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Received: 16 November 2022 | Accepted: 18 December 2023

DOI: 10.1002/ejsp.3029

EASP WILEY

RESEARCH ARTICLE

The role of parents in predicting gender-stereotypic attitudes towards HEED occupations and gender-stereotypic interest in these careers

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Funding information
European Research Council

Abstract

This study examined adolescents' gender-stereotypic attitudes towards HEED (Health care, Early Education, Domestic) occupations and gender-stereotypic interest in HEED careers and the role of parental gender-stereotypic attitudes, role model behaviour and socialization values. We used questionnaire data from 501 White Dutch families. Our results showed that adolescents' gender-stereotypic attitudes towards HEED predicted their stereotypic interest in these careers. Further, parental gender-stereotypic attitudes, stereotypical role model behaviour and socializing values of self-expression predicted adolescents' gender-stereotypic attitudes towards HEED. From these parental characteristics, only a stereotypic division of household tasks predicted boys' lower interest in HEED careers. In conclusion, reducing gender-stereotypic attitudes and, for boys, encouraging self-expression seems important in fostering more male representation in HEED occupations and deserves more attention from policymakers, educators and parents.

KEYWORDS
adolescence, gender stereotypes, HEED, occupational aspirations, socialization

1 | INTRODUCTION

Communal roles in *H*ealth Care, *E*arly *E*ducation, and the *D*omestic sphere (HEED; Croft et al., 2015) are heavily female-dominated (European Commission, 2021; Meeussen et al., 2020). Over the last decades, female representation in STEM professions (i.e., science, technology, engineering and math) has increased. Male underrepresentation in HEED occupations, however, has remained remarkably stable (European Commission, 2021; Meeussen et al., 2020). The fact that men still shy away from HEED professions is alarming, as male representation in HEED domains can reduce labour shortage in this field, reduce negative stereotypes about men in these roles, increase flexibility in societal gender norms and provide varied role models for younger generations (e.g., Meeussen et al., 2020; Olsen et al., 2022). Whereas there has been substantial research on the reasons why women are underrepresented in STEM professions, studies on the reasons why men do not aspire to a career in HEED are scarce (Beutel et al., 2019; Olsen et al., 2022). Studies that did examine gender-typed interest specifically in HEED occupations and majors focused on individual characteristics of children of primary or middle school age and students. These studies show that factors such as perceived gender norms (Van Grootel et al., 2018), gender stereotypes (Olsen et al., 2022), communal values and self-perceptions (Block et al., 2018; Olsen et al., 2022) and perceived belongingness (Tellhed et al., 2017) play a role.

Although often referred to in theoretical frameworks (Croft et al., 2015; Solbes-Canales et al., 2020), few studies specifically focusing on HEED occupations examined the association between stereotypical attitudes towards HEED occupations and gender-stereotypical interest in HEED careers (Olsen et al., 2022). In addition, there is little research on the specific role parents play in developing gender-stereotypic attitudes towards HEED professions and interest in these careers (Halpern & Perry-Jenkins, 2016; Polevieja & Platt, 2014). This is unfortunate, as parents play a key role in the development of children's interests, attitudes and identities (Bem, 1981, 1983). In the current study, we examine two themes around HEED. First, we examine the association between adolescents' gender-stereotypic attitudes towards HEED occupations and their stereotypic interest in HEED careers. Second, we examine adolescents' stereotypic attitudes towards and interest in HEED occupations in relation to their parents' gender-stereotypic attitudes, role model behaviour and socialization values.

1.1 | Rigid gender norms for men

The stable underrepresentation of men in HEED domains compared to women in STEM (Croft et al., 2015; Tellhed et al., 2017) can be partly explained by more rigid gender norms for men compared to women (DiDenato et al., 2013; Solbes-Canales, 2020). Very illustrative of these more rigid norms for men is a study showing that young children in the United States (aged between 8 and 9 years) have more difficulty remembering and processing men in counter-stereotypical professions compared to women in counter-stereotypic occupations (Wilbourn & Kee, 2010). When asked to repeat a short description of men working in a traditionally feminine profession, the children in this study often changed the sex of the professional or added masculine professions (e.g., 'James the babysitter likes babysitting because *she* likes kids; Henry the nurse is a children's *doctor* too') (Wilbourn & Kee, 2010). Women in counter-stereotypic domains generally move upwards in social status and salary. For men, however, working in a counter-stereotypic profession generally means a decrease in social status and salary (Croft et al., 2015; Torre, 2018). Moreover, manhood is seen as more precarious (i.e., hard to win and easy to lose) than womanhood, and therefore needs to be constantly validated by others and reaffirmed (Kalokerinos et al., 2017; Vandello & Bosson, 2012). If such validation is absent, the masculine identity can be threatened and the advantaged status that comes with it can be lost. One of these threats keeping (heterosexual) men away from HEED professions and roles is being misclassified as gay or effeminate (Croft et al., 2015; Kalokerinos et al., 2017).

1.2 | Adolescents' gender-stereotypic attitudes and interest

From a young age, children associate and classify certain professions with men and others with women in line with prevailing stereotypes in society (Olsen et al., 2022; Solbes-Canales et al., 2020). Gender stereotypes are 'culturally shared assumptions and expectations about sex differences in abilities, personality traits, activities, and roles' (Weinraub et al., 1984, p. 1493). Gender schema theory (Bem, 1981, 1983) sheds light on how gender stereotypes are processed by children in gender schemas, that is, cognitive structures containing gender-related information based on cultural norms that influence children's attitudes, behaviour and identities. When children repeatedly receive the message that a certain trait, behaviour, activity or profession is often ascribed to women, they will categorize it in their gender schemas as feminine. Subsequently, these gender schemas influence children's perceptions of the world and their attitudes (e.g., nurses are often female, therefore nurses should be female), identity (e.g., women are nurses, I am a boy, therefore I will most likely not become a nurse) and eventually behaviour and future possible selves (e.g., I am a boy, therefore I will not choose a HEED career; Ramaci et al., 2017). Indeed, exposure to gender identity threats and perceived gender norms of peers are related to the stereotypic occupational interests of adolescents and young adults (Sinclair & Carlson, 2013; Van Grootel et al., 2018). Furthermore, children's gender essentialism (i.e., the belief that males and females are fundamentally different, and gender differences in behaviour, interest and cognitions are innate, stable over time and exception-free) is related to gender-stereotypical activity preferences (Meyer & Gelman, 2016). Also, gender-stereotypic attitudes are related to gender-stereotypic interest in occupations (Cundiff et al., 2013; Garriott et al., 2017). Except from Olsen et al. (2022), most of these studies focused on interest in STEM occupations or occupations in general rather than HEED occupations specifically.

1.3 | Gender socialization within the family

Children are exposed to stereotypic gender messages in different environments, including at home and school (Kollmayer et al., 2018; Mesman & Groeneveld, 2018). Whereas previous studies on gender differences in HEED interests specifically often referred to the influence of parental attitudes and behaviours, few empirically tested these relations (Croft et al., 2014; Polavieja & Platt, 2014). The family context is crucial for gender development because that is where children's first gender-related experiences are incorporated into their gender schemas (Bem, 1981; Endendijk et al., 2018). Gender schema theory suggests that children internalize the gender-stereotypic messages their parents implicitly or explicitly communicate to them in various ways. First, children encounter gender-differentiated parenting behaviour in their interaction with their fathers and mothers (i.e., responding differently to the same behaviour of boys and girls; Endendijk et al., 2014; Mesman & Groeneveld, 2018). Second, parents may display gendered role model behaviour through, for example, the way they balance paid work and caregiving tasks and the division of household tasks gender-stereotypically between couples. Third, parents communicate gender messages by explicit gender talk (e.g., 'nursing is not for boys') and implicit gender talk (e.g., 'He is a nurse, that's odd', communicating that nursing is not a man's job; De Vries,

2022). Consequently, children with parents who hold more gender-stereotypic attitudes, and are engaged in more gender-stereotypic behaviour, are more likely to incorporate similar attitudes and imitate these behaviours than children with parents who hold fewer stereotypic attitudes and show less gender-stereotypic behaviour (Croft et al., 2014; Crouter et al., 2007). For youngsters' gender role attitudes, a systematic review study (Halimi et al., 2016) concluded that boys and fathers are understudied. This is unfortunate, as fathers also play an important role in the development of gender role attitudes (Davis & Wills, 2010). In addition, boys and fathers generally hold more gender-stereotypic attitudes compared to girls and mothers (Davis & Wills, 2010). Therefore, including boys and fathers in examining parent–child similarities in gender attitudes is crucial (Halimi et al., 2016).

