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Parents' Gender Role Attitudes and Child Adjustment: The Mediating Role of Parental Involvement

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Abstract

Parents' gender role attitudes are pertinent to child adjustment. Importantly, parental involvement may help to explain the link between parents' gender role attitudes and child adjustment. In this study, we investigated the differential contributions of mothers' and fathers' gender role attitudes on child adjustment, with the quality of mother and father involvement as mediators. Given that parental involvement is gender-differentiated in the Chinese context, actor and partner effects of mothers' and fathers' gender role attitudes on parental involvement were also examined. Participants were 211 maritally intact families from China, including mothers and fathers of children aged 4 to 7 years old. The findings based on structural equation modeling identified the actor and partner effects of fathers' greater traditional gender role attitudes on a lower quality of mother and father involvement, whereas mothers' greater traditional gender role attitudes were only related to a lower quality of mother involvement. Greater mother and father involvement was further associated with children's greater prosocial behavior. The findings suggested the mediating role of the combined mother and father involvement between fathers' gender role attitudes and children's prosocial behavior. This study underscores the interdependent nature of mothers' and fathers' behavior on child adjustment. The findings inform researchers and practitioners of the importance of reducing both parents' traditional gender role attitudes and enhancing the quality of parental involvement to foster child adjustment.

Keywords Parents' gender role attitudes · Parental involvement · Internalizing problems · Externalizing problems · Prosocial behavior

Introduction

Gender role attitudes constitute the acceptance of gender-specific versus shared roles by men and women within the family and society (Hoffman & Kloska, 1995). Parents with traditional gender role attitudes may view men as the primary breadwinners and women as the caregivers of family members (Pinho & Gaunt, 2021). On the contrary, parents who employ egalitarian gender role attitudes consider child rearing as a shared responsibility (Gaunt, 2006). Previous

research indicated that parents' gender role attitudes are directly associated with child outcomes, which include academic adjustment, social adjustment, and employment later in life (Dawson et al., 2015, 2016; Ertl et al., 2017; Johnston et al., 2014; MacMullin et al., 2021; Roubinov et al., 2021). Notably, parents' egalitarian gender role attitudes are related to better quality of sibling relationships and fewer behavioral problems among children (Dawson et al., 2015; Roubinov et al., 2021). On the contrary, traditional gender role attitudes by parents are associated with child maladjustment, such as more behavioral and emotional problems (Corley et al., 2022; MacMullin et al., 2021). Although the importance of parents' gender role attitudes in child adjustment is well-documented, relatively little is known about the mechanisms underlying this association.

Parental Involvement as a Mediator

According to the heuristic model of parental influence on child development (Cabrera et al., 2007, 2014), parents'

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personal characteristics including attitudes, beliefs, and role identities are related to child development via parents' behavior. Supporting the heuristic model (Cabrera et al., 2007, 2014), Bornstein et al. (2017) identified the mediating role of parenting practices between parents' understanding of parental roles and children's externalizing problems in an 8-year large-scale longitudinal study. Similarly, another longitudinal study showed that positive parenting practices, such as warmth and consistent discipline, mediate the link between parents' beliefs and child adjustment, including externalizing and internalizing problems (Zhang et al., 2022).

Consistent with the heuristic model (Cabrera et al., 2007, 2014), parents' gender role attitudes may motivate or hinder their involvement in child rearing activities (see also Kuo et al., 2018; Pinho & Gaunt, 2020, 2021), which may further be associated with children's development outcomes (Flouri et al., 2016; Profe & Wild, 2017). Parental involvement encompasses parents' attempt to interact with and support their children with warmth and affection (Simons et al., 1994). It includes both the indirect form of involvement (e.g., supporting their spouse) and the direct observable behavior (e.g., praising their child and showing affection) beyond a measure of parenting time (Hawkins et al., 2002; Lamb et al., 1985). When fathers endorse traditional gender role attitudes, such as the beliefs that fathers should secure financial resources for the family, whereas mothers should handle housework and childcare, they appear to be less involved in child rearing (Kuo et al., 2018). Moreover, fathers who adhere to traditional gender role attitudes emphasizing masculine norms, including dominance and being the breadwinner, are less likely to exhibit warmth and support and more likely to engage in harsh discipline (Kuscul & Adamsons, 2022; Shafer et al., 2021). On the contrary, mothers' greater traditional gender role attitudes are associated with mothers' greater time investment in both housework chores and childcare tasks (Pinho & Gaunt, 2020, 2021).

Taken together, fathers' greater traditional gender role attitudes are associated with a lower quality of father involvement, characterized by less warmth and support and greater harsh discipline (Kuscul & Adamsons, 2022; Shafer et al., 2021). Fathers with greater traditional gender role attitudes also tend to have a lower quantity of father involvement, including spending less time and having a lower engagement in child rearing activities (Kuo et al., 2018; Petts & Knoester, 2018). In contrast, mothers' greater traditional gender role attitudes are associated with a greater quantity of mother involvement (Pinho & Gaunt, 2020, 2021). However, little is known about the association between mothers' traditional gender role attitudes and the quality of mother involvement.

In relation to child development, greater maternal and paternal involvement in child rearing are related to better child adjustment longitudinally, including greater prosocial behavior, fewer internalizing problems, and fewer externalizing problems (Flouri et al., 2016; Profe & Wild, 2017). Therefore, consistent with the heuristic model (Cabrera et al., 2007, 2014), parental involvement may mediate the relationship between parents' gender role attitudes and child adjustment.

Actor and Partner Effects of Parents' Gender Role Attitudes on Parental Involvement

According to Cabrera et al. (2014), parents' role identities not only are associated with parents' own parental involvement, but also with their spouse's involvement in child rearing. Importantly, Kenny and Cook (1999) pointed out in the actor-partner interdependence model (APIM) that an individualistic understanding of psychological phenomena may overlook the mutual influences between spouses. They further suggested that attitudes and behavior are interrelated within-person (i.e., actor effects) and between-person (i.e., partner effects) in couples' relationships. The theoretical framework of the heuristic model and APIM (Cabrera et al., 2007, 2014; Kenny & Cook, 1999) are both supported by empirical studies. In terms of actor effects, mothers' and fathers' gender role attitudes are linked to their own levels of parental involvement. Specifically, mothers' greater traditional gender role attitudes are related to a higher quantity of mother involvement (Pinho & Gaunt, 2020, 2021), whereas fathers' greater traditional gender role attitudes are related to a lower quality (Kuscul & Adamsons, 2022; Shafer et al., 2021) as well as quantity of father involvement (Kuo et al., 2018; Petts & Knoester, 2018). In terms of partner effects, mothers' greater egalitarian gender role attitudes are related to fathers' greater time spent on childcare activities (Meteyer & Perry-Jenkins, 2010; Zvara et al., 2013).

In addition, a longitudinal study showed that mothers' greater egalitarian gender role attitudes are related to fathers' lower negative parenting behavior (e.g., harsh parenting; Gowda & Rodriguez, 2019). Similarly, fathers' greater nontraditional gender role attitudes predict greater emotional support for mothers, greater pleasure when collaborating with mothers, and more equality in childcare division within couples, all of which are inversely associated with mothers' time spent on household chores and child rearing tasks (Pinho & Gaunt, 2020, 2021). Finally, a 7-year longitudinal study showed that fathers' greater egalitarian gender role attitudes significantly predict mothers' reduced time in childcare (Evertsson, 2014). Despite the well-documented association between fathers' traditional gender role attitudes and mothers' greater time spent on child rearing, studies on fathers'

gender role attitudes and the quality of maternal involvement are relatively scarce. Altogether, mothers' and fathers' gender role attitudes may have actor and partner effects on the quality of father involvement and the quantity of mother and father involvement. Hence, the availability of studies on the relation between parents' gender role attitudes and the quality of mother and father involvement is relatively scarce.

