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Brief Report

Salary and power: How occupational status affects children's occupational aspirations



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ABSTRACT

In many countries, labor markets are still highly gender segregated, with very few men working in communal occupations such as nursing. Because occupational aspirations start to develop during early childhood, it seems crucial to foster our understanding of which factors affect occupational aspirations during this period. Earlier correlational research showed that the status of occupations seems to be one important factor. Therefore, in the current work, we experimentally tested the effect of two dimensions of status (i.e., salary and power) on children's occupational aspirations and examined its interaction with child gender. We also tested the relationship among gender, self-perceptions, and occupational values. Using a 2 (Salary: high vs. low) × 2 (Power: high vs. low) within-participants design (N = 127 [59 boys and 68 girls], $M_{\rm age}$ = 9.37 years, SD = 0.50) with child gender as a betweenparticipants factor, we show positive main effects of both salary and power on children's occupational aspirations but no interaction with gender. Correlational analyses show preliminary evidence for the mediating role of agentic self-perceptions in the relationship between gender and occupational values related to status. Thus, we provide evidence for the causal effect of occupational status on children's occupational aspirations but show experimentally that this is independent of child gender. Interestingly, the correlational analyses indicate that gender norms might play a role given that boys in trend reported stronger agentic self-perceptions, which then were associated with a stronger

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desire to pursue high-status occupations. Implications for early interventions to reduce occupational gender segregation are discussed.

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Introduction

Gender segregation in labor markets persist worldwide (World Economic Forum, 2021). Even in Norway, one of the most gender egalitarian countries in the world, women are overrepresented in communal occupations (i.e., associated with communal behaviors and traits such as being warm and caring, e.g., nursing) and men are overrepresented in agentic occupations (i.e., associated with agentic behaviors and traits such as being assertive and analytical, e.g., pilot) (Statistisk sentralbyrå [SSB], 2022). Interestingly, research from the United States shows that even as the gender gap in agentic occupations has narrowed during the last decades, the gender gap in communal occupations persists (Bureau of Labor Statistics, 2013 as cited in Croft et al., 2015). One explanation is that women who enter agentic occupations often gain status and power, whereas men who enter communal occupations do not tend to earn higher salaries or gain greater prestige (for an overview, see England, 2010).

One important predictor of career decisions is occupational aspirations (i.e., preferences regarding future occupational roles and activities; Lent et al., 1994), which begin to develop during early child-hood (Levy et al., 2000; Trice & Rush, 1995; Weisgram et al., 2010). Despite widespread agreement that childhood is an important period for the formation of occupational aspirations, research on occupational aspirations during early and middle childhood is scarce (Hartung et al., 2005; Olsen et al., 2022). Therefore, in the current research, we investigated variables shaping occupational aspirations during middle childhood (7–11 years of age), specifically focusing on two dimensions of status (i.e., salary and power).

Development of occupational aspirations and the role of occupational status and self-perceptions

The developmental theory of occupational aspirations by Gottfredson (1981) is an important theory that describes which factors influence the development of occupational aspirations throughout childhood. This theory states that throughout childhood children exclude occupations that they view as a poor match for them, and thus childhood aspirations can influence occupational choices during adulthood. In line with this, longitudinal research has found that occupational aspirations remain relatively stable from childhood to adulthood (Low et al., 2005) and that interests during adolescence shape occupational choices during adulthood (Hoff et al., 2022).