1.3.1 | Parental gender-stereotypic attitudes

In line with gender schema theory, mothers' gender-stereotypic attitudes, beliefs and expectations predict their children's gender-stereotypic attitudes and occupational interests (Chhin et al., 2008; Croft et al., 2014; Fulcher, 2011; Halpern & Perry-Jenkins, 2016; Rainey & Borders, 1997; Rollins & White, 1982; Starrels, 1992). These relations are mediated by perceived efficacy: children of mothers with more gender-stereotypic attitudes about appropriate behaviour for boys and girls are also more likely to have higher efficacy in stereotypical domains (e.g., math, science and sports for boys, reading, arts, music for girls), and to aspire to more traditional career paths compared to children of mothers with less gender-stereotypic attitudes (Chhin et al., 2008; Fulcher, 2011). It should be noted that studies on the association between parental stereotypic attitudes and children's gender-stereotypic attitudes and interests often relied on measurements that might be outdated (i.e., developed around 30 years ago; Halpern & Perry-Jenkins, 2016). According to gender schema theory, gender messages about appropriate roles for men and women are culture-specific and can change over time (Bem, 1981, 1983; Kantas et al., 2022). Therefore, taking contemporary gender-stereotypic attitudes of parents into account is necessary when examining the transmission of gender-stereotypic attitudes from parents to adolescents.

1.3.2 | Parental role model behaviour

Besides attitudes towards raising children, parental gender-stereotypic attitudes towards occupations might affect adolescents' gender-stereotypic attitudes towards HEED and interest in these careers. Examining this relation, alongside contemporary gender-stereotypic attitudes about raising children, could provide more insight into the ways parents nowadays transmit their gender-stereotypic attitudes about different occupations to their children. Apart from parental gender-stereotypic attitudes, parental stereotypic role model behaviour (i.e., a stereotypical division of domestic tasks and job traditionality) predicts children's gender-stereotypic attitudes and occupational interests (Chakraverty & Tai, 2013; Fulcher et al., 2008; Fulcher & Coyle, 2011; Halpern & Perry-Jenkins, 2016; Kvalø et al., 2021; Polavieja & Platt, 2014; Starrels, 1992). Zooming in on HEED, a relatively contra-stereotypical division of household tasks within the family, in which fathers perform an equal number of domestic tasks as mothers or even take up the bigger part, could not only stimulate more equal gender attitudes towards HEED professions in both boys and girls but also stir boys' interest in such professions. Various HEED professions entail domestic characteristics, like childcare and household management (Fulcher & Coyle, 2011; Olsen et al., 2022). Similarly, having a father with a profession in the HEED domain may impede children's stereotypic attitudes towards HEED as well as encourage boys' enthusiasm for the domain (Croft et al., 2015). In contrast, growing up in a family in which the mother takes up the lion's share of daily household tasks and has a profession in HEED rather than the father is likely to stimulate gender-stereotypical attitudes towards and interest in HEED, with a greater preference for this domain in girls but not in boys (Fulcher & Coyle, 2011; Rollins & White, 1982).

1.3.3 | Socialization values

In addition, (perceived) pressure from others to conform to gender norms predicts adolescent and young adults' gender-stereotypical attitudes (Halimi et al., 2021) and interest in occupations (Dinella et al., 2014; Van Grootel et al., 2018). Parents who find it important that their children conform to the expectations of society might add to this pressure to conform to gender norms, whereas parents who focus more on self-expression might lower this pressure (Kantas et al., 2022; Stacey & Padavic, 2021). Further, the first group of parents might be more inclined to advise their children to alter their preferences and behaviour when facing negative reactions from others than the latter group (Kantas et al., 2022). In doing so, a group of parents who emphasize self-expression could empower children to develop and maintain interests that are not accepted by others (Kane, 2006). To date, no empirical study examined to what extent parental socialization values can predict adolescents' gender-stereotypical attitudes towards (HEED) occupations or gender-stereotypic interest in these careers.

1.4 | Hypotheses

Based on the literature, we expect that (H1) when adolescents hold more gender-stereotypic attitudes towards HEED, their interest in these careers will be more gender-stereotypic (i.e., more interest among girls, less among boys); (H2) when parents hold stronger gender-stereotypic attitudes towards occupations and raising children, their adolescents will have (a) more gender-stereotypic attitudes towards HEED occupations and (b) more gender-stereotypic interest in these careers (i.e., more interest among girls, less among boys); (H3) when parents show more stereotypic role model behaviour in the domain of paid and non-paid work, their adolescents will have (a) more gender-stereotypic attitudes towards HEED occupations

and (b) more gender-stereotypic interest in these careers (i.e., more interest among girls, less among boys); (H4) when parents value self-expression above inclusion in society, their adolescents will have (a) less gender-stereotypic attitudes towards HEED occupations and (b) less gender-stereotypic interest in these careers (i.e., more interest among girls, less among boys).

1.5 | The present research

Although various studies examined adolescents' general gender-stereotypic attitudes towards occupations and occupational aspirations (Cundiff et al., 2013; Garriott et al., 2017), few studies focused specifically on adolescents' gender-stereotypic attitudes towards HEED occupations and their occupational interest in these careers (Olsen et al., 2022). Studies that specifically focused on the latter generally rely on samples of adults or university students (Croft et al., 2015; Tellhed et al., 2017) or younger children (i.e., children below 10 years old; Halpern & Perry-Jenkins, 2016; Meyer & Gelman, 2016; Olsen et al., 2022). This study examines predictors of gender-stereotypic attitudes towards HEED occupations and gender-stereotypic interest in these careers among adolescents (aged between 10 and 18). We focus on this age group because young adolescents are particularly susceptible to stereotypic messages (Aronson & Good, 2002; Rainey & Borders, 1997), and important decisions for educational tracks are made during middle adolescence (DiDonato & Strough, 2013; Ramaci et al., 2017). The few studies that examined gender-stereotypical attitudes towards HEED occupations and interest in these careers were mostly carried out among United States, United Kingdom and Norwegian samples (Olsen et al., 2022; Polevieja, 2014). This study has been conducted in the Netherlands. Although the Netherlands scores relatively high (third) on the gender equality index, segregation in occupational domains is clearly visible (European Institute of Gender Equality [EIGE], 2022; Salanauskaite, 2017). Concerning education, gender segregation is among the highest in Western Europe (EIGE, 2022). In 2019, 81% of the care and welfare professions and 72% of pedagogic professions were fulfilled by women (Van den Brakel et al., 2020). Whereas in the Netherlands – similar to other countries (Van den Brakel et al., 2020) – the share of women in STEM professions increased over the last decades, the share of men in HEED professions has remained remarkably stable (Central Bureau for Statistics, 2019; Van den Brakel et al., 2020). Between 2009 and 2019, the share of men in care and welfare professions decreased by 1% and in pedagogic professions there was a slight increase of 4% (Central Bureau for Statistics, 2019; Van den Brakel et al., 2020). In this study, we aim to contribute to the understanding of why the disparity between boys and girls for interest in HEED careers is so high in a country where gender equality is relatively high in other domains compared to other (Western) countries (EIGE, 2022) by focusing on the association between adolescents' gender-stereotypic attitudes towards HEED and their interest in these careers, and the role parents play herein.