Different Contributions of Mothers and Fathers on Child Adjustment

Cabrera et al. (2007, 2014) further suggested that mothers and fathers would make differential contributions to child outcomes (see also review by Li & Meier, 2017). In this regard, several studies have identified the differential effect of maternal and paternal involvement on child adjustment (Day & Padilla-Walker, 2009; Profe & Wild, 2017; Washington et al., 2014). For instance, a study conducted in the United States involving families with adolescent children revealed that greater mother involvement is associated with children's greater prosocial behavior, whereas greater father involvement is associated with children's fewer behavioral problems, such as internalizing and externalizing problems (Day & Padilla-Walker, 2009). Similarly, another study indicated that lower father involvement, but not lower mother involvement, is significantly related to more behavioral problems among children aged 18 months to 11 years living in households headed by their grandparents or other relatives in the United States (Washington et al., 2014). In a third study conducted in South Africa, both mother and father involvement are negatively related to adolescent children's internalizing and externalizing problems, but only greater maternal involvement is related to children's greater prosocial behavior (Profe & Wild, 2017). Altogether, existing findings are mixed with regards to the differential contributions of mother and father involvement on child adjustment. However, relevant studies among families with young children in the Chinese context remain particularly scarce.

Turning to the relations between parents' gender role attitudes and child adjustment, previous research has indicated that mothers' and fathers' gender role attitudes make different contributions to child outcomes (e.g., children's gender role attitudes and children's math performance; Lam et al., 2017; Tomasetto et al., 2011). However, most studies tested the relation between parents' gender role attitudes and child adjustment by combining mothers' and fathers' gender role attitudes into a single variable of parents' attitudes, without distinguishing between the effects of mothers versus fathers on children (e.g., Corley et al., 2022; MacMullin et al., 2021; Solmeyer et al., 2011). Given the scarcity of findings, this

study aims to fill the gap in the literature by examining parents' gender role attitudes, parental involvement, and child adjustment as a function of parents' gender in the Chinese context.

Parents' Roles in the Chinese Context

In the traditional Chinese culture, women's and men's roles are differentiated based on gender expectations (Li & Lamb, 2015). Shaped by Confucianism, traditional Chinese culture emphasizes a patriarchal family system, in which the family authority is vested on fathers (Li & Lamb, 2015). Further, motherhood is considered as one of the most important social roles of women, who are expected to be guided by their male relatives and husbands (Kim & Choi, 2014; Li & Lamb, 2013). The role identities and expectations embedded in the Chinese culture are reflected in parenting behavior, with mothers demonstrating greater involvement in child rearing activities than do fathers (Li & Lamb, 2013, 2015). A multi-province survey involving 2,008 Chinese families showed that among families with children under 6 years old, mothers spent 3.06 hours on daily child rearing tasks, whereas fathers spent 0.92 hours on average (Du et al., 2018), suggesting mothers' greater involvement in childcare tasks than fathers.

In addition to the amount of time devoted to childcare, mothers' parenting styles and practices are different from fathers' in the Chinese culture (Li & Lamb, 2013). According to the *Three Characteristics Classics* (《三字經》) text on Confucianism, children's misbehavior is the fathers' fault ("養不教, 父之過"), which implies that fathers, not mothers, are responsible for disciplining the child in the patriarchal family system (Li & Lamb, 2013). As such, fathers assume both the providers and authoritarian disciplinary roles (Li & Lamb, 2013, 2015). Further, fathers are expected to keep an affectionate distance from children to maintain their authority (Li & Lamb, 2013, 2015). On the contrary, mothers take the nurturing role and are expected to be warm, as depicted in the idiom, "strict fathers, kind mothers" ("嚴父慈母"; Li & Lamb, 2013, 2015). The traditional beliefs in role identities remain in the contemporary Chinese society, in that mothers generally take care of the day-to-day child rearing activities, whereas fathers make major decisions for families (Li, 2020). Therefore, it is crucial to examine the associations among parents' gender role attitudes, parental involvement, and child outcomes as a function of parents' gender in the Chinese context.

The Present Study

Guided by the heuristic model of parental influence on child development and recent findings (e.g., Bornstein et al., 2017; Cabrera et al., 2007, 2014; Gowda &

Rodriguez, 2019; MacMullin et al., 2021; Pinho & Gaunt, 2021), the present study aimed to test the relations among parents' gender role attitudes, parental involvement, and child adjustment. First, we hypothesized actor effects of maternal and paternal gender role attitudes on the quality of mother and father involvement, respectively (H1). Specifically, mothers' greater traditional gender role attitudes would be related to a greater quality of mother involvement (1a). Fathers' greater traditional gender role attitudes would be related to a lower quality of father involvement (1b). Second, we hypothesized partner effects of maternal and paternal gender role attitudes on the quality of father and mother involvement, respectively (H2). Specifically, mothers' greater traditional gender role attitudes would be related to a lower quality of father involvement (2a). Fathers' greater traditional gender role attitudes would be related to a greater quality of mother involvement (2b). Third, we hypothesized that greater mother and father involvement would be related to higher levels of child adjustment, including fewer behavioral problems and greater prosocial behavior (H3). Fourth, we hypothesized that mothers' and fathers' greater traditional gender role attitudes would be related to lower levels of child adjustment, including more behavioral problems and less prosocial behavior (H4). Building on the above hypotheses, we hypothesized that the quality of parental involvement would serve as a mediator between parents' gender role attitudes and child adjustment, regardless of parents' gender (H5). Specifically, mothers' and fathers' greater traditional gender role attitudes would be related to a greater quality of mother involvement, which, in turn, would be related to fewer behavioral problems and greater prosocial behavior (5a). Mothers' and fathers' greater traditional gender role attitudes would be related to a lower quality of father involvement, which, in turn, would be related to more behavioral problems and less prosocial behavior (5b). Maternal and paternal gender role attitudes would be related to the combination of mother and father involvement, which, in turn, would be related to child adjustment (5c).

In addition, previous research indicated that families' sociodemographic background—including family income, parents' educational background, and number of children—is related to parents' gender role attitudes (Fazeli et al., 2015; Yang et al., 2021), parental involvement (Du et al., 2018; Flouri et al., 2016), and child adjustment (Cheung et al., 2018; Flouri et al., 2016; Wu et al., 2020). In addition, children's gender is related to parents' gender role attitudes (Sun & Lai, 2017), parental involvement (Guo et al., 2018), and child adjustment (Xing & Wang, 2017). Hence, family income, parents' educational background, number of children, and children's gender were included as covariates in the analyses.

Method

Participants

Initially, 227 pairs of biological mothers and fathers of children aged between 2 and 7 years from maritally intact Chinese families were recruited in the present study. Given that certain measures were not developmentally appropriate for children at age 2 and 3 years, parents of children at 4 to 7 years were retained to complete the questionnaires. The final sample included data from 211 biological mothers ($M_{age} = 31.82$, $SD_{age} = 3.98$) and 211 biological fathers ($M_{age} = 34.04$, $SD_{age} = 4.46$) of children at 4 to 7 years of age from 211 maritally intact Chinese families. The median age of the children was 5 years ($M = 4.96$, $SD = 3.98$), with 46.9% ($n = 99$) being girls and 51.7% ($n = 109$) being boys. Three pairs of parents (1.4%) did not report the gender of their children. Among all participants, 11 (5.2%) mothers and 10 (4.7%) fathers completed primary school, 71 (33.6%) mothers and 67 (31.8%) fathers completed secondary school, 85 (40.3%) mothers and 86 (40.8%) fathers had an associate college degree, 39 (18.5%) of mothers and 41 (19.4%) fathers had a bachelor's degree, 4 (1.9%) mothers and 2 (0.9%) fathers had a postgraduate degree or above, and 1 (0.5%) mother and 5 (2.4%) fathers did not specify the educational background. According to the Seventh National Population Census (National Bureau of Statistics of China, 2021a), the average years of schooling for the working population was 10.38 years. Considering that the years of education might be a proxy of education level, the average education level of this sample might be slightly higher than that of the general population.

