PARENTAL RELATIVE EDUCATION, FAMILY RELATIONSHIPS, AND OFFSPRING'S ADULT MENTAL HEALTH

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Abstract

Previous studies have investigated associations between family socioeconomic status (SES) and mental health over the life course and linkages between socioeconomic similarity and the quality of couples' relationships. However, these two bodies of literature have not informed each other, leaving the question that how parental relative SES may influence offspring's adult mental health unanswered. In this study, I use structural equational modeling (SEM) applied to the National Longitudinal Study of Adolescent to Adult Health data to explore this question. I focus on parental education as an indicator of family SES. I find that, for both sons and daughters, the effects of maternal education advantage on children's adult mental health vary across different degrees of educational difference favoring mothers. More specifically, large maternal education advantage is associated with more interparental discord, which erodes parent-child relationships. Further, lower quality of family relationships in adolescence leads to worse mental health in adulthood. However, small maternal education advantage does not generate a significant impact. Moreover, equal parental education contributes to better adult mental health for daughters by improving the quality of father-daughter bonds, an effect not found for sons. This research provides a better understanding of connections among family SES, relationship processes, and individuals' well-being.

Lay Summary

I investigate how the educational difference between father and mother may affect offspring's adult mental well-being. I find that a huge educational gap favoring mothers can lead to more interparental discord, while a small gap does not generate a significant and negative impact. Further, by decreasing the quality of parent-child relationships in adolescence, more interparental discord is associated with children's worse adult mental health. This pathway exists among both sons and daughters. In addition, daughters can develop better relationships with their fathers when their parents share the same level of education. Then, higher quality of bonds with fathers contributes to daughters' better adult mental well-being. However, sons' adult mental health does not benefit from equal parental education. This study emphasizes the importance of the relative difference between paternal and maternal education level in shaping the well-being and development of the next generation.

Preface

This thesis presents original, unpublished, and independent work by the author, Zhonghao Wang.

No ethics approval was required for the completion of this research.

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1. Introduction

Sociological and epidemiological research has largely investigated how early life experiences affect adult mental health (George, 2013). Low parental socioeconomic status (SES) during childhood and adolescence yields lifelong influences, decreasing mental well-being in adult and late life stages (Gilman et al., 2002; Luo and Waite, 2005; Power et al., 2007; Wickrama, Noh, and Elder, 2009; Szanton, Thorpe, and Whitfield, 2010). Using the family stress model (Conger et al., 2010) and a life course perspective, Sobolewski and Amato (2005) find that family relationships, including interparental relationships and parent-child bonds, mediate the effects of parental SES on adult mental health.

Another body of literature documents how couples' socioeconomic similarity affects their relationships. Similar SES between partners often leads to relationships with higher quality (Stutzer and Frey, 2006; Keizer and Komter, 2015) and greater stability (Tzeng, 1992; Heaton, 2002). In contrast, women's socioeconomic advantage may hurt couples' relationships (Jalovaara, 2003; Munsch, 2015; Blossfeld, 2009). Analyzing marriages in recent cohorts, Schwartz and Han (2014) conclude that the negative impact of women's educational advantage on marital stability has stopped and that the benefits of educational homogamy have become more salient.

However, while both strands of studies proceed apace, they have not informed each another. When studying the early SES factors influencing adult mental health, researchers largely consider the absolute level of parental SES, overlooking the relative difference between paternal and maternal SES. On the other hand, when investigating the impact of couple's socioeconomic similarity on family lives, scholars mainly focus on the consequences for couples themselves. They ignore the issue of consequent disparities in the next generation's well-being. Therefore, it remains unclear how parental relative SES in early life may affect offspring's mental health in adulthood.

Synthesizing the family stress model across the life course, the couple similarity/homogamy literature, and some empirical work, I develop a conceptual model in which I link early parental relative SES to later offspring's mental health. In this model, I focus on parental education as an indicator of SES and use the quality of family relationships as the connection knot between the two bodies of studies. I hypothesize that, compared with paternal educational advantage, maternal educational advantage leads to more interparental discord. On the contrary, equal parental education is associated with better interparental relationship quality. In addition, to explore whether the effects of maternal education advantage vary across different degrees of educational difference favoring mothers, I also distinguish between large maternal education advantage and small advantage. Then, I posit that interparental discord erodes children's bonds with parents, which ultimately reduces children's mental well-being during adulthood. I also add a positive linkage between equal parental education and parent-child relationships. Moreover, I decompose parent-child relationships into different types, according to the intersection between parents' and children's gender.