2 | METHOD

2.1 | Participants

This work is part of the longitudinal project 'Girls in Science' that examines adolescents' gender socialization in the family and school context in three samples at two-time points. This study reports on data from all three samples of the first time point. The data were collected between April 2018 and April 2021. For the first sample, we followed up on a longitudinal study conducted previously by the same research lab 'Boys will be boys', which recruited 391 families with two children when the second-born child was 12 months old and the first-born child was between 2.5 and 3.5 years old. All families of this sample were invited to participate again when the second-born child was 10 years old and the first-born child was 12 years old. Families were excluded if the family composition changed (e.g., divorce, decease). Of the families that were not excluded, 144 families agreed to participate again. Additionally, we recruited two new samples with older sibling pairs (12–14 and 15–17 years old at Wave 1). Families from the Western part of the Netherlands were recruited through municipality records and invited by mail. Consistent with the inclusion criteria of the first sample, families were eligible to participate if they consisted of opposite-sex couples with at least two children with a maximum age difference of 36 months between the two children.

Exclusion criteria were severe physical or mental disabilities of a family member, divorced/separated families, single-parent families, families with two non-biological parents and parents raised outside the Netherlands. These exclusion criteria were formulated over 15 years ago at the start of the longitudinal research project that informed the design of the current study aimed at facilitating cross-lagged modelling. In the original study, the focus was on the role of family processes on gender differences in social-emotional development. To examine these mechanisms in other types of families (e.g., single-parent families, families who adopted their children, families in which one or more family members had disabilities, or in which parents are born outside the Netherlands), study samples should include groups of parents and children that are sizable enough do to robust statistical analyses. Recruiting sizable groups of these families was beyond the scope of the larger study. This choice was based on the research context over a decade ago. Given that insights about inclusive sampling have changed considerably in the past decade, the choices would likely have been different now if the current study was not linked to an older design. Consequently, our first sample (sibling pairs aged between 10 and 12 years), and second sample (sibling pairs aged between 12 and 14 consisted of 164 participating families, and the third sample (sibling pairs aged 15–17 years) combined, our dataset consisted of 501 participating families (473 boys and 526 girls). The current study reports on data of mothers and fathers and their first- and second-born children. First-born children were between 11 and 18 years old ($M = 13.1$, $SD = 2.1$), and second-born children were between 9 and 16 years old ($M = 13.1$, $SD = 2.1$). Mothers were born between 1961 and 1984, and fathers were born between 1947 and 1985 (data were collected

between 2018 and 2021). Almost all parents (99%) were married or had a registered partnership or cohabitation agreement. Most parents had finished academic or higher vocational schooling (mothers: 74%, fathers: 71%). Most children (63%) were in high school, and the majority of children (85%) were enrolled in academic or higher vocational schooling. Families with missing values on the central predictors as well as both dependent variables were excluded from the analyses. This resulted in a final sample of 940 children with gender-stereotypic attitudes towards HEED and 964 children with stereotypic interest in HEED occupations.

2.2 | Procedure

For the research project 'Girls in Science', we visited families at home. Families were told that they would participate in a study on adolescents' future career preparation and the role parents and schools play in this process. The assessments (14% online due to COVID-19 restrictions) were conducted by trained (under) graduate students. Online visits were conducted using a combination of Kaltura Video Communication a to record the sessions. All four family members (father, mother, first-born, and second-born child) were present during the visit. During the assessment, dyadic parent–child and quadratic family interaction tasks were conducted and videotaped. All family members completed computer tasks, and second-born children were interviewed during the assessment. In addition, all four family members completed several questionnaires before and during the assessment (families assessed online completed questionnaires after instead of during the assessment). Each family member received a gift voucher for their participation. After the study was completed, families received further information about the goals of the study. Informed consent was obtained from all participating families. Ethical approval for this research was provided by the Research Ethics Committee of the Institute of Education and Child Studies of the host institute.

2.3 | Instruments

2.3.1 | Parental measures

Gender-stereotypical attitudes towards occupations. We measured parents' gender-stereotypical attitudes towards occupations, using the shortened and adjusted version of the Occupations, Attitudes, Traits–Attitude Measure (OAT-AM; ; see COAT-PM for a description of the scale development; Liben et al., 2002). Parents were asked who they think should carry out 25 different occupations on a 5-point Likert scale (*only men*, *men more than women*, *men and women*, *women more than men*, *only women*). Considering our sample of highly educated parents, who hold, in general, less explicit gender-stereotypic attitudes (Endendijk et al., 2014; Polevieja & Platt, 2014), we chose to categorize the answer categories *'men more than women* and *'women more than men'* as a (less) stereotypical attitude (recoded as 1) and answer categories *'only women'* and '*only men'* as stereotypical (recoded as 2). Answer categories '*both men and women'* and the counter stereotypical answer categories *'only men'* and *'more men than women'* were coded as 0. Internal consistency for masculine (mothers $\alpha = .88$, fathers $\alpha = .88$) and feminine occupations (mothers $\alpha = .73$, fathers $\alpha = .78$) was high. Stereotypical attitudes towards masculine occupations were highly correlated with stereotypical attitudes towards feminine occupations (mothers, $r = .77$, fathers $r = .78$), suggesting both scales measure the same underlying construct. Therefore, we created a composite scale for gender-stereotypic attitudes towards occupations by taking the average of both scales (following the work by Liben et al., 2002).

Gender-stereotypical attitudes towards raising children. Parents' explicit gender stereotypes towards raising children were measured with an adjusted version of the Child-Rearing Sex-Role Attitude Scale (CRSRAS; Lee Burge, 1981; Freeman, 2007). The version of Freeman (2007) consists of statements about raising young children. We adjusted this scale to contemporary issues of parents raising adolescents. An example of a statement is *'Babysitting is a more suitable side job for girls than for boys'*. Answer categories ranged from 1 'completely disagree' to 5 'completely agree'. We recoded the items in such a way that a higher score reflected more gender-stereotypic attitudes towards raising children. Internal consistency was high (mothers $\alpha = .87$, fathers $\alpha = .87$)

Division of domestic tasks. Mothers and fathers responded separately to a 26-item questionnaire about the division of domestic tasks in the family that was adapted from previous research (Endendijk et al., 2018) for use with an adolescent sample. Following previous studies, we selected 12 routine tasks from this questionnaire (e.g., groceries, cleaning, laundry) that are often performed daily, usually non-negotiable, and gender-stereotypic (i.e., more often carried out by women; Twiggs et al., 1999; Yavorsky et al., 2015). Parents could answer on a five-point scale (1 = '*I exclusively/almost exclusively perform this task'*, 5 = *'my partner exclusively/almost exclusively performs this task'*). When both parents indicated that a certain task was not carried out by any of them, this item was coded as a missing value. After recording the data of mothers, higher scores for both parents indicated that mothers did that task more often than fathers (i.e., a more traditional task division). Scores of fathers and mothers were highly correlated for household tasks ($r = .75$), suggesting similar perspectives on the division of labour. We took the average score of both parents per item to create a scale for the stereotypical division of domestic tasks. Subsequently, we took the average of these 12 tasks to construct a scale for the gender-stereotypic division of domestic tasks. Mean scores above 3 represent a traditional task division, scores around 3 represent an egalitarian task division, and scores below 3 represent a progressive task division. Internal consistency was high ($\alpha = .81$).

Occupation of parents in HEED domains. Mothers and fathers were asked to describe their current occupations. We classified these occupations into HEED and non-HEED occupations based on the definition of Croft et al. (2015), that is, communal roles where men are underrepresented and rely on a similar core set of skills and abilities (communal values and attributes) in HEED domains (see Table 1 for examples of HEED occupations from Croft et al., 2015). In addition,

TABLE 1 Examples of HEED professions (Croft et al., 2015).

Healthcare	Early education	Domestic
Nursing	Preschool and elementary teachers	Child care
Social work	Special education teachers	Household management
Occupational therapy	School counsellors	
Hospital administration	Librarians	

parents without a paid position who did unpaid domestic work (taking care of the household, caregiving for family members or others) were coded as having a HEED occupation. After the first author classified all occupations, these were discussed with authors two, four, and six to reach a consensus. In total, 281 mothers (29%) and 43 fathers (4%) had an occupation in HEED. To include in our analyses whether or not parents had a profession in HEED domains, we created dummy variables.

Socialization values. We measured socialization values about conforming to society with a self-developed rating scale question. Parents were asked where they would place themselves on a 7-point scale where 1 referred to the statement '*For me, the most important is that my child is accepted by others and society, even if that means that they cannot always be themselves and need to adapt (e.g., clothes, preferences, or identity)*' and 7 referred to the statement *'For me, the most important is that my child can fully be themselves, even if that means that they will not always be accepted by others or society (e.g., due to deviant opinions or preferences)*'.