The median monthly family income was RMB ¥12,500 ($SD = 27,220.76$), i.e., ~US\$1,842.68 ($SD = 4,012.73$). According to People's Government of Guangdong Province (2022), the median monthly disposable household income of urban Guangdong province of China was RMB ¥4,571.17 per capita, i.e., ~US\$673.86 in 2021. Based on an average family size of 2.63 in Guangdong Province (National Bureau of Statistics of China, 2021b), the median monthly household income of urban Guangdong province in China was expected to be $4,571.17 \times 2.63 = \text{RMB}¥ 11,880.16$, i.e., ~US\$ 1,753.56. Therefore, the monthly household income of the present sample was slightly lower than that of the general population. The amount of missing data ranged from 1.44% to 11.64% across the items. Data were missing completely at random (MCAR) based on Little's MCAR test, $\chi^2(6924) = 7037.26$, $p = .17$.

Measures

Following the back-translation procedures (Brislin, 1970), the measures in English were translated into Chinese. Specifically, the first author translated the measures from

English to Chinese. Next, an independent, trained research student translated the Chinese version back to English. The back-translated English version was then reviewed and compared to the original English measures by the corresponding author. The inconsistencies were discussed and resolved between the trained research student, the first author, and the corresponding author, all of whom were proficient in English and Chinese.

Mothers' and Fathers' Gender Role Attitudes

The 13-item *Attitudes Toward Family Roles Scale* (ATFRS; Hoffman & Kloska, 1995) was used to assess parents' gender role attitudes. The measure included two subscales: *Gender-based Attitudes Toward Marital Roles* subscale (6 items; e.g., "A man should help in the house, but housework and child care should mainly be a woman's job") and *Gender-based Attitudes Toward Child Rearing* subscale (7 items; e.g., "Education is important for both sons and daughters but is more important for a son"). Parents reported their gender role attitudes on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). After reversing the raw scores of the negatively worded items, the scores of each subscale were calculated by averaging its indicated items, with higher scores indicating more traditional gender role attitudes towards marital roles and child rearing. The subscales were used as indicators in the Structural Equation Model (SEM) analysis. Previous research applied this scale to a Chinese sample and showed satisfactory internal consistency (Lou et al., 2015). In this study, the Cronbach's α was .84 and .88 for gender-based attitudes toward marital roles, and .65 and .58 for gender-based attitudes toward child rearing for mothers' and fathers' report, respectively. The McDonald's ω was .85 and .88 for gender-based attitudes toward marital roles, and .70 and .63 for gender-based attitudes toward child rearing for mothers' and fathers' report, respectively. Confirmatory factor analysis (CFA) indicated that the two-factor structure of gender role attitudes with factors including attitudes toward marital roles and attitudes toward child rearing fits well to the data for mothers, $\chi^2(56) = 100.01$, $p < .001$, CFI = 0.95, TLI = 0.93, RMSEA = .06, and fathers, $\chi^2(56) = 101.11$, $p < .001$, CFI = 0.95, TLI = 0.93, RMSEA = .06.

Mother and Father Involvement

The 26-item *Inventory of Father Involvement* (IFI; Hawkins et al., 2002) was utilized to assess parental involvement. The scale consisted of nine subscales, which included discipline and teaching responsibility (3 items; e.g., "Setting rules and limits for your children's behavior"), school encouragement (3 items; e.g., "Encouraging your children to succeed in school"), father/mother support

(3 items; e.g., "Cooperating with your children's father/mother in the rearing of your children"), providing (2 items; e.g., "Providing your children's basic needs"), time and talking together (3 items; e.g., "Spending time just talking with your children when they want to talk about something"), praise and affection (3 items; e.g., "Telling your children that you love them"), developing talents and future concerns (3 items; e.g., "Encouraging your children to develop their talents"), reading and homework support (3 items; e.g., "Encouraging your children to read"), and attentiveness (3 items; e.g., "Knowing where your children go and what they do with their friends"). To complete the measure, the participants read, "please rate how good a job you think you did as a mother/father on each of the items listed below." Participants reported their own level of involvement on a 5-point scale from 1 (*very poor*) to 5 (*excellent*). The scores of each subscale were calculated by averaging its indicated items, with higher scores for each subscale referring to better performance on different aspects of parental involvement. The subscales were used as indicators in the SEM analysis. This scale was previously used in the Chinese context and had satisfactory internal consistency (i.e., Cronbach α s = .69 - .85; Kwok et al., 2013). Other studies have also adapted the scale to measure maternal and paternal involvement and showed good reliability (Flouri, 2006). Thus, the IFI was adapted to measure both maternal and paternal involvement.

In this study, the Cronbach's α was .78 and .79 for discipline and teaching responsibility, .82 and .87 for school encouragement, .88 and .88 for father/mother support, .77 and .90 for providing, .89 and .86 for time and talking together, .92 and .88 for praise and affection, .85 and .78 for developing talents and future concerns, .82 and .80 for reading and homework support, and .84 and .82 for attentiveness for mothers' and fathers' report, respectively. The McDonald's ω was .79 and .79 for discipline and teaching responsibility, .84 and .87 for school encouragement, .88 and .88 for father/mother support, .77 and .90 for providing, .89 and .87 for time and talking together, .92 and .88 for praise and affection, .85 and .78 for developing talents and future concerns, .84 and .80 for reading and homework support, and .85 and .83 for attentiveness for mothers' and fathers' report, respectively. CFA indicated that the nine-factor structure of parental involvement with manifest indicators including (a) discipline and teaching responsibility, (b) school encouragement, (c) father/mother support, (d) providing, (e) time and talking together, (f) praise and affection, (g) developing talents and future concerns, (h) reading and homework support, and (i) attentiveness fits well to the data for mothers, $\chi^2(281) = 569.07$, $p < .001$, CFI = 0.92, TLI = 0.91, RMSEA = .07, and fathers, $\chi^2(281) = 592.84$, $p < .001$, CFI = 0.91, TLI = 0.90, RMSEA = .08.

Child Adjustment

The 25-item Chinese version of the *Strength and Difficulties Questionnaire* (SDQ; Goodman, 1997) was employed to assess parents' perceptions of their children's behavioral problems (20 items; e.g., "[My child] often lies or cheats") and prosocial behavior (5 items; "[My child is] kind to younger children"). Following the recommendations of Goodman et al. (2010), the behavioral problems subscale was formed by combining the internalizing problems and externalizing problems subscales (see also Baiocco et al., 2019). Parents reported child adjustment on a 3-point scale ranging from 0 (*not true*) to 2 (*certainly true*). After reversing the raw scores of negatively worded items, the scores of each subscale were calculated by averaging its indicated items, with higher scores referring to more behavioral problems and greater prosocial behavior. The subscales were used as indicators in the SEM analysis. In this study, only 46 families (21.8%) had one child at 4 to 7 years of age. Families with more than one child at 4 to 7 years of age were invited to complete the SDQ based on the youngest child in this age range. This measure has been translated into Chinese and validated in samples of Chinese parents with children aged between 3 and 17 years (Du et al., 2008).