In this study, I use structural equation modeling to analyze the National Longitudinal Study of Adolescent to Adult Health (Add Health) data (Harris, 2010). I find that, for both sons and daughters, the effects of maternal education advantage on offspring's adult mental health vary across different degrees of educational difference favoring mothers. Large maternal education advantage is associated with more interparental discord, which erodes parent-child relationships. Then, lower quality of family relationships in adolescence leads to worse mental health in adulthood. However, small maternal education advantage does not generate a negative impact. Moreover, equal parental education does not benefit offspring's adult mental health through reducing interparental discord.

In addition, for daughters, equal parental education contributes to better father-daughter relationships, but not better mother-daughter relationships. Better bonds with fathers lead to higher levels of mental well-being in daughters' adulthood, a pathway that does not emerge among sons.

This research helps to understand the influence of parental relative SES on offspring's adult mental well-being, which is underexplored in existing studies. Moreover, by answering this question, I connect the two strands of research on mental health over the life course and couple similarity/homogamy, and allow them to enrich one other. On the one hand, this research contributes to a more comprehensive examination of the associations between early family SES and later mental well-being. On the other hand, I extend the impact of couple similarity to the next generation. Therefore, this research provides a better understanding of the connections among SES, family processes, and individuals' development.

The remainder of this article proceeds as follows. The second and third sections briefly review related literature on the associations between family SES and mental health over the life course, as well as between socioeconomic similarity and couples' relationships. In the fourth section, I further develop the conceptual model and hypothesize the existence and directions of possible linkages. The fifth section lays out the details of the research design. The sixth section presents the statistical results of the measurement and structural models. The final section concludes with a discussion on the implications of this study.

2. Family SES and Mental Health over the Life Course

Mental health is dynamic rather than static, and the life course perspective contributes to our understanding of the long-term effects of early factors on adult mental well-being (George, 2013). One influential early factor is family SES, which is usually measured by three indicators (income, education, and occupational status) in studies of SES inequalities in health (Elo, 2009; Conger et al., 2010). Family SES in early life generates significant effects on offspring's mental well-being over the life course. In early adolescence, children with lower childhood family SES suffer more depressive symptoms. Although the negative effects diminish in middle and late adolescence, disparities in depression across levels of SES reemerge during the transition into adulthood (Wickrama, Noh, and Elder, 2009). After entering adulthood, individuals growing up in low-SES families continue to experience a larger risk of depressive symptoms (Power et al., 2007; Szanton, Thorpe, and Whitfield, 2010). Even in the late life stages, early socioeconomic adversities still predict worse mental health outcomes (Luo and Waite, 2005).

In addition to the general patterns, early family SES also moderates the effects of gender on adult depression. Among individuals from families with the lowest SES, the disadvantage of females compared to their male counterparts is the largest (Gilman et al., 2002). Using data collected in South Korea, Jeong and Veenstra (2017) find that economic capital in childhood has an independent and inverse association with depressive symptoms among adult women but not among adult men. Moreover, Luo and Waite (2005) find that childhood mental health partly mediates the effects of childhood parental SES. In addition, childhood socioeconomic disadvantages cause worse mental health by decreasing education and income in adulthood.

Furthermore, the family stress model (FSM) provides a framework to understand the mediating role of family processes linking family SES and offspring's well-being (Conger et al., 2010). The

FSM regards low-SES families as those with financial difficulties. Economic hardship can directly lead to disruptions in effective parenting, including less support, warmth, and involvement. Moreover, financial disadvantage can also cause parenting problems indirectly by increasing interparental discord, including more conflicts and lower satisfaction. Finally, disrupted parenting may generate numerous negative effects on children's development. The possible negative effects contain both declines in competent functioning (e.g., cognitive ability, school success, attachment to parents, and social competence) as well as increases in internalizing (e.g., symptoms of depression and anxiety) and externalizing (e.g., aggressive and antisocial behavior) problems. The FSM has a wide range of applications across various family structures. In addition to biological parents, the prediction of interparental relationships is also valid for stepparents, cohabiting unmarried romantic partners, and other caregiver relationships such as daughters and mothers raising a child together (Conger et al., 2002). Sobolewski and Amato (2005) extend the FSM by incorporating a life course perspective. Analyzing 17-year longitudinal data from two generations, they use the FSM to predict children's psychological well-being in adult years.