2.3.2 | Child measures

Stereotypical attitudes towards and interest in HEED occupations. We created scales for stereotypical attitudes towards HEED professions and interest in these careers based on an adapted version of the occupations scale of the Children's Occupations, Attitudes, Traits – Attitude Measure (COAT-AM and COAT-PM; Liben et al., 2002). For this study, the occupations were translated into Dutch and adjusted to the Dutch context. Based on the definition of HEED given by Croft et al. (2015), we selected the following eight occupations, which cover all four subcategories of HEED: nurse, dental assistant, obstetrician (i.e., midwife), dietician, elementary school teacher, child care teacher, babysitter and house cleaner. Adolescents in our study were asked who they think should carry out these occupations ('*only men*', *'men more than women'*, *'men and women'*, *'women more than men'*, *'only women'*) and classify these occupations according to how much they would like to do that job in the future (*1 'not at all'* to *4 'very much'*). As the names of many occupations have a gender component in Dutch, a short description of each occupation rather than the name was given (e.g., *'helping the doctor'* for a nurse). Additionally, an image depicting one or more objects related to the occupation was added to each item (e.g., medical tools). The translated descriptions and images of professions are presented in Figure A1 in Appendix A. As with the parent version of gender-stereotypic attitudes towards occupations, we recoded '*more women than men*' into 1 and the answer category '*only women*' into 2. Excluding the occupation of an obstetrician, resulted in higher internal consistency and was therefore omitted from both scales. The internal consistency for gender-stereotypic attitudes towards HEED was high (boys $\alpha = .80$, girls $\alpha = .76$) and satisfactory for gender-stereotypic interest (boys $\alpha = .68$, girls $\alpha = .67$). . In Figures B.1–B.4 of Appendix B, histograms for the gender-stereotypic attitudes towards and interest in HEED occupations are presented for boys and girls.

Analysis plan. To test our hypotheses, we used linear multilevel analyses. All analyses were performed with the use of IBM SPSS Statistics 26. We carried out our analyses separately for boys and girls. We cannot simply assume that for boys and girls gender-stereotypic attitudes and gender-stereotypic interests can be predicted by the same parental characteristics (Halimi et al., 2016). This makes our results easier to interpret compared to analyses in which gender is included as a moderator. By using multilevel analysis, we take into account that children are nested within families. Random intercept models were applied to take possible family differences into account for the intercepts of gender-stereotypical attitudes towards, and gender-stereotypic interest in HEED occupations. For boys, an empty model showed that around 25% of the variation in gender-stereotypical attitudes towards HEED occupations and 23% of the variation in gender-stereotypic interest in these occupations can be attributed to family characteristics. For girls, an empty model showed that 18% of the variation in gender-stereotypical attitudes towards HEED and 11% of the variation in gender-typed interest in HEED professions can be attributed to family characteristics. For both boys and girls, age was not a significant predictor for either gender-stereotypic attitudes towards HEED or interest in HEED careers and was, therefore, not included as a control variable in the analyses.

To test our first hypothesis, we examined to what extent adolescents' gender-stereotypical attitudes towards HEED careers can predict their gender-stereotypic interest in these careers. Subsequently, we build up our models with parental attitudes (Model 1), role model behaviours (Model 2) and socialization values (Model 3) as predictors of adolescents' gender-stereotypical attitudes towards HEED professions (presented in Table 4) and adolescents' gender-stereotypic interest in these careers (presented in Table 5). In Model 1, we included parental gender-stereotypic attitudes towards occupations and raising children. Both types of stereotypic attitudes were moderately correlated ($r = .51$ for fathers and $r = .47$ for mothers). To distinguish these relationships, we decided to present them in separate models (Model 1A and Model 1B). In Model 2, we included parental gender-stereotypic role model behaviour (a gender-stereotypic division of household tasks and whether or not parents worked in HEED domains). In Model 3, we included fathers' and mothers' socialization values (self-expression above acceptance by others). We also tested whether the associations with parental attitudes, behaviours and socialization values hold significance when added simultaneously in a single model (Model 4). We paid attention to multicollinearity in all our models by examining the VIF (variance

TABLE 2 Descriptive statistics of characteristics of children and parents.

		Boys ($n = 473$)		Girls ($n = 526$)	
	Range	*M*	*SD*	*M*	*SD*
Characteristics children					
Stereotypical attitudes towards HEED	0–2	0.37	0.32	0.30	0.29
Gender-typed interest in HEED	1–4	1.92	0.49	2.38	0.53
		Fathers ($n = 499$)		Mothers ($n = 499$)	
	Range	*M*	*SD*	*M*	*SD*
Characteristics parents					
Stereotypical attitudes: occupations	0–2	.27	0.27	.18	0.22
Stereotypical attitudes: raising children	1–4	2.05	0.57	1.81	0.51
Stereotypical division of domestic tasks	1–5	3.54	0.57	3.54	0.87
Socializing values: self-expression	1–7	5.40	1.06	5.49	0.60

inflation factor). In none of our models was multicollinearity a problem. In addition, we checked whether the residuals for gender-stereotypic attitudes towards HEED occupations and gender-stereotypic interest in HEED occupations were normally distributed (visual data representations are available upon request). For HEED interest, the residuals are approximately normally distributed. For attitudes towards HEED occupations, the residuals show some non-normality. Yet, as we have a sufficiently large sample ($N > 50$; Lumley et al., 2002), the central limit theory allows us to meet the assumption of normality even when the errors are not from a normal distribution (Casson & Farmer, 2014).

3 | RESULTS

3.1 | Data inspection

Preliminary analyses were conducted to check the distribution of the variables. Outliers were Winsorized to bring them closer to the rest of the score distribution (Tabachnick & Fidell, 1996). To determine whether the central predictors in our study are linearly related to adolescents' gender-stereotypic attitudes towards HEED and their gender-typed interest in these occupations, we carried out tests for linearity (analysis of variance). Of the 26 tested associations, only the relation between the father's gender-stereotypic attitudes towards professions and boys' stereotypic attitudes towards HEED and the relation between mothers' gender-stereotypic attitudes towards occupations and the stereotypical division of domestic tasks and girls' gender-stereotypic interest in HEED careers appeared non-linear. We decided not to include these independent characteristics as dummy variables, as any categorization of these composite scale variables would be arbitrary and decrease the comparability among the analyses for boys and girls. Consequently, the results of these three associations should be interpreted with caution.

Descriptive statistics. In Table 2, descriptive statistics are presented for the central variables of this study. We tested the homogeneity of variance for boys' and girls' gender-stereotypic attitudes towards HEED and their interest in these careers by carrying out Levene's tests. Concluding from these tests, homogeneity of variance can be assumed. On average, boys had significantly stronger gender-stereotypic attitudes towards HEED occupations ($t(962) = 3.85$, $p < .001$) and were less interested in these careers than girls ($t(963) = -14.29$, $p < .001$). We calculated effect sizes for these gender effects and interpreted these in line with Cohen (1977). For gender-stereotypic attitudes, the effect size was small ($d = 0.25$); for gender-stereotypic interest, the effect size was large ($d = 0.92$). Fathers had significantly higher gender-stereotypic attitudes towards occupations ($t(489) = 6.29$, $p < .001$, $d = 0.35$) and gender-stereotypic attitudes towards raising children compared to mothers ($t(488) = 8.12$, $p < .001$, $d = 0.43$). Our composite measurement for parental gender-stereotypical division of household tasks showed that mothers did on average more domestic tasks, revealing a gender-stereotypic division of domestic tasks ($M = 3.6$, $SD = 0.5$). The underrepresentation of men in HEED is visible in our sample: 4% of the fathers and 28% of the mothers had a profession in HEED. Mothers found self-expression on average (slightly) more important for their children compared to fathers, but this difference did not reach statistical significance ($t(465) = -1.83$, $p = .068$, $d = 0.11$).