In this study, the Cronbach's α was .71 and .72 for behavioral problems, and .64 and .65 for prosocial behavior for mothers' and fathers' reports, respectively. The McDonald's ω was .71 and .72 for behavioral problems, and .64 and .65 for prosocial behavior for mothers' and fathers' reports, respectively. For mothers, CFA indicated that the factor structures of internalizing problems [$\chi^2(28) = 36.28, p = .14, CFI = 0.96, TLI = 0.93, RMSEA = .04$], externalizing problems [$\chi^2(28) = 38.12, p = .04, CFI = 0.96, TLI = 0.94, RMSEA = .04$], and prosocial behavior [$\chi^2(5) = 8.85, p = .12, CFI = 0.96, TLI = 0.93, RMSEA = .06$] fit well to the data. For fathers, CFA indicated that the factor structures of internalizing problems [$\chi^2(28) = 35.77, p = .15, CFI = 0.96, TLI = 0.93, RMSEA = .04$], externalizing problems [$\chi^2(28) = 48.18, p = .01, CFI = 0.94, TLI = 0.90, RMSEA = .06$], and prosocial behavior [$\chi^2(5) = 4.84, p = .44, CFI = 1.00, TLI = 1.00, RMSEA = .00$] fit well to the data. Following the recommendations of Goodman et al. (2010), the behavioral problems subscale was formed by combining the internalizing problems and externalizing problems subscales (see also Baiocco et al., 2019).

Demographics

Parents provided sociodemographic information, including numbers and ages of children, children's gender, family income, and parents' educational background, before completing the measures.

Procedure

Prior to implementation, the present study was approved by the human research ethics committee of the first author's institution. Participating parents were recruited through convenience sampling from kindergartens in the Guangdong province of China. Kindergarten-aged children in China typically ranged in age from 3 to 6 years, with some children aged above 6 years (Ministry of Education of the People's Republic of China, 2015, 2021). The present study was advertised during parents' visit to the kindergartens to engage in various events. Parents who are interested in the study completed a set of questionnaires upon informed consent. Each family received a sealed envelope containing two separate envelopes for each parent by mail. The questionnaires took approximately 20 minutes to complete. To ensure confidentiality, parents returned the completed questionnaires to the research team in sealed envelopes. No incentives were provided to the participants.

Data Analyses

Preliminary analyses were conducted for all variables, including descriptive statistics and zero-order correlations, using IBM SPSS Statistics, version 27. Structural equation modeling was then conducted using MPLUS, version 8.3 (Muthén & Muthén, 1998–2017) to examine the relations among mothers' and fathers' gender role attitudes, mother and father involvement, and child adjustment, with mother and father involvement as mediators. The actor and partner effects of parents' gender role attitudes on parental involvement were investigated in the model. Specifically, to examine actor effects, mother involvement was regressed on mothers' gender role attitudes. Father involvement was regressed on fathers' gender role attitudes. To examine partner effects, father involvement was regressed on mothers' gender role attitudes. Mother involvement was regressed on fathers' gender role attitudes. Comparative fit index (CFI), Tucker-Lewis index (TLI), and root mean squared error of approximation (RMSEA) were applied to assess the model's goodness of fit. CFI and TLI values greater than 0.90 (Kline, 2015) and RMSEA values less than .10 (MacCallum et al., 1996) suggest an acceptable fit between the hypothesized model and the observed data. To reduce biases, latent constructs were employed. To manage missing data at the item level, full information maximum likelihood was utilized.

Results

Table 1 presents the means and standard deviations for each construct examined in the current study, whereas Table 2 presents the correlations for all study variables.

Paired-samples *t*-tests were conducted to examine mothers' and fathers' differences on the variables (see Table 1 for details).

All latent variables in the measurement models were significantly indicated by the manifest variables, $ps < .001$. The hypothesized structural equation model of mother and father involvement as mediators between parents' traditional gender role attitudes and child adjustment yielded acceptable fit to the data, $\chi^2(376) = 659.11$, $p < .001$, CFI = .90, TLI = .88, RMSEA = .06 (see Table 3 and Fig. 1).

H1: Parents' Gender Role Attitudes and Parental Involvement: Actor Effects

Contrary to Hypothesis 1a, mothers' traditional gender role attitudes were negatively related to mother involvement ($\beta = -0.22$, $p = .047$), after controlling for family income, parents' educational background, children's gender, and number of children. Supporting Hypothesis 1b, fathers' traditional gender role attitudes were negatively associated with father involvement ($\beta = -0.25$, $p = .01$).

H2: Parents' Gender Role Attitudes and Parental Involvement: Partner Effects

Contrary to Hypothesis 2a, mothers' traditional gender role attitudes were not significantly related to father involvement, $p > .05$. In addition, contrary to Hypothesis 2b, fathers' traditional gender role attitudes were negatively associated with mother involvement ($\beta = -0.19$, $p = .04$).

H3: Parental Involvement and Child Adjustment

The findings partially supported Hypothesis 3 that greater mother and father involvement would be related to higher levels of child adjustment. Specifically, mother involvement was positively associated with children's prosocial behavior ($\beta = 0.31$, $p = .002$). Similarly, father involvement was positively associated with children's prosocial behavior ($\beta = 0.23$, $p = .03$). However, mother and father involvement were not significantly related to children's behavioral problems, $ps > .05$. The models explained 29.8% and 23.5% of the variance in children's behavioral problems and prosocial behavior, respectively (see Fig. 1).

Table 1 Means, Standard Deviations, and Paired-Samples T-Test among Mothers' and Fathers' Variables

| | Mothers' Report | | Fathers' Report | | <i>t</i> | <i>p</i> |
|---------------------------------------------------|-----------------|-----------|-----------------|-----------|----------|----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | | |
| Demographics | | | | | | |
| Educational background | 4.02 | 1.78 | 4.06 | 1.75 | -0.32 | .75 |
| Parents' traditional gender role attitudes | | | | | | |
| Gender-based attitudes toward marital roles | 1.69 | 0.78 | 2.08 | 0.84 | -5.93 | .00 |
| Gender-based attitudes toward child rearing | 0.96 | 0.52 | 1.19 | 0.54 | -4.91 | .00 |
| Parental involvement | | | | | | |
| Discipline and teaching responsibility | 3.88 | 0.87 | 3.70 | 1.01 | 2.08 | .04 |
| School encouragement | 4.44 | 0.97 | 4.35 | 1.12 | 0.94 | .35 |
| Father/mother support | 4.48 | 1.16 | 4.61 | 1.17 | -1.61 | .11 |
| Providing | 4.89 | 0.97 | 4.98 | 1.08 | -1.15 | .25 |
| Time and talking together | 4.51 | 0.98 | 4.26 | 1.08 | 3.04 | .003 |
| Praise and affection | 5.03 | 0.89 | 4.79 | 0.94 | 3.24 | .001 |
| Developing talents and future concerns | 4.65 | 0.97 | 4.56 | 0.96 | 1.28 | .20 |
| Reading and homework support | 4.33 | 1.14 | 3.89 | 1.22 | 4.82 | .00 |
| Attentiveness | 5.00 | 0.91 | 4.07 | 1.34 | 8.36 | .00 |
| Child adjustment | | | | | | |
| Behavioral problems | 0.61 | 0.23 | 0.62 | 0.24 | -0.98 | .33 |
| Prosocial behavior | 1.31 | 0.38 | 1.27 | 0.39 | 1.86 | .06 |

Note. Mothers' and fathers' educational backgrounds ranged from 1 to 7: 1 = Primary school; 2 = Secondary school; 3 = Diploma or certificate degree; 4 = Associate degree; 5 = Vocational school; 6 = Bachelor's degree; 7 = Postgraduate degree or above.

$n_{mother} = 211$, $n_{father} = 211$.

