform to gender norms predicted elementary aged children's occupational interests in a sample of low-SES children.

A significant contribution of this study is that it expands upon prior work and shows that perceived occupational knowledge predicts interest in gender-dominated occupations among fourth and fifth grade students. Although the observed relationship between perceived occupational knowledge and interest is not surprising, few studies have examined this relationship among younger children or children residing in the United States (Miller and Hayward, 2006). These results slightly differ from a study with older high school students in the United Kingdom that found that the relationship between perceived occupational knowledge and occupational interest was only significant for girls (Miller and Hayward, 2006). Perhaps there are developmental differences between elementary and high school boys' perceived occupational knowledge and occupational interests and the association between the two. Our hypothesis that perceived occupational knowledge is related to children's interest in gender-dominated was supported. These findings underscore how gender is embedded in everyday cognitive processes (Diekman and Schmader, 2020) and can result in gendered preferences even when there is no explicitly labeled categorization.

The gender differences observed in this sample confirmed the gender trends found in previous research (Ginevra and Nota, 2015). As hypothesized, boys rated their self-perceived knowledge and interest in male-dominated occupations higher than girls. Similarly, girls rated their self-perceived knowledge and interest in female-dominated occupations higher than boys. This finding is consistent with prior work demonstrating that youth are more interested in gender-typical occupations (Teig and Susskind, 2008; Coyle and Liben, 2018) and know more about occupations dominated by their own gender (Ferrari et al., 2015). Further, the finding that boys reported more felt pressure to conform to gender norms than girls replicates previous research (Egan and Perry, 2001; Smith and Leaper, 2006; Masters et al., 2020).

This study expands upon the current literature and demonstrates that pressure to conform to gender norms is related to children's occupational interests under some circumstances. Gender conformity pressure has been researched with regard to psychological adjustment among U.S. adolescents (e.g., Carver et al., 2003; Corby et al., 2007), educational motivations and efficacy (Leaper et al., 2012; Vantieghem et al., 2014) but not occupational interests. The effect of felt pressure to conform on interest in female-dominated occupations was moderated by gender. The more pressure boys felt to conform to gender norms, the less interested they were in female-dominated occupations. This finding is similar to other work that has highlighted that boys may avoid engaging in feminine-typed behaviors and characteristics (Halim and Ruble, 2010), rather than seeking to enact masculine-typed behaviors and characteristics.

Why was felt pressure to conform to gender norms related to boys', but not girls' occupational interests? Concurrently, children in middle childhood positively value conforming to gender norms (Egan and Perry, 2001) while expressing less rigidity in their gendered attitudes in some domains compared to younger children (Martin et al., 2002; Ruble et al., 2006). Given that boys face harsher social sanctions for violating gender norms compared to girls (Egan and Perry, 2001; Pauletti et al., 2017), it is plausible that boys are more attuned to external messages about what is *not* acceptable for them than messages about what is acceptable (Pauletti et al., 2017). Conversely, during childhood, girls may experience pressure to conform to feminine norms their parents in particular (Carr, 2007). Perhaps girls are more sensitive to messages about positive prescriptive stereotypes (desirable behaviors), rather than messages about negative proscriptive stereotypes (behaviors that one should avoid). The way in which felt pressure to conform was measured in this study may have captured pressure to *avoid* other-gender rather than pressure to *conform* to same-gender, normative behaviors. Further evidence and replication are required, specifically focusing on the circumstances under which felt pressure might affect boys and girls differently and distinguishing between prescriptive and proscriptive pressure.

In light of the findings for felt pressure, it is important to further consider why gender stereotypes influenced boys' disinterest in female-dominated occupations but did not significantly contribute to either boys' or girls' interest in male-dominated occupations. It is possible that these results differ in part due to the specific male-dominated occupations used in this study. The occupations examined are gender-segregated in the current workforce and represented as so in the media (Singh et al., 2020). However, male-dominated occupations that are commonly incorporated in other studies, such as doctors and pilots, are also associated with higher salaries than most female-dominated occupations. It is important for research on occupational gender stereotypes to not confound masculine and feminine occupations with differences in salaries (or education requirements) because such confounds cloud the interpretation of gender stereotype effects. Salary is associated with status, and indeed, all children are interested in occupations associated with high status (Teig and Susskind, 2008). In this study an attempt was made to choose masculine and feminine occupations that collectively were similar with respect to salary and education requirements. We view this as a strength of this research. Nevertheless, the strength of the relationship between boys' interest in male-dominated occupations and their perceptions of occupation gender stereotypes may be moderated by other factors such as salary and prestige.