Gottfredson's (1981) developmental theory of occupational aspirations argues that occupational status begins to influence children's occupational aspirations around 9 to 13 years of age. Empirical evidence for the effect of occupational status has been found among both this age group and younger children (Hayes et al., 2018; Olsen et al., 2022; Teig & Susskind, 2008; Weisgram et al., 2010). For example, an experimental study in the United States found that preadolescent boys (6–11 years of age) showed greater interest in novel occupations that were described as having a high salary (Hayes et al., 2018). In addition, an experimental study of children aged 6 to 8 and 9 to 12 years in the United States found that girls' aspirations toward agentic occupations were influenced by occupational status in both age groups (Teig & Susskind, 2008). However, they found that 6- to 8-year-old boys' aspirations were influenced by gender roles and occupational status, whereas 9- to 12-year-old boys' aspirations were solely determined by occupational status, indicating that status increases in importance with age for boys' occupational aspirations. In Norway, which was the context of the current research, a correlational study found a positive relationship between both boys' and girls' (6–13 years of age) occupational aspirations toward communal occupations and perceived salary

for these occupations (Olsen et al., 2022). An experimental study by Weisgram et al. (2010) in the United States showed a similar relationship with occupational values (i.e., desires that one most wants to be fulfilled within a career); whereas both boys and girls aspired significantly more toward occupations associated with salary (vs. family and power), only boys aspired more toward occupations associated with power than with altruism.

Taken together, several studies have shown correlational evidence of the relationship between occupational status or values and occupational aspirations during childhood (e.g., Olsen et al., 2022; Weisgram et al., 2010). However, only three previous studies used an experimental approach to manipulate the status associated with occupations and then measured children's occupational aspirations (Hayes et al., 2018; Teig & Susskind, 2008; Weisgram et al., 2010). One of these studies did not use novel occupations in the experimental manipulation (Teig & Susskind, 2008), meaning that children's prior knowledge about the occupations might have influenced the findings (e.g., occupational gender stereotypes). The two studies that used novel occupations manipulated the gender of the worker in the novel occupation as well as the status of the occupation, meaning that gender attitudes, not only status, might have influenced the children's responses (Hayes et al., 2018; Weisgram et al., 2010). Therefore, to test the unique effect of status on children's occupational aspirations, experimental research must use novel occupations and manipulate only the status (high vs. low) of the occupations.

Gottfredson's (1981) theory proposes that during adolescence aspects of children's self-concept such as self-perceptions (i.e., how much children view themselves as preferring communal and agentic behaviors; Olsen et al., 2022) also begin to influence occupational aspirations. One of the few studies that investigated the effect of self-perceptions on occupational aspirations during early to middle childhood found that self-perceptions mediate the relationship between gender and occupational aspirations even in this age group (Olsen et al., 2022). Therefore, it is possible that children's occupational aspirations emerge from their self-perceptions given that children might come to value the aspects of work that they enjoy and perceive themselves to be skilled at. The current research builds on these preliminary findings to explore whether the gender differences we observe in occupational aspirations during childhood may be explained by children's gendered self-concepts.

The current study

In the current work, we investigated whether the status of occupations influences elementary school children's occupational aspirations using an experimental approach. We manipulated two dimensions of status (i.e., salary and power) for novel occupations and measured children's occupational aspirations for these occupations. We also aimed to explore other factors that might influence occupational aspirations in children, such as children's agentic self-perceptions, and how these relate to their occupational values.

The current research was conducted in Norway, and thus the cultural context of this study differs from earlier work mostly conducted in the United States (Hayes et al., 2018; Teig & Susskind, 2008; Weisgram et al., 2010). Even though Norway is ranked as one of the most gender egalitarian countries in the world (World Economic Forum, 2021), horizontal gender segregation (i.e., under- or overrepresentation of men/women in different occupations or sectors) and vertical gender segregation (i.e., under- or overrepresentation of men/women in income or prestige levels of occupations or sectors) continues to exist in the Norwegian labor market. For example, vertical gender segregation is shown in a persistent gender wage gap, with men earning on average 8.6% more than women in the same job (Penner et al., 2023) and being overrepresented in high-paying leadership positions in the private sector (only 27% are women; Teigen & Reisel, 2017). In terms of horizontal gender segregation, men are still overrepresented in agentic occupations (e.g., only 20.4% of engineers are women; Utdanning.no, 2020), whereas women are overrepresented in communal occupations and in the public sector (e.g., only 10% of nurses are men; Utdanning,no, 2020). Children are likely more able to perceive horizontal gender segregation than vertical gender segregation, but the existing vertical gender segregation in Norway likely contributes to a general social perception that women's labor is worth less. For this reason, we hypothesized that, in line with earlier work from the United States (Hayes et al., 2018), salary and power would affect boys' occupational aspirations more than those of girls.