Table 2 Correlations among Study Variables in the Structural Equation Model

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
|-------------------------------------------------|--------|---------|---------|--------|--------|---------|---------|--------|--------|--------|---------|---------|--------|
| Traditional gender role attitudes | | | | | | | | | | | | | |
| (1) Gender-based attitudes toward marital roles | – | .49*** | – | .04 | -.12 | -.10 | -.17* | -.09 | -.09 | -.13 | -.15* | .22** | .80 |
| (2) Gender-based attitudes toward child rearing | .45*** | – | -.05 | -.04 | -.18* | -.26*** | -.17* | -.17* | -.19** | -.08 | -.11 | .23** | .40 |
| Parental involvement | | | | | | | | | | | | | |
| (3) Discipling and teaching responsibility | -.19** | -.11 | – | .60*** | .61*** | .39*** | .54*** | .47*** | .46*** | .55*** | .48*** | -.30*** | .22** |
| (4) School encouragement | -.09 | -.16* | .60*** | – | .65*** | .39*** | .48*** | .51*** | .59*** | .51*** | .44*** | -.22** | .21** |
| (5) Father/Mother support | -.09 | -.04 | .56*** | .59*** | – | .62*** | .61*** | .59*** | .62*** | .56*** | .57*** | -.30*** | .14 |
| (6) Providing | -.15* | -.16* | .53*** | .62*** | .56*** | – | .49*** | .49*** | .44*** | .32*** | .39*** | -.33*** | .16 |
| (7) Time and taking together | -.06 | -.11 | .58*** | .54*** | .58*** | .58*** | – | .70*** | .52*** | .55*** | .51*** | -.31*** | .32*** |
| (8) Praise and affection | -.11 | -.32*** | .52*** | .60*** | .55*** | .62*** | .73*** | – | .60*** | .53*** | .53*** | -.15* | .31*** |
| (9) Developing talents and future concerns | -.11 | -.17* | .47*** | .63*** | .57*** | .65*** | .63*** | .64*** | – | .63*** | .49*** | -.22** | .22** |
| (10) Reading and Homework support | -.17* | -.24** | .44*** | .55*** | .49*** | .42*** | .59*** | .61*** | .65*** | – | .66*** | -.14 | .29*** |
| (11) Attentiveness | -.12 | -.37*** | .47*** | .45*** | .38*** | .44*** | .48*** | .67*** | .55*** | .56*** | – | -.22** | .27 |
| Child adjustment | | | | | | | | | | | | | |
| (12) Behavioral problems | .21** | .11 | -.37*** | -.24** | -.22** | -.27*** | -.26*** | -.16* | -.24** | -.22** | -.28*** | – | -.16* |
| (13) Prosocial behavior | -.04 | -.06 | .28*** | .20** | .26*** | .29*** | .27*** | .27*** | .31*** | .20** | .25*** | -.29*** | – |

Note. The correlations for mothers' reported variables are presented below the diagonal and the correlations for fathers' reported variables are presented above the diagonal.

$r_{mother} = 211$, $r_{father} = 211$.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Table 3 Parameter Estimates of the Structural Equation Model

| Parameter | Unstandardized <i>B</i> (SE) | Unstandardized 95% C.I. | Standardized β | Standardized 95% C.I. |
|-----------------------------------------------|---------------------------------|----------------------------|-------------------------|--------------------------|
| Measurement model | | | | |
| Mothers' traditional gender role attitudes | | | | |
| → Gender-based attitudes toward marital roles | 1.00 ^f | [1.00, 1.00] | 0.67*** | [0.33, 1.74] |
| → Gender-based attitudes toward child rearing | 0.64 (0.15) | [0.16, 1.62] | 0.63*** | [0.34, 1.25] |
| Fathers' traditional gender role attitudes | | | | |
| → Gender-based attitudes toward marital roles | 1.00 ^f | [1.00, 1.00] | 0.62*** | [0.34, 1.25] |
| → Gender-based attitudes toward child rearing | 0.80 (0.17) | [0.29, 1.74] | 0.76*** | [0.44, 1.34] |
| Mothers' parental involvement | | | | |
| → Discipline and teaching responsibility | 1.00 ^f | [1.00, 1.00] | 0.69*** | [0.59, 0.77] |
| → School encouragement | 1.28 (0.12) | [1.08, 1.51] | 0.78*** | [0.70, 0.84] |
| → Father support | 1.39 (0.14) | [1.14, 1.67] | 0.71*** | [0.59, 0.80] |
| → Providing | 1.30 (0.13) | [1.08, 1.57] | 0.78*** | [0.70, 0.84] |
| → Time and talking together | 1.30 (0.13) | [1.07, 1.54] | 0.77*** | [0.68, 0.84] |
| → Praise and affection | 1.20 (0.12) | [0.98, 1.44] | 0.79*** | [0.72, 0.84] |
| → Developing talents and future concerns | 1.35 (0.13) | [1.09, 1.66] | 0.82*** | [0.75, 0.86] |
| → Reading and homework support | 1.40 (0.15) | [1.12, 1.73] | 0.74*** | [0.64, 0.81] |
| → Attentiveness | 0.98 (0.12) | [0.77, 1.23] | 0.64*** | [0.53, 0.73] |
| Fathers' parental involvement | | | | |
| → Discipline and teaching responsibility | 1.00 ^f | [1.00, 1.00] | 0.71*** | [0.60, 0.80] |
| → School encouragement | 1.15 (0.12) | [0.94, 1.38] | 0.73*** | [0.62, 0.82] |
| → Mother support | 1.28 (0.12) | [1.07, 1.54] | 0.82*** | [0.72, 0.89] |
| → Providing | 0.96 (0.12) | [0.67, 1.28] | 0.63*** | [0.46, 0.75] |
| → Time and talking together | 1.17 (0.12) | [0.95, 1.44] | 0.77*** | [0.66, 0.83] |
| → Praise and affection | 1.01 (0.10) | [0.76, 1.31] | 0.76*** | [0.62, 0.86] |
| → Developing talents and future concerns | 0.97 (0.10) | [0.74, 1.22] | 0.73*** | [0.62, 0.81] |
| → Reading and homework support | 1.19 (0.13) | [0.98, 1.45] | 0.70*** | [0.59, 0.78] |
| → Attentiveness | 1.25 (0.14) | [1.02, 1.56] | 0.67*** | [0.57, 0.75] |
| Children's behavioral problems | | | | |
| → Mothers' report | 1.00 ^f | [1.00, 1.00] | 0.75*** | [0.51, 1.05] |
| → Fathers' report | 1.04 (0.20) | [0.52, 2.35] | 0.76*** | [0.53, 1.10] |
| Children's prosocial behavior | | | | |
| → Mothers' report | 1.00 ^f | [1.00, 1.00] | 0.78*** | [0.49, 1.15] |
| → Fathers' report | 1.04 (0.20) | [0.45, 2.44] | 0.80*** | [0.53, 1.19] |
| Structural model | | | | |
| Mothers' traditional gender role attitudes | | | | |
| → Mothers' parental involvement | -0.26 (0.15) | [-2.46, 0.16] | -0.22* | [-1.08, 0.14] |
| → Fathers' parental involvement | -0.29 (0.18) | [-2.98, 0.23] | -0.21 | [-1.02, 0.17] |
| → Children's behavioral problems | 0.05 (0.04) | [-0.19, 2.09] | 0.14 | [-0.55, 2.87] |
| → Children's prosocial behavior | 0.05 (0.07) | [-0.84, 1.49] | 0.08 | [-0.92, 1.44] |
| Fathers' traditional gender role attitudes | | | | |
| → Mothers' parental involvement | -0.22 (0.12) | [-1.80, 0.34] | -0.19* | [-0.88, 0.36] |
| → Fathers' parental involvement | -0.35 (0.16) | [-2.12, 0.41] | -0.25* | [-0.93, 0.36] |
| → Children's behavioral problems | 0.10 (0.04) | [-0.11, 1.70] | 0.29* | [-0.90, 1.99] |
| → Children's prosocial behavior | 0.05 (0.07) | [-0.46, 1.62] | 0.08 | [-0.54, 1.59] |
| Mothers' parental involvement | | | | |
| → Children's behavioral problems | -0.03 (0.04) | [-0.19, 0.23] | -0.11 | [-0.49, 0.75] |
| → Children's prosocial behavior | 0.16 (0.06) | [-0.07, 0.50] | 0.31** | [-0.10, 1.01] |
| Fathers' parental involvement | | | | |
| → Children's behavioral problems | -0.05 (0.03) | [-0.13, 0.14] | -0.18 | [-0.50, 0.60] |