One of the most important questions for future studies posed by these results is the pattern of relationships among the primary variables for girls. While the gendered nature of the occupations did seem to impact girls' interest in female-dominated occupations relative to boys, it is unclear why gender stereotyping or perceived pressure did not explain their interests. Work with older samples show that girls exhibit gender-typical occupational interests during childhood, but more gender balanced occupational interests emerge during adolescence (Sandberg et al., 1991; Helwig, 2008). Although girls were interested in female-dominated occupations more than boys, lower gender conformity pressure may be a precursor to less gendered interests later in adolescence. As described earlier, girls are allowed more flexibility than boys in their adherence to gender norms (Egan and Perry, 2001; Pauletti et al., 2017). Some evidence even suggests that girls are encouraged to engage with masculine domains. For example, a study of nine and ten-year-olds showed that girls who prefer male-typical activities are well-liked by their peers (Braun and Davidson, 2017). If masculine traits and activities are more socially valued than feminine traits and activities (Teig and Susskind, 2008), it makes sense that gender socialization and feminine stereotypes would have less of an impact girls' occupational interests. Alternatively, it is possible that these variables impact other constructs associated with male- and female-dominated occupational interests, such as self-efficacy, outcome expectations, and values. Indeed, prior work has shown that gender stereotypes (Brown, 2019) and gender socialization (Leaper et al., 2012) negatively impact girls' academic self-efficacy.

Limitations and Future Directions

The limitations of this study should be noted. First, the current study design does not allow for causal inferences and thus only provides an initial step in understanding the pathways between perceived occupational knowledge, felt pressure to conform to gender norms, and gender stereotyping, and gender differentiation of occupational interest. Second, it is possible that social desirability could have affected responses. For example, participants may have responded that occupations are appropriate for "both men and women" even though this response does not reflect their actual attitudes.

The occupations presented were selected carefully to avoid confounding gender stereotype designation with status related occupation characteristics, specifically salary. However, it is possible that these occupations may not reflect the breadth of potential occupations that children are currently interested in holding or may not represent the salient occupations held by men and women in these children's daily lives. As suggested by social role theory (Eagly, 1987) and social learning theory (Bussey and Bandura, 1999), it is important to consider the occupations of salient same-gender role models in these children's lives.

A strength of the present study was the focus on a study population of lower-SES children who have generally not been represented in this line of research. However, our findings may not generalize to children from middle- and high-SES backgrounds. For example, children from lower-SES backgrounds observe adults in different kinds of occupations than children from middle- or high-SES backgrounds. Indeed, our lower-SES sample may observe adults in occupational sectors with less gender equality more often than children from a higher-SES sample. Given that higher income adults are less likely than lower come adults to hold traditional gender beliefs (Katz-Wise et al., 2010), it is possible that children from lower-SES backgrounds internalize gender conformity pressure to a greater extent than those from middle- or high-SES

backgrounds. Future work should investigate the extent to which our findings parallel with a middle- or higher-SES sample.

Implications

This study makes theoretical contributions in the areas of gender and occupational interests. The finding that gender and perceived occupational knowledge were strong predictors of occupational interest lends support for gender development theories (Bem, 1981; Martin and Halverson, 1981) that suggest that children organize gendered information from their environment into schemas about what it means to be a girl or boy, which motivates their behaviors and may drive gender-typed personal preferences (Liben and Bigler, 2002; Ruble et al., 2006). The gender differences observed in perceived occupational knowledge and occupational interest expand upon social role theory (Eagly, 1987), which posits that gender differences in career interests result in part from the historical gender segregation in labor. Notably, this study may have detected an overlooked and understudied construct in research focused on gender differences in career interests, perceived occupational knowledge. For example, in our study, perceived knowledge differed for boys and girls, but stereotype beliefs did not. It will be important to consider how perceived knowledge is associated with constructs from models that are often used to predict gender differences in academic outcomes and career interests, such as self-competence or self-efficacy from expectancy-value theory (Eccles, 2011) and social cognitive career theory (Lent et al., 1994).

The findings have important implications related to workforce shortages due to gender segregation. The finding that perceived occupational knowledge is related to occupation gender composition by fourth grade suggests that interventions aimed at promoting children's interest in gender atypical occupations should be implemented at an earlier age. Such interventions are warranted especially when workforce shortages parallel the gender-segregated career choices (e.g., shortages in engineers, computer scientists, nurses and teachers). The gender differences highlighted point to the need for strategies to increase the perceived knowledge and interest in gender non-traditional occupations. To offset inferences that children make as a result of exposure to labor force segregation, it may be efficacious for career guidance counselors to directly address gender imbalances with children (Bigler and Liben, 2006). Although it is difficult to address the gender composition of occupations at the societal level, children may benefit from examples of individuals in gender non-traditional occupations

(Dasgupta, 2011). Exposure to individuals in these occupations may be especially impactful for lower SES girls due to the plethora of low waged jobs typically done by women, such as housekeeping or food service, gender socialization may perpetuate poverty for these girls.

CONCLUSION

To better understand the reasons underlying gender differences in perceived occupational knowledge and interest, this study examined the role of gender stereotypes and gender socialization. This study confirms gender differences in career interests and knowledge and leads to new questions about factors that might determine these gender differences. It appears that boys and girls are equally cognizant of gender segregation in the workforce, but perhaps do not feel the same pressure to conform to these norms. The information gained from this study may be beneficial to further understand the interplay between perceived occupational knowledge, gender socialization, and gender stereotypes as they relate to children's occupational interests.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusion of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

AUTHOR CONTRIBUTIONS

SM and JB contributed to conception and design of the study. SM performed the statistical analysis. SM wrote the first draft of the manuscript. All authors contributed to manuscript revision, read, and approved the submitted version.

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