3.2 | Results from multilevel analyses

3.2.1 | Adolescents' attitudes and gender-stereotypic interest in HEED occupations

Table 3 shows that adolescents' gender-stereotypic attitudes towards HEED occupations predict their gender-stereotypic interest in these careers: the stronger boys' gender-stereotypic attitudes towards HEED, the less interested they are in these careers, whereas the stronger girls' gender-stereotypic attitudes towards HEED occupations, the more interested they are in these careers. Consequently, Hypothesis 1 was confirmed in our data.

TABLE 3 Adolescents' gender-stereotypic attitudes predicting gender-typed interest in HEED occupations.

	Boys ($n = 454$) Model 1 *b* (*SE*)	Girls ($n = 510$) Model 1 *b* (*SE*)
Stereotypic attitudes towards HEED occupations	−.202** (0.07)	.253** (0.08)
Intercept	2.000*** (0.07)	2.306*** (0.03)
Variance individual level	.180 (0.02)	.247
Variance family level	.051 (0.02)	.026
−2log-likelihood	576.359	742.721

Note: Values represent unstandardized regression coefficients. Standard error (*SE*) in parentheses.
*$p < .05$,
**$p < .01$,
***$p < .001$.

3.2.2 | Adolescents' gender-stereotypic attitudes towards HEED occupations

In Table 4, the results of the multilevel analyses predicting children's attitudes towards HEED professions are presented.

Gender-stereotypic attitudes. Model 1A shows that adolescent boys and girls hold stronger gender-stereotypic attitudes towards HEED when their mothers have stronger gender-stereotypic attitudes towards occupations. Girls also hold stronger gender-stereotypic attitudes towards HEED when their fathers have stronger gender-stereotypic attitudes towards occupations. For boys, this association is in the expected direction, but not significant ($p = .064$), meaning that boys do not hold significantly stronger gender-stereotypic attitudes towards HEED occupations when their fathers have stronger gender-stereotypic attitudes towards occupations.

Model 1B shows that adolescents have stronger gender-stereotypic attitudes towards HEED when their mothers hold stronger gender-stereotypic attitudes towards raising children. For fathers, this association is not significant. Consequently, Hypothesis 2a was fully supported in our data for mothers and partly for fathers.

Role model behaviour. In Model 2, parents' gender-stereotypic division of domestic tasks was not significantly related to adolescents' gender-stereotypic attitudes towards HEED occupations. Yet, in line with our expectations, girls with mothers who have a HEED profession hold stronger gender-stereotypic attitudes towards HEED careers compared to girls whose mothers work in other domains. For boys, this association was not significant. Adolescents with fathers who work in HEED domains do not hold less gender-stereotypic attitudes towards HEED compared to those whose fathers work in other domains. Therefore, Hypothesis 3a was only partly confirmed for mothers by our data and not confirmed for fathers.

Socialization values. In Model 3, fathers' socialization values (valuing self-expression above being accepted by society) are significantly related to their boys' gender-stereotypic attitudes towards HEED. The more fathers value self-expression, the less gender-stereotypic attitudes their boys hold towards HEED occupations. For girls, this association is not significant. Mothers' socialization values are not significantly related to adolescents' gender-stereotypic attitudes. Thus, Hypothesis 4a was partly supported by our data for fathers and not supported for mothers.

Final model. In Model 4, gender-stereotypic attitudes of mothers towards occupations and fathers' socialization values were also while controlling for all other parental characteristics, significantly related to boys' gender-stereotypic attitudes towards HEED occupations. For girls, this final model shows that gender-stereotypic attitudes of fathers towards occupations and mothers' gender-stereotypic attitudes towards raising children were, also while controlling for all other parental characteristics, significantly related to stronger gender-stereotypic attitudes towards HEED occupations.

3.2.3 | Adolescents' gender-stereotypic interest in HEED occupations

In Table 5, the results of the multilevel analyses predicting adolescents' attitudes towards HEED professions are presented.

Gender-stereotypic attitudes. In Model 1A, parental stereotypic attitudes towards occupations were not significantly related to boys' and girls' gender-stereotypic interest in HEED careers. Also, parental gender-stereotypic attitudes towards raising children (Model 1B) were not significantly related to adolescents' interest in HEED occupations. Therefore, Hypothesis 2b was not supported by our data.

Role model behaviour. In Model 2 for boys, the association between the parental stereotypic division of domestic tasks and interest in HEED careers was in the expected direction but not significant for girls and approached significance for boys ($p = .067$). Furthermore, gender-stereotypical interest in HEED careers was not significantly different between adolescents who have parents working in HEED domains and adolescents who do not have parents working in HEED domains. Thus, Hypothesis 3b in HEED was not supported by our data.

Socialization values. In Model 3, we found that for both boys and girls the relation between parental socialization values is non-significant. Therefore, Hypothesis 4b was not supported by our data.

Final model. In Model 4, parental attitudes, role model behaviours and socialization values were added simultaneously. For boys, this final model shows that parental gender-stereotypical division of domestic tasks is while controlling for all other parental characteristics, significantly related to boys' gender-stereotypic interest in HEED occupations. The more gender-stereotypic this division, the less interested boys were in HEED careers. Because this association was significant while controlling for parental attitudes and socialization values, this analysis partly confirmed Hypothesis 3b. For girls, this relation was also non-significant in this final model. For both boys and girls, all other parental characteristics remained non-significant when added simultaneously.

TABLE 4 Parental characteristics predicting adolescents' gender-stereotypic attitudes towards HEED occupations.

	Boys ($n = 442$)					Girls ($n = 498$)				
	Model 1A	Model 1B	Model 2	Model 3	Model 4	Model 1A	Model 1B	Model 2	Model 3	Model 4
Gender stereotypical attitudes										
Stereotype fathers: occupations	.118 (0.06)				.111 (0.07)	.163*** (0.05)				.163** (0.05)
Stereotype mothers: occupations	.268*** (0.07)				.231* (0.09)	.246*** (0.06)				.136 (0.07)
Stereotype fathers: raising children		.045 (0.03)			−.009 (0.03)		.031 (0.02)			−.017 (0.03)
Stereotype mothers: raising children		.083*(0.03)			.024 (0.04)		.122***(0.03)			.073* (0.03)
Stereotypic behaviour										
Division of domestic tasks			.052 (0.03)		.015 (0.03)			.043 (0.03)		.005 (0.03)
Father HEED professional (ref = no)										
• Yes			.027 (0.08)		.019 (0.08)			.035 (0.07)		.010 (0.07)
• Missing			.036 (0.09)		.053 (0.12)			−.068 (0.08)		−.067 (0.09)
Mother HEED professional (ref = no)										
• Yes			.014 (0.04)		−.001 (0.04)			.068*(0.03)		.036 (0.03)
• Missing			.136 (0.09)		.037 (0.10)			.001* (0.11)		−.016 (0.10)
Socialization values										
Fathers: self-expression				−.043** (0.01)	−.033* (0.01)				−.021 (0.01)	−.012 (0.01)
Mothers: self-expression				−.009 (0.02)	.001 (0.02)				−.020 (0.01)	−.008 (0.01)
Intercept	.294***(0.02)	.131(0.07)	.180 (0.12)	.652*** (0.11)	.395* (0.18)	.211*** (0.02)	.018 (0.06)	.125 (0.10)	.520 (0.10)	.213 (0.16)
Variance individual level	.076 (0.01)	.077 (0.01)	.077 (0.01)	.078 (0.01)	.077 (0.01)	.072 (0.01)	.071 (0.01)	.071 (0.01)	.069 (0.01)	.071 (0.01)
Variance family level	.020 (0.01)	.023 (0.01)	.024 (0.01)	.023 (0.01)	.020 (0.01)	.009 (0.01)	.012 (0.01)	.014 (0.01)	.016 (0.01)	.008 (0.01)
−2log-likelihood	221.433	230.278	236.949	231.312	211.491	159.563	167.709	184.373	184.026	142.599

Note: Values represent unstandardized regression coefficients. Standard error in parentheses.
*$p < .05$,
**$p < .01$,
***$p < .001$.

TABLE 5 Results parental characteristics predicting adolescents' gender-typed interest in HEED occupations.