Table 3 (continued)

| Parameter | Unstandardized <i>B</i> (SE) | Unstandardized 95% C.I. | Standardized β | Standardized 95% C.I. |
|--------------------------------------------|---------------------------------|----------------------------|-------------------------|--------------------------|
| → Children's prosocial behavior | 0.10 (0.04) | [-0.06, 0.41] | 0.23* | [-0.13, 0.84] |
| Control variables | | | | |
| Family income | | | | |
| → Mothers' parental involvement | 0.00 (0.00) | [-0.01, 0.01] | -0.02 | [-0.30, 0.18] |
| → Fathers' parental involvement | 0.00 (0.00) | [-0.01, 0.01] | -0.02 | [-0.27, 0.18] |
| → Children's behavioral problems | 0.00 (0.00) | [-0.01, 0.01] | -0.02 | [-0.42, 0.78] |
| → Children's prosocial behavior | 0.00 (0.00) | [-0.003, 0.01] | 0.07 | [-0.17, 0.67] |
| Mothers' educational background | | | | |
| → Mothers' parental involvement | 0.20 (0.05) | [0.07, 0.33] | 0.29*** | [0.10, 0.47] |
| → Children's behavioral problems | -0.03 (0.02) | [-0.11, 0.02] | -0.15 | [-0.53, 0.09] |
| → Children's prosocial behavior | 0.07 (0.04) | [-0.02, 0.18] | 0.21* | [-0.03, 0.47] |
| Fathers' educational background | | | | |
| → Fathers' parental involvement | 0.04 (0.06) | [-0.11, 0.17] | 0.04 | [-0.13, 0.20] |
| → Children's behavioral problems | 0.00 (0.02) | [-0.05, 0.05] | -0.00 | [-0.24, 0.21] |
| → Children's prosocial behavior | -0.07 (0.03) | [-0.17, -0.01] | -0.20* | [-0.45, -0.03] |
| Children's gender (0 = boys, 1 = girls) | | | | |
| → Mothers' parental involvement | 0.37 (0.09) | [0.02, 0.74] | 0.31*** | [-0.01, 0.60] |
| → Fathers' parental involvement | 0.21 (0.11) | [-0.20, 0.67] | 0.15* | [-0.15, 0.48] |
| → Children's behavioral problems | 0.00 (0.03) | [-0.29, 0.23] | 0.01 | [-0.82, 0.67] |
| → Children's prosocial behavior | 0.03 (0.05) | [-0.19, 0.32] | 0.06 | [-0.32, 0.49] |
| Number of children | | | | |
| → Mothers' parental involvement | -0.09 (0.06) | [-0.27, 0.29] | -0.11 | [-0.32, 0.34] |
| → Fathers' parental involvement | -0.22 (0.08) | [-0.54, 0.24] | -0.22** | [-0.44, 0.26] |
| → Children's behavioral problems | 0.01 (0.02) | [-0.12, 0.15] | 0.03 | [-0.49, 0.52] |
| → Children's prosocial behavior | -0.01 (0.03) | [-0.26, 0.14] | -0.02 | [-0.58, 0.31] |
| Covariance | | | | |
| Mothers' traditional gender role attitudes | | | | |
| ↔ Family income | -2.33 (1.29) | [-7.63, 0.06] | -0.17 | [-0.47, 0.04] |
| ↔ Mothers' educational background | -0.11 (0.04) | [-0.23, -0.03] | -0.26** | [-0.47, -0.07] |
| ↔ Children's gender (0 = boys, 1 = girls) | -0.01 (0.03) | [-0.06, 0.06] | -0.04 | [-0.31, 0.20] |
| ↔ Number of children | 0.06 (0.03) | [0.01, 0.13] | 0.18* | [-0.003, 0.49] |
| Fathers' traditional gender role attitudes | | | | |
| ↔ Family income | -0.04 (1.18) | [-2.70, 1.84] | -0.00 | [-0.16, 0.22] |
| ↔ Fathers' educational background | 0.02 (0.04) | [-0.06, 0.12] | 0.05 | [-0.16, 0.25] |
| ↔ Children's gender (0 = boys, 1 = girls) | 0.04 (0.02) | [-0.01, 0.09] | 0.17* | [-0.06, 0.40] |
| ↔ Number of children | 0.06 (0.03) | [-0.01, 0.16] | 0.18* | [-0.06, 0.42] |

Note. Mothers' and fathers' educational backgrounds ranged from 1 to 7: 1 = Primary school; 2 = Secondary school; 3 = Diploma or certificate degree; 4 = Associate degree; 5 = Vocational school; 6 = Bachelor's degree; 7 = Postgraduate degree or above.

^f parameter is fixed to 1.00. 95% confidence intervals (C.I.) based on 5,000 bootstrapped samples.

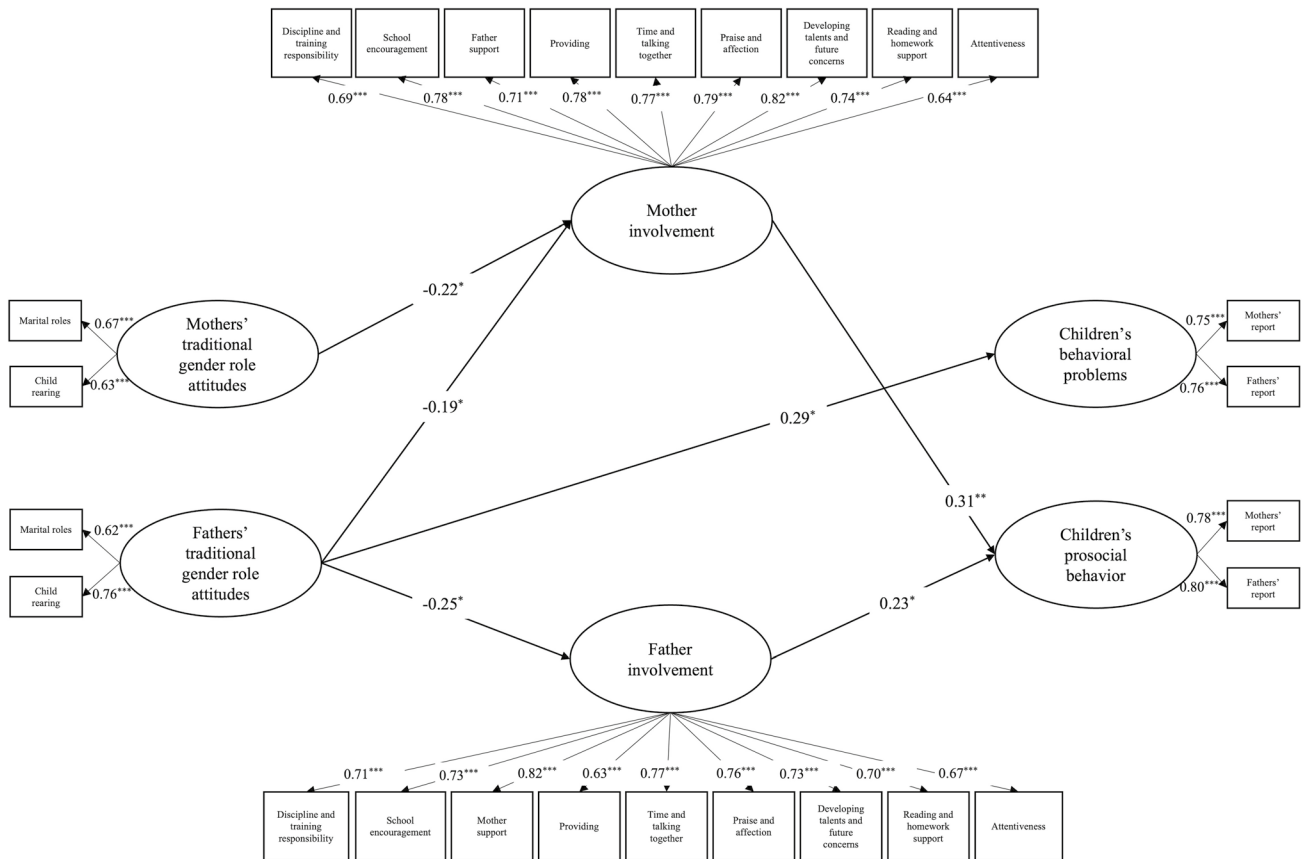
$n_{mother} = 211$, $n_{father} = 211$.