Based on the empirical and theoretical work outlined above, we developed the following preregistered hypotheses (https://osf.io/35nfc/?view_only=d10bb0cdc8d44a8ca9b8dfebdc8f7015). We predicted that children would aspire more toward occupations associated with high salary than with low salary (H1) and that children would aspire more toward occupations associated with high power than with low power (H2). We also predicted an interaction between child gender and the effects of salary and power on occupational aspirations, where the effect of salary and power would be stronger for boys than for girls (H3).¹ In addition, we predicted that children's agentic self-perceptions would mediate the relationship between their gender and their values toward salary and power in their imagined future occupations (H4).²

Method

Participants

We calculated the required sample size for the hypothesis that would require the largest sample (i.e., H4). Based on the results of Olsen et al. (2022; a moderate a-path of .39 and a small-to-moderate b-path of .26), a sample of 116 participants is needed (Fritz & MacKinnon, 2007). Therefore, we aimed for a minimum sample of 120 participants.

We collected data from 139 children from three schools and 11 classes. Four children reported being nonbinary or did not wish to indicate their gender. Because our hypotheses focused on differences between girls and boys, these children were excluded from the analyses. Participants were also excluded from all analyses in line with our preregistered exclusion criteria if they reported that they had not read the questions carefully (n = 4), experienced technical issues, or did not speak Norwegian well (n = 4). Therefore, our final sample consisted of 127 elementary school children (59 boys, 68 girls) aged 7 to 11 years (boys: M = 9.44 years, SD = 1.13; girls: M = 9.30 years, SD = 1.24), with 25.2% of the children speaking a language other than Norwegian at home. There were no significant differences between boys and girls in age or language.

Design

We used a 2 (Salary: high vs. low) \times 2 (Power: high vs. low) within-participants design with child gender as a between-participants factor. Children received information about 12 novel occupations and were asked to indicate their aspirations toward each occupation. The condition of each occupation was randomized between participants, meaning that each child was presented with 3 occupations per condition (high salary/high power, high salary/low power, low salary/high power, and low salary/low power). After the experimental part was finished, children completed a questionnaire assessing occupational values and agentic and communal self-perceptions.

Procedure

Participants were recruited by contacting the principals at five elementary schools in northern Norway in 2021. Three of the schools agreed to participate. We then asked for permission from the teachers to conduct our study in their class. Of the 16 teachers we approached, 11 gave us permission. Prior to data collection, we obtained parental consent for children's participation in each class.

¹ An additional hypothesis (H4 in the preregistration) was preregistered, stating that the effect of H3 (interactions between the conditions and gender) would be explained by boys' higher agentic self-perceptions. We decided to exclude this hypothesis from the main text because the interaction predicted in H3 was not found (leaving no interaction to explain). We instead tested whether self-perceptions (dichotomized into high vs. low) interacted with experimental condition and child gender. This was not the case (see the online supplementary material for details).

² In addition to the preregistered main hypotheses H1 to H3, we also preregistered additional hypotheses in an exploratory part of the preregistration. H4 is one of these additional hypotheses (in the preregistration referred to as Additional Hypothesis 2 [AH2]).

The study was conducted in Norwegian in elementary schools during school hours. The participants were tested in groups of up to 5 children in a separate room by two trained experimenters (i.e., psychology students), one acting as experimenter (i.e., instructing the children) and the other acting as secretary (i.e., taking notes). The study was conducted on tablets using Qualtrics. The children could either read the questions or listen to audio recordings of a female, native Norwegian voice that read aloud all instructions, questions, and scale points. Halfway through the study, the children were given a break where they could watch a short music video for children. After finishing the study, the children were debriefed and received a sticker and a small toy as a reward for participating.