	Boys ($n = 454$)					Girls ($n = 510$)				
	Model 1A	Model 1B	Model 2	Model 3	Model 4	Model 1A	Model 1B	Model 2	Model 3	Model 4
Gender stereotypic attitudes										
Stereotype fathers: occupations	.183 (0.09)				.202 (0.11)	−.003 (0.09)				−.007 (0.10)
Stereotype mothers: occupations	.066 (0.11)				.140 (0.13)	.058 (0.11)				.005 (0.13)
Stereotype fathers: raising children		.020 (0.04)			−.007 (0.05)		.010 (0.04)			.027 (0.05)
Stereotype mothers: raising children		.011 (0.05)			−.036 (0.06)		.042 (0.05)			.031 (0.06)
Gender stereotypic behaviour										
Division of domestic tasks			−.093 (0.05)		−.120* (0.05)			.046 (0.05)		.022 (0.05)
Father HEED professional (ref = no)										
Yes			−.029 (0.12)		−.051 (0.12)			.236 (0.12)		.238 (0.12)
Missing			.054 (0.13)		.205 (0.19)			−.186 (0.14)		−.307 (0.17)
Mother HEED professional (ref = no)										
• Yes			.062 (0.06)		.075 (0.06)			−.091 (0.05)		−.099 (0.06)
• Missing			.036 (0.14)		.126 (0.15)			−.024 (0.18)		−.016 (0.19)
Socialization values										
Fathers: Self-expression				−.025 (0.02)	.023 (0.02)				−,014 (0.02)	−.010 (0.02)
Mothers: Self-expression				.023 (0.02)	−.025 (0.02)				−,026 (0.03)	−.020 (0.03)
Intercept	1.856*** (0.04)	1.852*** (0.11)	2.229*** (0.18)	1.917*** (0.16)	2.340*** (0.28)	2.376*** (0.04)	2.289 (0.11)	2.242*** (0.18)	2,602*** (0.18)	2.382*** (0.29)
Variance individual level	.187 (0.02)	.187 (0.02)	.181 (0.02)	.188 (0.02)	.185 (0.02)	.252 (0.03)	.252 (0.03)	.254 (0.03)	.254 (0.03)	.254 (0.03)
Variance family level	.049 (0.02)	.052 (0.02)	.053 (0.02)	.045 (0.02)	.042 (0.02)	.028 (0.02)	.028 (0.02)	.022 (0.02)	.027 (0.02)	.021 (0.02)
−2log-likelihood	613.915	618.317	624.964	594.748	576.403	788.502	787.841	789.615	765,211	755.271

Note: Values represent unstandardized regression coefficients. Standard error in parentheses.
***$p < .001$,
**$p < .01$,
*$p < .05$.

4 | DISCUSSION

This study aimed to add to the literature on adolescents' gender-stereotypic attitudes and interest in HEED occupations by examining (1) the association between adolescents' stereotypic attitudes towards HEED occupations and their stereotypic interest in HEED careers, (2) the association between, respectively, parental gender-stereotypic attitudes, gendered role model behaviour and socialization values with adolescents stereotypic attitudes towards and interest in HEED occupations. We examined these associations in the Netherlands, a country in which gender equality is valued, but at the same time has among the highest levels of gender segregation in education in Western Europe (EIGE, 2022). First, we found that, in line with the theory of gender schema theory (Bem, 1981, 1983), adolescents' gender-stereotypic attitudes towards HEED occupations predicted their gender-stereotypic interest in these careers (i.e., lower interest in HEED among boys, higher interest among girls). Second, we found that fathers and mothers seem to play a unique role in predicting gender-stereotypic attitudes for adolescent boys and girls. For boys, mothers' gender-stereotypic attitudes, and fathers' socialization values are related to stereotypic attitudes towards HEED occupations. For girls, gender-stereotypic attitudes of both mothers and fathers and having a mother working in a HEED domain are related to gender-stereotypic attitudes towards HEED occupations. Third, we found that except for parental gender-stereotypical household tasks division, these parental characteristics were not related to gender-stereotypic interest in HEED careers. For boys, but not for girls, stronger parental gender-stereotypic division of household tasks was related to more gender-stereotypic interest in HEED careers.

4.1 | Adolescents' gender-stereotypic attitudes and interest in HEED occupations

Previous studies examined the association between gender-stereotypic attitudes towards occupations in general and occupational interest in STEM domains (Cundiff et al., 2013; Garriott et al., 2017). However, few studies focused on this association in the HEED domain (except Olsen et al., 2022). Our findings show that adolescents' gender-stereotypic attitudes towards HEED occupations seem to stir their interest in these careers. This association is in line with Bem's theory of gender schemas: when children incorporate the societal norm that HEED occupations are more suitable for women in their gender schemata, these professions are more interesting for girls than for boys (Liben et al., 2002). This association is in line with the study of Olsen et al. (2022) among young children, but not in line with other previous studies among young children, which found no associations between gender-stereotypic attitudes and gender-stereotypic occupational preferences (De Vries et al., 2022; Liben et al., 2002). This illustrates the need for more research on the development of gender-stereotypic interest in HEED careers specifically throughout childhood.

4.2 | Adolescents' gender-stereotypic attitudes towards HEED occupations

4.2.1 | Parental gender-stereotypic attitudes

Regarding parental predictors, we found that in line with the theory of gender schemas, when mothers hold more gender-stereotypic attitudes towards occupations in general and towards raising children, their children have more gender-stereotypic attitudes towards HEED occupations. Previous studies on the transmission of gender-stereotypic attitudes from parents to children mainly focused on younger children and used measurements that might be outdated (Halpern & Perry-Jenkins, 2016; Solbes-Canales et al., 2020). The current study illustrates that, as expected, contemporary parental gender-stereotypic attitudes are also related to adolescents' gender stereotypes about HEED occupations. In contrast to the gender schema theory, but in line with previous empirical studies among younger children, we did not find similar effects for fathers. Here we should state that for boys, this result should be interpreted with caution due to the violation of the linearity assumption. The absence of effects for fathers in previous studies might be explained by the fact that fathers on average spend less time with their children, and therefore have fewer opportunities to transmit their attitudes to their children (Halpern & Perry-Jenkins, 2016). Although the difference between fathers and mothers in the time they spend with their children is often assumed to decrease when children get older, this is not supported by the literature (Mastrotheodoros, 2019; Phares et al., 2009). We found one exception in this pattern of absent associations between fathers' and children's gender-stereotypic gender attitudes. Daughters of fathers with more gender-stereotypic attitudes towards occupations, in general, have more stereotypic attitudes towards HEED careers. Perhaps fathers' stereotypes about occupations might become important during adolescence, a period where decisions about studies and occupations become more salient (DiDonato & Strough, 2013; Ramaci et al., 2017). As gender norms about occupations are less rigid for women than for men (Wilbourn & Kee, 2010), daughters might be inclined to take both parents' attitudes towards occupations into account.

4.2.2 | Parental role model behaviour

Regarding role model behaviour, our results are partly in line with previous studies. Consistent with the theory of gender schema, daughters of mothers who have HEED careers hold more gender-stereotypic attitudes towards HEED occupations. This is in line with the study of Fulcher and Coyle (2011), which found that parental work traditionality predicts girls' (but not boys') endorsement of the breadwinner ideal. In contrast to this theory, we did not find any effect for fathers working in HEED professions. We should acknowledge here that it is likely that our sample size did not have the restrictive statistical power to detect effects for a small group (merely 4% of the fathers

were HEED professionals). Studies focusing specifically on fathers working in these counter-stereotypic occupations might provide more insight into whether, and to what extent, these fathers socialize their children with less gender-stereotypic messages. Also, in contrast to previous studies, we did not find associations between parental stereotypic household division and adolescents' gender-stereotypic attitudes towards HEED occupations (Halpern & Perry-Jenkins, 2016). This could indicate that this role model behaviour is related more strongly to implicit gender stereotypes of adolescents, rather than explicit ones. These absent associations cannot be ascribed to our highly educated sample, because the household division of the majority of the families in our study is relatively gender stereotypic, meaning that the mother takes up the lion's share of routine household tasks.