* $p < .05$; ** $p < .01$; *** $p < .001$.

H4: Parents' Gender Role Attitudes and Child Adjustment

The findings partially supported Hypothesis 4 that mothers' and fathers' greater traditional gender role attitudes would be related to lower levels of child adjustment.

Specifically, fathers' greater traditional gender role attitudes were related to children's greater behavioral problems ($\beta = 0.29$, $p = .01$), whereas the association between fathers' traditional gender role attitudes and children's prosocial behavior was not significant, $p > .05$. The associations between mothers' gender role attitudes and



Note. $\chi^2(376) = 659.11, p < .001, CFI = 0.90, TLI = 0.88, RMSEA = .06$. Family income, mothers' educational background, fathers' educational background, children's gender, and number of children were included as covariates in the analyses, but are not depicted in the Fig. for clarity. Non-significant paths are not depicted for clarity. * $p < .05$, ** $p < .01$, *** $p < .001$.

Fig. 1 Final Model of Parental Involvement as a Mediator between Parents' Traditional Gender Role Attitudes and Child Adjustment

children's behavioral problems and prosocial behavior were not significant, $ps > .05$.

H5: Mediating Role of Parental Involvement

The findings partially supported Hypothesis 5 that the quality of parental involvement would mediate the relations between parents' gender role attitudes and child adjustment. Specifically, the specific indirect effects between parents' gender role attitudes and child adjustment via mother and father involvement, respectively, were not significant, $ps > .05$. The findings did not support the hypotheses that mother involvement or father involvement would mediate the associations between parents' traditional gender role attitudes and child adjustment. Nevertheless, the total indirect effect between fathers' gender role attitudes and children's prosocial behavior through combined mother and father involvement was significant ($\beta = -0.12, p = .03$). The findings indicated that fathers' greater traditional gender role attitudes were associated with the combination of greater mother and

father involvement, which, in turn, was associated with children's greater prosocial behavior. However, the total indirect effects between mothers' gender role attitudes and children's behavioral problems and prosocial behavior via combined mother and father involvement were not significant, $ps > .05$. In addition, the total indirect effect between fathers' gender role attitudes and children's behavioral problems via combined mother and father was not significant, $p > .05$.

Discussion

Guided by the heuristic model of parental influence on child development (Cabrera et al., 2007, 2014), this study disentangled the link between parents' gender role attitudes and child adjustment via parental involvement. Notably, fathers showed actor and partner effects of traditional gender role attitudes on parental involvement, whereas mothers' traditional gender role attitudes were only related to mother involvement. In contrast to previous findings (Halpern &

Perry-Jenkins, 2015; Pinho & Gaunt, 2021), both mothers' and fathers' traditional gender role attitudes were negatively related to parental involvement. Mother and father involvement also contributed to children's greater prosocial behavior. Extending the previous findings on parents' gender role attitudes and child adjustment (Dawson et al., 2015, 2016; MacMullin et al., 2021; Solmeyer et al., 2011), the current study indicated that the combined mother and father involvement mediated the relation between fathers' gender role attitudes and children's prosocial behavior in the Chinese context.

The findings partially supported the hypotheses that parents' greater traditional gender role attitudes would be related to a lower quality of father involvement and a greater quality of mother involvement. Notably, the current study suggested that fathers with greater traditional gender role attitudes demonstrated a poorer quality of father involvement in childcare tasks, such as talking with children, praising children, and supporting children with their homework (see also Kuscul & Adamsons, 2022; Shafer et al., 2021). Similarly, mothers who exhibited more traditional gender beliefs reported a poorer quality of mother involvement in child rearing. These findings were contrary to previous studies suggesting a positive association between mothers' traditional gender role attitudes and mother involvement in terms of time spent on child rearing (Pinho & Gaunt, 2020, 2021). Although mothers' traditional gender role attitudes were associated with greater time spent on child rearing, it was not related to a better quality of mother involvement in childcare activities. To explain the surprising findings on the negative associations between mothers' traditional gender role attitudes and mothers' quality of involvement, we speculate that mothers who hold higher levels of traditional gender beliefs may be more involved in physical care and housework, such as cooking, feeding, and cleaning (Hoffman & Kloska, 1995; Pinho & Gaunt, 2020, 2021), rather than other childcare activities, such as disciplining, showing verbal and physical affection, encouraging, and planning for their child's future.

Turning to the partner effects, our findings showed a negative association between fathers' traditional gender role attitudes and mothers' quality of involvement. In other words, when fathers endorsed greater traditional gender role attitudes, mothers tended to display a lower quality of involvement in childcare activities. These findings contrasted with previous studies indicating a positive relation between fathers' traditional gender role attitudes and mothers' time spent on caregiving (Pinho & Gaunt, 2020, 2021). In speculating the unexpected findings between fathers' gender role attitudes and mothers' quality of involvement, perhaps fathers with traditional gender role attitudes tend to demonstrate less emotional support for mothers and distance themselves from mothers and children to maintain authority

(Schoppe-Sullivan et al., 2021). When their spouse is less supportive in childcare activities, mothers may be less likely to show warmth and support in child rearing (Bonds & Gondoli, 2007; Chen, 2020). Therefore, future investigators should measure other aspects of mother involvement, such as time and quality, and include coparenting as an additional process to further understand the relations between parents' gender role attitudes and mother involvement.

In addition, contrary to previous studies suggesting an inverse relationship between mothers' traditional gender role attitudes and father involvement (Gowda & Rodriguez, 2019), the present findings indicated that this link was not significant. This suggests that mothers' beliefs about gender roles may not be a determinant of fathers' quality of involvement. It is possible that other factors such as fathers' own attitudes and cultural expectations were stronger predictors of father involvement. Indeed, gendered parenting roles were expected in traditional Chinese culture, with mothers expected to be the major caregivers (Li & Lamb, 2013, 2015). These expectations may persist in contemporary China (Du et al., 2018; Li, 2020). Altogether, the finding underscores the detrimental effects of parents' traditional gender role attitudes, particularly those held by fathers, on the quality of mother and father involvement.

In line with previous studies showing mothers' higher levels of involvement in child rearing compared to fathers (Li, 2020), the current findings suggested that mothers reported a better quality of involvement in all dimensions than did fathers, including disciplining and setting rules for children. In the traditional Chinese culture, fathers typically assume the disciplinarian roles and set and enforce family rules to maintain the hierarchy family system (Li & Lamb, 2013, 2015). Although the changing social context in contemporary China driven by the Open and Reform policy may have altered the gender differential roles of "strict father, kind mothers" (Chang et al., 2011), our findings showed that in the modern Chinese context, mothers continue to demonstrate greater involvement in diverse childcare responsibilities.