Materials

All original materials can be found in the online <u>supplementary material</u> in both Norwegian and English. The study was conducted in Norwegian. The scales are presented in this article in the order they were presented, but items were randomized within all scales.

Manipulation

Children first completed the experimental block. In this block, they read/heard about 12 novel occupations. These novel occupations were developed based on previous research (Liben et al., 2001) and adjusted to the Norwegian context. Prior to the main study, we tested these occupations on a group of children (N = 14; age range: 6–12 years) to ensure that the occupations were understandable to the children and that the children did not have previous knowledge about these occupations. We attempted to use novel occupations that would not be associated with communal or agentic traits.

Each occupation was briefly described to the children (e.g., "This is a job where you test the quality of the water in a city to check that the water is safe to drink"). The occupation was then described as having either high or low salary (i.e., "People who have this occupation make very little/a lot of money") and as having either high or low power (i.e., "People who have this occupation do not get to decide over other people who they work with but have to do what others tell them to do" or "People who have this occupation get to decide over other people who they work with and can tell other people what to do"). Children were then asked: "How much would you like to have this occupation when you grow up?". Children answered on a 5-point Likert scale from 1 = not at all to 5 = very much, which was used for all measures in the current study.

Occupational values

After finishing the experimental block, children were asked to complete a questionnaire. First, we assessed children's occupational values toward salary, power, and prestige. The measures were developed based on the Occupational Values Scale for Children (Weisgram et al., 2010). Children were instructed to imagine their future occupation and to report how important salary, power, and prestige were to them in their future occupation (e.g., "How much would you like to have a job that lets you earn a lot of money?"). The scales showed acceptable reliability (money: α = .74; power: α = .75; prestige: α = .65).

Agentic self-perceptions

To assess their agentic self-perceptions, the children were asked how much they like to engage in five agentic behaviors (e.g., "Do you like to decide over others when you play together?"). The reliability of the scale was acceptable ($\alpha = .63$).⁴

³ A principal components analysis was conducted to investigate the factor structure of the 12 items measuring occupational values toward salary, power, and prestige. The analysis showed a three-factor solution that corresponds to the three predicted subdimensions. However, one item that was originally included in the prestige subdimension loaded on the power subdimension and therefore was included in the power subdimension. For further details, see supplementary material.

⁴ We also measured children's communal self-perceptions by asking the children how much they like to engage in five communal behaviors (e.g., "Do you like to help other children?"). Even though the reliability of the scale was good (α = .76), this scale was not included in the current analyses because we had not preregistered hypotheses about communal self-perceptions.

Demographics

Children indicated their gender (0 = boy, 1 = girl, 2 = other, 3 = don't want to say), their age (in years), and whether they spoke a language other than Norwegian with their parents at home. We also collected information about the children's school and class, which has been anonymized in the dataset uploaded on the Open Science Framework (OSF) as numerical codes.⁵

Results

The descriptive statistics of all the relevant measures and the correlations between them can be found in Table 1. Age was included as a covariate in all analyses because our sample contained a relatively large age range (7–11 years).

Testing the effects of salary and power

To test the main effects of our experimental manipulations of salary and power on children's occupational aspirations, we conducted a repeated-measures analysis of variance (ANOVA).⁶ Salary and power were included as within-participants factors with two levels each in the analysis (H1 and H2). Gender was included as a between-participants factor to investigate the interactions between the manipulated variables and gender (H3). We found the predicted main effect of salary, F(1, 124) = 10.97, p = .001, $\eta_p^2 = .081$, and the predicted main effect of power, F(1, 124) = 5.07, p = .026, $\eta_p^2 = .039$ (see Table 2). This means that elementary school children aspired more toward occupations with high salary and power than occupations with low salary and power (high salary/high power: M = 2.85, SD = 0.99; high salary/low power: M = 2.68, SD = 0.92; low salary/high power: M = 1.89, SD = 0.74; low salary/low power: M = 1.64, SD = 0.66). Contrary to H3, there was neither an interaction between salary and gender, F(1, 124) = 1.80, p = .182, $\eta_p^2 = .014$, nor an interaction between power and gender, F(1, 124) = 0.04, p = .840, $\eta_p^2 < .000$. This means that both boys' and girls' occupational aspirations were affected equally by the manipulations of salary and power. We found no interaction between salary or power and child age (p = .085), and no further three-way interactions were found (for details, see supplementary material).⁷