4.2.3 | Socialization values

In addition to parental attitudes and role model behaviours, socializing values about the importance of self-expression for children were of added value when predicting boys' gender-stereotypic attitudes towards HEED occupations. When fathers valued self-expression as more important for their children, their sons held less gender-stereotypic attitudes towards HEED. In qualitative research on gender norms, conformity values are theorized to explain differences in parental acceptance of young children's gender counter-stereotypic behaviour and interest (Croft et al., 2014; Stacey & Padavic, 2021). Our results indicate that these differences in parental socialization values are indeed able to predict gender-stereotypic attitudes among adolescent boys. Our findings show that when it comes to self-expression, fathers might very well play a more crucial role in preparing their sons for growing up in a society where their masculinity is likely to be questioned when not conforming to rigid gender norms (Croft et al., 2014; Stacey & Padavic, 2021). Further research is needed to examine *how* fathers transmit these values to their sons to fully understand these associations.

4.3 | Adolescents' gender-stereotypic interest in HEED occupations

For adolescents' gender-stereotypic interest in HEED, we found only one parental predictor. We should state here that for girls, the nonsignificant associations between mothers' gender-stereotypic attitudes and parental gender-stereotypic division of household tasks and adolescents' interest in HEED careers should be interpreted with caution due to the violation of the linearity assumption. Our results might imply that other mechanisms apply to the development of gender-stereotypic interest, for example, parents' implicit gender stereotypes or other forms of gender socialization (i.e., gender talk, gender-differentiated parenting). Previous studies found some support for the influence of parental implicit gender stereotypes. Daughters of fathers with more implicit gender stereotypes have more gender-stereotypic occupational aspirations (Croft et al., 2014). Studies examining implicit gender stereotypes and other forms of explicit and implicit gender socialization (i.e., gender talk, gender-differentiated parenting) could provide more insights into these mechanisms. Yet, in line with the theory of gender messages, we found that parental gender-stereotypic division of household tasks predicted lower interest in HEED careers among boys. This suggests that even when parents have low levels of gender-stereotypic attitudes, observing a traditional division of household tasks in daily life can affect boys' gender-stereotypic interest in HEED careers. As this was the only parental characteristic predicting gender-stereotypic interest in HEED careers among boys, there is a possibility of a type I error. Therefore, this result should be interpreted with caution. The fact that we found an effect for boys, but not for girls is in line with the study of Polevieja and Platt (2014), but in contrast to the study by Croft and colleagues (2014), who found an effect for girls. These inconsistencies could be driven by the use of different measurements of gender-stereotypic household division across these studies (in or excluding caregiving tasks, focusing on hours spent on these tasks, or the types of tasks). To shed light on these effects, future studies might benefit from a more comprehensive measurement of gender-stereotypic household task division.

4.4 | Limitations

The current study has some limitations. First, due to its cross-sectional design, this study cannot provide insights into issues of causality. Future research would benefit from a panel design to investigate to what extent parental attitudes, role model behaviour and socialization values cause adolescents' gender-stereotypic attitudes and interest in HEED careers over the life course of individuals (Crouter et al., 2007; Halimi et al., 2016). Second, as our sample was not representative (highly educated, White, consisting of a father and a mother, mostly living in non-rural areas), we cannot generalize our findings to the general Dutch population. Previous studies show that gender-stereotypic attitudes and interests vary among families with different backgrounds (Crouter et al., 2007; Halimi et al., 2016). For example, stronger gender-stereotypic attitudes and interests were found among families with lower socio-economic status (Halpern & Perry-Jenkins, 2016). Therefore, future studies would benefit from a more inclusive sample, especially when it comes to socio-economic status. In addition, future studies should aim for more gender-inclusive samples (i.e., not limited to people who identify with the gender binary) to gain a more comprehensive understanding of gender-stereotypic attitudes and interests (Swenson et al., 2022). Family members from trans and non-binary communities can challenge cis-normative expectations, and in doing so inform the gender development in families (McGuire et al., 2016). Studies specifically focusing on these groups could give valuable insights into gender-stereotypic occupational interests and gender-stereotypic attitudes (Swenson et al., 2022).

Third, we relied on questionnaires, which can be prone to social desirability and therefore, for example, underestimate gender-

stereotypic attitudes (Lagattuta et al., 2012). Moreover, they do not provide insights into how these attitudes and socialization values are transmitted during parent–child interaction (e.g., gender-differentiated behaviour, gendered talk). Observational studies could shed more light on these processes. Finally, we measured gender stereotypic attitudes towards and interest in three of the HEED professions (dental assistant, nurse, obstetrician) by a description that included 'helping'. This could have added to the perception of the communal nature of these jobs, and thereby the perceived femininity of these professions (Forsman & Barth, 2017). Yet, by including visualizations of these professions, children in this study did not solely rely on these descriptions. Future research should examine to what extent including descriptions as 'helping' plays a role in gender-stereotypic attitudes towards, and interest in, HEED professions. Furthermore, this could provide insight into how studies for HEED jobs and descriptions in a vacancy can be made more attractive for boys and men (Forsman & Barth, 2017).

5 | CONCLUSION

Having more men represented in HEED occupations would be beneficial for men, women and society as a whole (Meeussen et al., 2020). Where previous studies on attitudes towards and interest in HEED occupations often focused on individual characteristics of young adults and the influence of parental characteristics on younger children, this study focused on adolescents and their parents. In line with the theory of gender schema, the present findings suggest that even among advantaged adolescents in a relatively gender-equal country such as the Netherlands, explicit gender-stereotypic attitudes about traditionally perceived feminine occupations and careers seem to induce gendered interest in these careers. For boys, these gender-stereotypic attitudes towards HEED occupations are predicted by mothers' gender-stereotypic attitudes and fathers' socialization values, and for girls predicted by both mothers' and fathers' gender-stereotypic attitudes and having a mother working in the HEED domain. These findings seem to reflect the relatively high horizontal gender segregation in education in the Netherlands compared to other Western European countries (EIGE, 2022).

Based on these findings, reducing adolescents' gender-stereotypical attitudes seems an important step to ascertain more male representation in HEED occupations and, therefore, deserves more attention from policymakers and educators. In doing so, parents' gender-stereotypic attitudes should be taken into account, as this appears to be important in developing these attitudes towards HEED. Parents who want their children to develop their own talents and preferences rather than the talents and preferences that society expects from them can be encouraged to critically evaluate their own (gender) stereotypic attitudes and behaviour and, for boys encourage self-expression.

ACKNOWLEDGMENT

This research was supported by an ERC grand.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

PATIENT CONSENT AND ETHICAL STATEMENT

Informed consent was obtained from all participating families. Ethical approval for this research was provided by the Research Ethics Committee of the Institute of Education and Child Studies of Leiden University (File number ECPW-2017/189).

DATA AVAILABILITY STATEMENT

Our data are currently not open for access but will be in the coming months.

TRANSPARENCY STATEMENT

The data will be made available but is currently not. It will be around the end of January.

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How to cite this article: van de Rozenberg, T. M., van der Pol, L. D., van Esveld, S., Groeneveld, M. G., Kroes, A. D. A., & Mesman, J. (2024). The role of parents in predicting gender-stereotypic attitudes towards HEED occupations and gender-stereotypic interest in these careers. *European Journal of Social Psychology*, *54*, 478–494. https://doi.org/10.1002/ejsp.3029