Existing literature suggests that parental SES in early life is associated with children's mental health in adult life stages. However, when measuring parental SES, researchers largely focus on the absolute level by using higher value (Gilman et al., 2002; Wickrama, 2009), mean value (Sobolewski and Amato, 2005), or paternal value (Luo and Waite, 2005; Power et al., 2007). They largely overlook the relative difference between paternal and maternal SES. Therefore, it remains unclear how parental relative SES may affect offspring's mental well-being across their life course.

3. Socioeconomic Similarity and Couples' Relationships

A large body of research has investigated the associations between socioeconomic similarity and couples' relationship. Researchers mainly focus on two socioeconomic aspects: income and education. Keizer and Komter (2015) find that fewer socioeconomic disparities regarding income and work hours are associated with higher level of couples' satisfaction. Particularly, socioeconomic gaps favoring women generate negative influences on the stability and quality of couples' relationships. Wives' high income increases the risk of divorce at all levels of partner's income, especially when the wife's income exceeds the husband's (Jalovaara, 2003; Bertrand et al. 2015; Teachman 2010). Furdyna and colleagues (2008) reveal that, while wife-to-husband income ratio is negatively associated with marital happiness, this association is reversed when couples have financial need. In addition, socioeconomic gaps favoring females also lead to risky behaviors threatening marital quality. For example, Munsch (2015) investigates the association between economic dependency and the likelihood of engaging in infidelity for both men and women. Although economic dependency increases both men's and women's likelihood of infidelity, its effect on men's infidelity behavior is larger. This indicates that the risk of infidelity in couples is higher when women act as breadwinners.

Scholars also emphasize the function of educational similarity on couples' relationship well-being. Couples with similar education levels usually have higher marital satisfaction (Vaijayanthimala et al., 2004; Stutzer and Frey, 2006); heterogamous education is associated with disparities in values and behaviors, which may lead to more conflicts. For instance, Eeckhaut and colleagues (2014) suggest that educational heterogamy increases the disagreements between partners on child-rearing values and behaviors. Moreover, previous literature also examines the relationship between educational homogamy and marital stability. Marriages in which spouses have

heterogamous education are less likely to survive (Tzeng, 1992; Heaton, 2002). Particularly, if wives are more educated than their husbands, the marriages are more likely to dissolve (Blossfeld, 2009). However, through investigating the marriages in recent cohorts, Schwartz and Han (2014) argue that the negative influence of wives' educational advantage has discontinued. They find that marriages in the 1990s were among the first ones, in which wives' educational advantage was no longer associated with a higher risk of divorce. At the same time, the effects of educational homogamy become more salient in recent marriages.

Extensive evidence shows that the similarity between partners in socioeconomic domain predicts higher quality and stability of their relationships. Nevertheless, most scholars only focus on the impact of socioeconomic similarity on couples themselves. They ignore to examine how this impact goes beyond their own and continues to cause the disparities in their next generation's well-being.

4. Conceptual Model

Previous studies have investigated the associations between family SES and mental health over the life course, and between socioeconomic similarity and couples' relationship well-being. However, these two bodies of literature have not informed each other, leaving the question that how parental relative education may influence offspring's adult mental health unexplored. To address this issue, I develop a conceptual model (see Figure 1) by drawing on the family stress model across the life course as well as the couple similarity/homogamy literature.