Mediation of self-perceptions on relationship between gender and occupational values

Next, we conducted additional analyses with the data from the questionnaire. First, we investigated whether children's agentic self-perceptions mediated the relationship between their gender and their occupational values toward salary, power, and prestige. We conducted three mediation analyses using Hayes's (2017) Process Macro (Version 3.4.1, Model 4, 10,000 bootstrap samples), where gender was the predictor (X), occupational values (salary, power, and prestige) were the outcome (Y), and agentic self-perception was the mediator (M). Age was included as a covariate. We found the predicted mediating effects in trend of agentic self-perceptions on the relationship between gender and the occupational values. Gender predicted agentic self-perceptions in trend (B = -0.24, p = .065). Agentic self-perceptions significantly predicted occupational values for salary (B = 0.26, p = .007), power (B = 0.51, p < .001), but only in trend for prestige (B = 0.19, D = .060). The direct effect of gender on the occupational values was not significant for salary (B = 0.06, D = .683), power (D = 0.14, D = .294), or prestige (D = 0.14, D = .341). The bias-corrected bootstrap confidence intervals (Cls) for the indirect effect of gender on the occupational values through agentic self-perceptions included zero (salary: D = 0.06, D = 0

⁵ In addition to the measures presented in this article, we collected a measure of occupational gender stereotypes. Analyses including this measure can be found in the supplementary material.

⁶ We conducted multilevel analyses to account for the possible multilevel structure of children within each participating school and each participating class. The χ^2 change between the linear models and the multilevel models was significant; however, the results of our analyses remained unchanged by including variability in intercepts. Therefore, we report the results of the multilevel linear models in the supplementary material.

⁷ For analysis of whether the novel occupations were perceived as gendered by the children, see the supplementary material.

Table 1Descriptive statistics and correlations between self-reported measures.

	N	М	SD	1	2	3	4	5	6	7
1. Age	127	9.37	1.19	1						
2. Gender	127	0.54	0.50	06	1					
3. Value salary ^a	127	4.02	0.78	.08	01	1				
4. Value power ^a	127	2.90	0.88	.04	.04	.46	1			
5. Value prestige ^a	127	3.66	0.74	.15	.02	.40	.49	1		
6. Communal self-perceptions ^a	127	4.24	0.65	19*	.31	.24	.32**	.35**	1	
7. Agentic self-perceptions ^a	127	2.90	0.72	.02	17	.24	.41	.24**	.13	1

Note. Gender coding: boys = 0, girls = 1.

Table 2Repeated-measures analysis of variance.

	df	F	p	$\eta_{ m p}^2$
Between-participants effects				
Gender	1	0.08	.775	.001
Age	1	0.73	.394	.006
Error	124			
Within-participants effects				
Salary	1	10.97	.001	.081
Salary * Age	1	3.02	.085	.024
Salary * Gender	1	1.80	.182	.014
Error(Salary)	124			
Power	1	5.07	.026	.039
Power * Age	1	0.97	.326	.008
Power * Gender	1	0.04	.840	.000
Error(Power)	124			
Salary * Power	1	0.95	.333	.008
Salary * Power * Age	1	0.60	.441	.005
Salary * Power * Gender	1	1.15	.285	.009
Error(Salary * Power)	124			

Note. Gender coding: 0 = boy, 1 = girl.