APPENDIX A

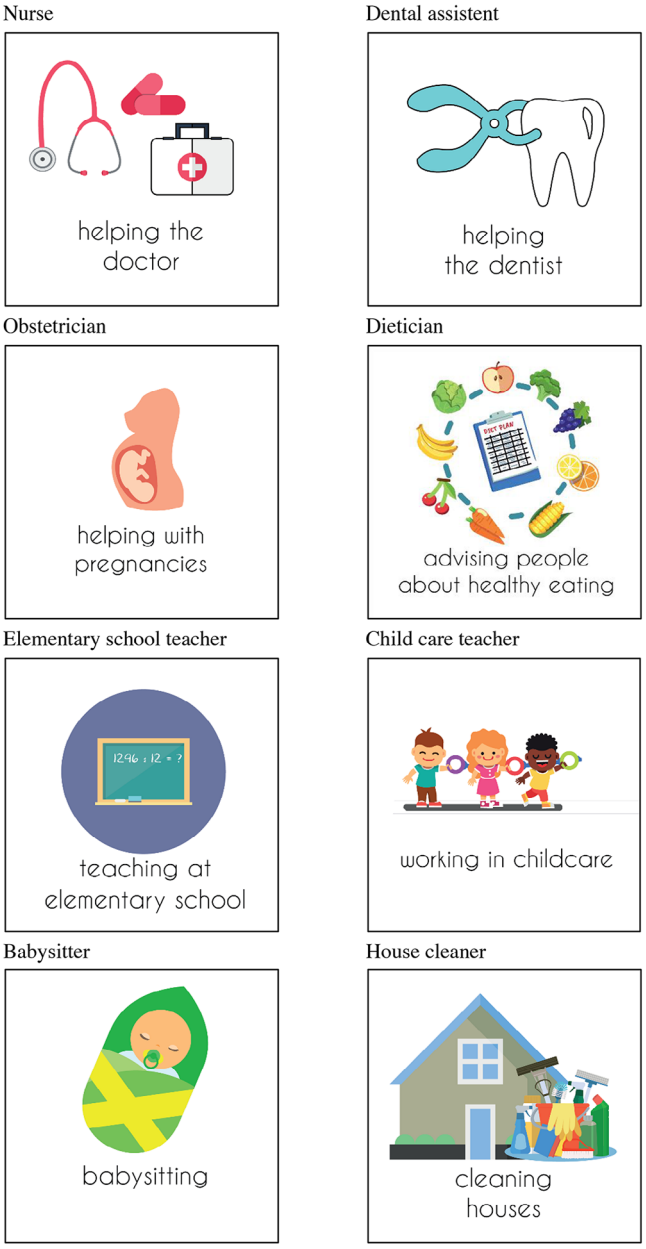

FIGURE A1 Translated descriptions and images of HEED professions.

APPENDIX B: Histograms Of Both Gender-Stereotypic Attitudes Towards And Interest In Heed Occupations

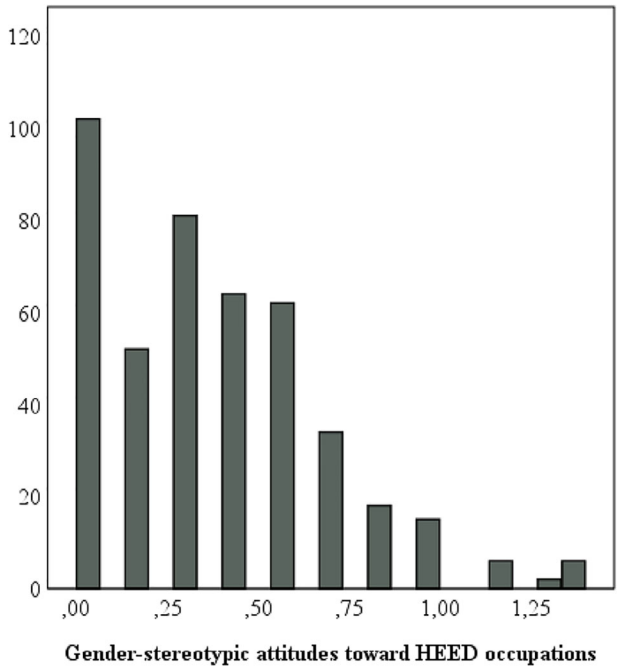

FIGURE B.1 Boys' gender-stereotypic attitudes towards HEED occupations.

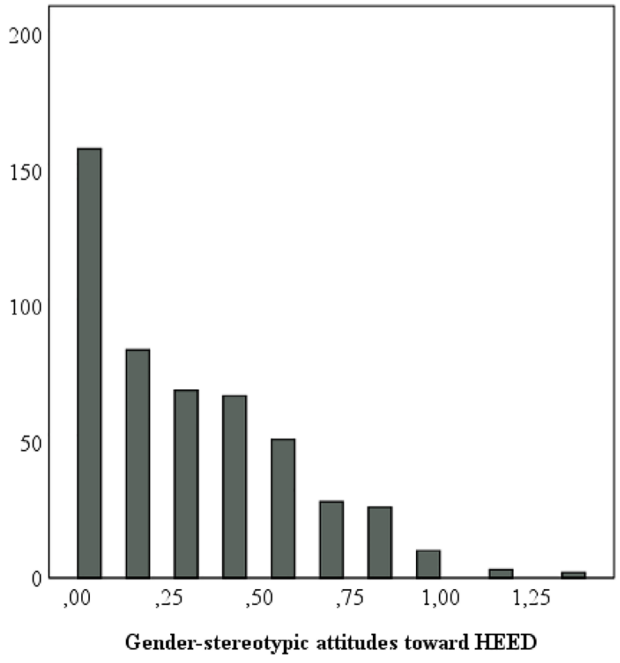

FIGURE B.2 Girls' gender-stereotypic attitudes towards HEED occupations.

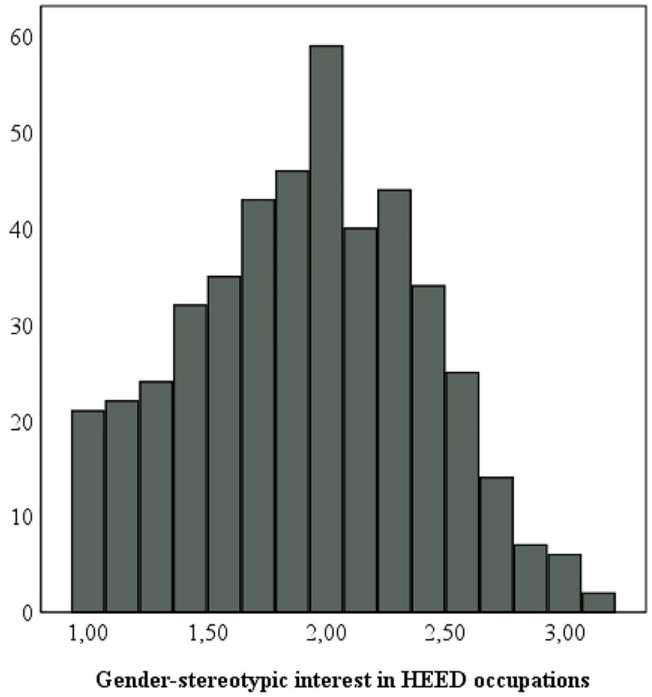

FIGURE B.3 Boys' gender-stereotypic interest in HEED occupations.

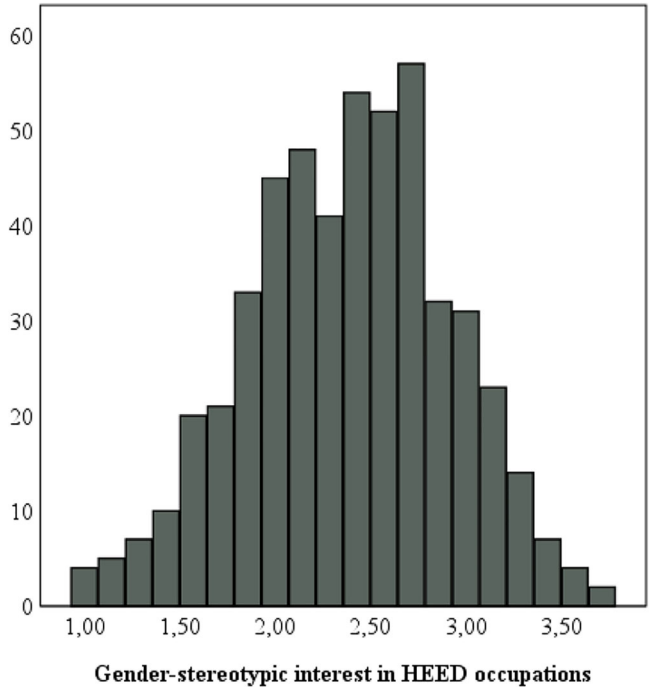

FIGURE B.4 Girls' gender-stereotypic interest in HEED occupations.