Figure 1. Conceptual Model Linking Parental Relative Education to Offspring's Mental Health during Adulthood

I focus on education as an indicator of SES rather than income in this model for several reasons. First, education often reflects values, beliefs, and life styles (Schwartza and Han, 2014), which has important implications for interparental conflict and parenting processes. Second, education is arguably the most basic component of SES because it predicts other socioeconomic measures such as income and occupational status (Shavers, 2007). Third, another advantage of using education as a measure of SES is to account for potential reverse causation, which may be a problem with other standard SES indicators (Shavers, 2007). For instance, when investigating the association between SES and marital relationship, some researchers suggest that the possibility that wives

increase their earnings and labor force participation due to unsatisfying marriages (Sayer and Bianchi, 2000; Özcan and Breen, 2012). Reverse causality is arguably less problematic in analysis of relative education because individuals may be less likely to return to school (Schwartza and Han, 2014).

The conceptual model shows that relative parental education can affect offspring's adult mental well-being through the quality of family relationships, including interparental relationships and parent-child bonds. This model begins with the linkage between relative parental education and family relationships. Previous studies reviewed above suggest that educational similarity contributes to more stable and satisfying couple relationships (e.g., Stutzer and Frey, 2006; Eeckhaut et al., 2014), while women's socioeconomic advantages hurt the relationship well-being (e.g., Jalovaara, 2003; Munsch, 2015; Blossfeld, 2009). Thus, I hypothesize that, compared to paternal education advantage, equal parental education is associated with less interparental discord and that maternal educational advantage is associated with more interparental discord. While some researchers recently suggest that women's educational advantages no longer exert negative influences on marital stability (Schwartza and Han, 2014), they do not rule out the possibility that couples' discomfort with marriages arising from wives' educational advantage has remained stable. In addition, since I focus on adult's mental health, their well-being is unlikely to reflect the changes in recent marriages. Moreover, I also consider the extent to which maternal education level is higher than paternal level, which is neglected by previous research on couple's relative SES. I distinguish between large maternal education advantage and small advantage. Compared to small maternal education advantage, large advantage may generate a greater impact on interparental relationship.

Educational homogamy is related to stronger paternal dedications to children's developmental

care (Bonke and Esping-Andersen, 2009). Fathers' participations in areas of parenting and house-work decrease mothers' childrearing stress (Kim and Lee, 2005). Since mothers' stressful experience may cause a decline in their patience, sensitivity, and responsiveness toward family members (Windle and Dumenci, 1997), mothers with less stress can provide better care for the children. Therefore, I also argue that, compared to paternal educational advantages, equal parental education is associated with better parent-child relationships.

Then, family relationships are related to offspring's adult mental well-being. According to the family stress model across the life course (Sobolewski and Amato, 2005; Conger et al., 2010), I hypothesize that interparental conflict erodes the quality of parent-child relationship in childhood and adolescence, which negatively affects offspring's adult mental well-being. Many empirical studies also demonstrate this linkage. Drawing from 39 articles to conduct a meta-analysis, Krishnakumar and Buehler (2000) confirm a general negative association between interparental conflict and parenting behaviors. Interparental conflict generates the strongest impact on increasing harsh discipline to children. Harsh parenting may hurt children's relationship with parents. Parent-child relationship has long-term effects on children's mental well-being during adulthood. An and Cooney (2006) find that people who maintained positive and trusting relationships with parents in childhood report better mental health outcomes in adulthood. However, if the parental support was inadequate in their early lives, adult individuals are more likely to suffer high levels of daily psychological distress (Mallers et al., 2010).

To examine the direct effects of interparental discord, I add a negative linkage directly between it and offspring's adult mental health. This linkage also represents the possibility that interparental relationship can influence children's mental well-being through other social factors. For example, offspring's socioeconomic achievement and romantic relationship stability can play mediating

roles (Amato and Sobolewski, 2001).

Furthermore, I consider the intersection between parents' and children's gender in this conceptual model, because the intersection may exert implications for family relationships. Husbands and wives with sons both report higher levels of marital satisfaction than those partners with daughters (Mizell and Steelman, 2000; Raley and Bianchi, 2006). Besides, the birth of a first child can increase fathers' happiness, especially when the first child is a boy (Kohler et al., 2005). Moreover, male children also reduce their mothers' perceptions of the likelihood of divorce (Katzev et al., 1994), while daughters increase the risk of their parents' marital disruption (Lundberg, 2005). The influences of marital discord on parent-child relationships may also differ across genders. Interparental discord decreases parental care to boys' distress, while it increases parental care to girls' distress (Sturge-Apple et al., 2004). In addition, after conflictual discussions with partners, husbands present lower support/engagement toward sons, but wives do not show similar changes (Kitzmann, 2000). Nevertheless, Ponnet and colleagues (2013) find that stressful marital relationship does not generate more harm to father-child bond than mother-child bond.