B = -0.04, 95% CI [-0.14, 0.01]). This indicates that those children who reported more agentic self-perceptions also valued salary, power, and prestige (in trend) more when thinking about their future occupation. In addition, by trend, boys reported higher agentic self-perceptions than girls.⁸

Discussion

In line with the first two hypotheses (H1 and H2), we found that the children aspired more toward occupations high in salary or power than toward occupations low in salary or power, indicating that occupational status is important for children when considering their future occupations. This finding provides causal evidence in line with previous correlational research (Olsen et al., 2022; Weisgram et al., 2010) and with Gottfredson's (1981) developmental theory of occupational aspirations. This implies that in order to increase children's interest in communal occupations, the status of communal

^a Scale ranged from 1 (not at all) to 5 (very much).

^{.° &}lt; .05.

^{**} p < .01.

⁸ To test the robustness of this effect, we included communal self-perceptions as a covariate. Analyses showed that when controlling for communal self-perceptions, the positive relationship between gender and agentic self-perceptions was significant (B = -0.33, p = .015), whereas the relationship between agentic self-perceptions and the occupational values remained unchanged.

occupations needs to be increased. According to Gottfredson (1981), occupations that are viewed as a poor fit during childhood will be excluded and rarely revisited later when the choice of occupation is made. Therefore, given that children appear to prefer occupations associated with high status, including both salary and power, children might exclude communal occupations such as nursing already during childhood if they assume that these occupations are associated with relatively low salary and/or low power.

Contrary to the third hypothesis (H3) and previous studies (Hayes et al., 2018), we found no gender differences in the effect of salary and power on occupational aspirations among children when these were manipulated experimentally. However, we did find some preliminary evidence for gender differences in the children's self-reported occupational values toward status, with boys in trend reporting higher agentic self-perceptions than girls and agentic self-perceptions being positively related with occupational values toward status (H4). This trend is in line with previous research showing that communal self-perceptions mediate the relationship between children's gender and their communal occupational aspirations (Olsen et al., 2022). Therefore, it might be that when children are asked to imagine themselves in the future, aspects of their gendered self-concept influence their responses given that, according to construal level theory, abstract mindsets can lead to increased activation and use of stereotypes (McCrea et al., 2012; Trope & Liberman, 2003). In contrast, when children form opinions about specific novel occupations, they may focus more specifically on the status of the occupation without being affected by gender-related norms or stereotypes.

Another reason why we did not find a gender difference in the effect of occupational status on occupational aspirations might be that previous studies were mostly conducted in the United States, whereas the current study was conducted in Norway (e.g., Hayes et al., 2018). A previous Norwegian study also found no gender differences in the effect of salary on occupational aspirations toward communal occupations (Olsen et al., 2022). Even though horizontal and vertical gender segregation in Norway continues to exist, Norway is one of the most gender egalitarian countries of the world (Organization for Economic Cooperation and Development, 2012; World Economic Forum, 2021). Therefore, Norwegian girls may have a higher expectation concerning their later salary than girls in the other Western countries, where girls may have internalized traditional gender stereotypes and the notion that some preferred job characteristics are unattainable to their social group to a larger degree and therefore they are less optimistic about their future salary.

Conclusion

The current results provide causal evidence for the effect of occupational status on occupational aspirations during middle childhood. Our study shows that, when using novel occupations, children's occupational aspirations are influenced by both salary and power from a young age. Based on this finding, interventions that aim to increase communal occupational aspirations should focus on increasing the status of the occupation even when targeting children. In contrast to previous findings, our study did not find a gender difference in the effect of occupational status on occupational aspirations toward novel occupations when power and salary were manipulated experimentally. However, our findings may indicate that when girls imagine their future occupation, their self-perceptions might lead them to value status less in occupations compared with boys. Because research regarding self-perceptions during childhood is scarce, this should be a focus in future research concerning occupational aspirations and values during childhood.

Data availability

The data and analytical code are publicly available on the OSF (https://osf.io/bgewm/?view_only=fd28120612ae427dabdc523fd61a6726).

Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jecp.2023. 105667.

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