Partially supporting the hypothesis that parental involvement would be positively related to child adjustment, the present study showed that both mothers' and fathers' quality of involvement were positively related to children's prosocial behavior. In other words, when parents showed better performance in childcare activities (e.g., being involved in children's daily routines, talking with children, and expressing praise and affection), their child tended to show more kindness and helpfulness towards others. In contrast, the associations between parents' quality of involvement and their child's behavioral problems were not significant. That is, the quality of parental involvement may not be a determining factor in the development of children's behavioral problems. These findings were contrary to previous

research suggesting that greater mother involvement, but not father involvement, was associated with children's greater prosocial behavior (Day & Padilla-Walker, 2009; Profe & Wild, 2017). These findings also differed from other studies showing that both mother and father involvement had a negative association with children's behavioral problems (Profe & Wild, 2017; Washington et al., 2014). Nevertheless, the findings corroborated a previous study to suggest that mother involvement was more consistently associated with children's positive behavior, rather than their problem behavior (Day & Padilla-Walker, 2009).

The findings also revealed that fathers' greater traditional gender role attitudes, but not mothers', were directly linked to children's greater behavioral problems. That is, compared to fathers' traditional gender role attitudes, mothers' gender role attitudes and parental involvement were less crucial in predicting children's behavioral problems. The findings also suggested that the link between fathers' traditional gender role attitudes and children's behavioral problems was not explained by parents' quality of involvement. In addition, mothers' and fathers' gender role attitudes were not significantly related to children's prosocial behavior. It was possible that parental involvement was a stronger predictor of children's prosocial behavior compared to parents' gender role attitudes.

Through a process-oriented approach, combined mother and father involvement was found to mediate the relation between fathers' gender role attitudes and children's prosocial behavior. However, the specific indirect effects of mother and father involvement were nonsignificant. The findings partially supported the hypothesis that the quality of parental involvement would serve as a mediator between parents' gender role attitudes and child adjustment. The heuristic model (Cabrera et al., 2007, 2014) pointed out that child development may rely on both mothers' or fathers' caregiving behavior, suggesting mothers' and fathers' direct and indirect contributions on child outcomes may compensate for one another. As such, perhaps mother and father involvement compensated for one another to mediate between fathers' gender role attitudes and children's prosocial behavior. Altogether, these findings highlighted the negative impact of parents' traditional gender role attitudes as well as the interdependent nature of mothers' and fathers' behavior on child adjustment.

Limitations and Future Research Directions

The findings should be interpreted considering its limitations. First, the present study assessed parents' gender role attitudes and parental involvement through self-report questionnaires and child adjustment via mother- and father-report. To reduce biases, researchers should use both self- and partner-reports and multiple methods, including diary

reports and behavioral observations. Also, the measures employed in the present study including gender role attitudes (Hoffman & Kloska, 1995) and parental involvement (Hawkins et al., 2002) might not be appropriate for the contemporary Chinese culture. Although our CFA findings did show the factor structures of these measures fit well to the data, future studies should update the measures for use in the Chinese context.

Moreover, the present study assessed parental involvement (Hawkins et al., 2002) in terms of quality instead of quantity of child rearing activities. Specifically, the measure assessed parents' perceptions of their performance quality on various dimensions (e.g., disciplining, praising, and showing affection), some of which might have overlapped with the concept of parenting. Given the similarities between the quality of parental involvement and parenting behavior, future studies should further distinguish between their effects on child adjustment as a function of parents' gender. Researchers should also investigate other aspects of parental involvement (e.g., time and task involvement; Gaunt & Pinho, 2018) in relation to parents' gender role attitudes and child adjustment.

Next, the Cronbach's α for children's prosocial behavior (Goodman, 1997) and parents' gender-based attitudes toward child rearing (Hoffman & Kloska, 1995) were lower than .70. Children's prosocial behavior serves as a vital indicator of child adjustment (Goodman, 2001) and is crucial for the present study, as is parents' gender-based attitudes toward child rearing, which captures their perceptions of divergent approaches in raising daughters and sons (Hoffman & Kloska, 1995). Previous research indicated a similarly low internal consistency for these measures (Cheung et al., 2021; Cichy et al., 2007; Forbes et al., 2019; Peyre et al., 2016; Skinner & McHale, 2018), potentially due to the small number of items (i.e., 5 items for prosocial behavior and 7 items for gender-based attitudes toward child rearing). Previous studies also pointed out that low Cronbach's α values can be common for short scales (Loewenthal & Lewis, 2020; Pallant, 2013). For scales with fewer than 10 items, it was suggested that a Cronbach's α at approximately .60 is acceptable (Loewenthal & Lewis, 2020). Despite the recommendations, the present findings should still be interpreted with caution. In addition, the TLI of the structural equation model was .88, which was slightly lower than the threshold good fit of .90 (Kline, 2015). The low TLI might be due to the complexity of the model involving multiple latent variables and a small sample. Thus, future studies may replicate the findings using a larger sample.

Furthermore, although the present study tested the associations among parents' gender role attitudes, parental involvement, and child adjustment as a function of parents' gender, the small sample size precluded us from examining the moderating role of children's gender. Future studies may further

examine family processes across parent-child gender dyads, e.g., mother-daughter, mother-son, father-daughter, and father-son. In addition, although family income was included in the present study as a covariate, we did not collect data on parents' working hours. Future studies should examine how covariates such as parents' working hours, coparenting, and interparental conflict are related to the variables under study. Finally, the directionality of effects could not be inferred because of our cross-sectional design (Maxwell & Cole, 2007). Longitudinal studies should be conducted to further verify the temporal sequence between variables.

Practice Implications

The present study underscores the importance of cultivating egalitarian gender role attitudes and enhancing parental involvement for better child adjustment outcomes. Parents with greater egalitarian gender role attitudes and fewer traditional gender role attitudes demonstrated a higher quality of parental involvement. Moreover, fathers' egalitarian gender role attitudes were positively linked to their spouse's quality of involvement and children's prosocial behavior. In addition, fathers' greater egalitarian gender role attitudes were indirectly associated with children's greater prosocial behavior via the combination of mother and father involvement.

The findings suggest the need to raise awareness of the potential negative impact of traditional gender role attitudes on parents' quality of involvement and child adjustment. To this end, organizers of parental educational programs may consider including sessions aiming to foster parents' egalitarian gender role attitudes in the Chinese cultural context. For instance, practitioners may organize educational workshops and information sessions to help parents understand the negative impact of traditional gender role attitudes on parental involvement and child outcomes. Practitioners could also work with parents to explore their understanding of parenting roles and child development. In addition, our study highlighted the interdependent nature of parenting behavior on child outcomes (see also Cabrera et al., 2007, 2014). As such, practitioners should focus on the attitudes and behavior of both parents in enhancing child outcomes.

Conclusion

The present study examined the relations among parents' gender role attitudes, parental involvement, and child adjustment as a function of parents' gender. Grounded in the heuristic model of parental influence on child development (Cabrera et al., 2007, 2014), the findings revealed that both mothers' and fathers' traditional gender role attitudes were negatively related to parents' quality of involvement. The findings also lend support to the mediating role of the

combined mother and father involvement between fathers' gender role attitudes and children's prosocial behavior. Taken together, the findings highlighted the interdependent and nuanced nature of mothers' and fathers' behavior on child adjustment. The longitudinal effects of mothers' and fathers' gender role attitudes and parental involvement on child development warrant further investigation.

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Data, Materials and/or Code Availability The data presented in this study are not publicly available due to ethical restrictions. The data are available on request from the corresponding author.

Compliance with Ethical Standards

Ethics Approval The present study was approved by the human research ethics committee of The Education University of Hong Kong (Approval ID: FHREC: 21/22-ER001). It was conducted in accordance with the ethical standards in the 1964 Declaration of Helsinki and its later amendments.

Informed Consent Informed consent was obtained from all participants prior to the implementation of the study.

Competing Interests The authors have no relevant financial or non-financial interests to disclose.

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