5. Methods

In the methods section, I first discuss the data drawn from the Add Health project. Then, I show the measurements of the dependent variable (*Adult Mental Health*), independent variable (*Parental Relative Education*), and mediating variables (*Interparental Discord* and *Parent-child Relationship Quality*). Additionally, I provide a descriptive statistics table for these variables. Finally, I present the analytical strategy of this study.

5.1. Data

I draw data from the Add Health project, which samples representative U.S. adolescents in grades 7 to 12 in 1994 to 1995 (Harris, 2010). Since the beginning of the study, respondents were interviewed at home in four data collection waves. In this research, I include respondents who participated in Waves I and IV. In Wave I, the sample includes 20,745 adolescents aged 11 to 21. In addition, a subsample of adolescents' parents also completed in-home interviews (N = 17,670). The data of Wave IV were collected in 2008 to 2009. This sample consists of 15,701 participants aged 24 to 34. The public-use dataset of Wave I includes one-half of the core sample (N = 6,504, age range 12 to 21) who are chosen at random. The public-use dataset of Wave IV contains 5,114 respondents aged 25 to 34. I delete observations if respondents who answered parent interviews (1) were not actually adolescents' parents, or (2) had a same-sex spouse/partner. Moreover, I restrict my analysis to adolescents who had both fathers and mothers during Wave I. Therefore, the final sample consists of 3,202 individuals.

5.2. Measuring Adult Mental Health

I measure adult mental health based on ten items derived from the conventional twenty-item Center

for Epidemiological Studies of Depression Scale (CES-D). These items come from the Wave IV data. Seven of these items assess how often respondents experienced each of the following negative feelings during the past seven days at Wave 4: (1) feeling bothered by things, (2) feeling blue, (3) having trouble keeping mind, (4) feeling depressed, (5) feeling tired, (6) feeling sad, and (7) feeling disliked by others. The other three items assess how often respondents experienced each of the following positive feelings: (1) feeling happy, (2) feeling as good as other people, and (3) enjoying life. The original value of each question all ranges from 1 to 4 (4 = most of the time or all of the time, 3 = a lot of the time, 2 = sometimes, 1 = never or rarely). I recode the values of negative items based on their reverse order. The Cronbach's α for this scale is 0.84. I use the mean value of these ten items to measure adult mental health wherein a higher value indicates better mental health of a respondent.

5.3. *Measuring Parental Relative Education*

In the Wave I data, respondents reported both fathers' and mothers' education level, ranging from 1 (never went to school) to 10 (professional training beyond 4-year college). I divide the original 10 levels into 5 categories (1 = some high school or lower, 2 = graduated from high school, 3 = some college or vocational school, 4 = bachelor's degree, and 5 = higher than bachelor's degree).[1] Then, I calculate the difference between paternal and maternal education level. I generate a categorical variable for parental relative education, including paternal educational advantage (paternal

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[1] In this research, I include "went to a business, trade, or vocational school instead of high school" in "some high school or lower." When I include "went to … instead of high school" in "graduated from high school," the substance of the statistical results does not change; I include "went to a business, trade, or vocational school after high school" in "some college or vocational school." When I include "went to … after high school" in "graduated from high school," the substance of the statistical results does not change either.

education level is higher than maternal education level), equal parental education (paternal education level is equal to maternal education level), and maternal educational advantage (maternal education level is higher than paternal education level). I use paternal educational advantage as the reference category.

To explore whether the effects of maternal education advantage vary across different degrees of educational difference, I create another categorical variable for parental relative education. This variable contains five categories: large paternal education advantage, small paternal education advantage, equal parental education, small maternal educational advantage, and large maternal educational advantage (maternal education level is two or more levels higher than paternal education level). I define "large paternal (maternal) advantage" as the situation where paternal (maternal) education level is two or more levels higher than maternal (paternal) education level, and "small paternal (maternal) advantage" as the situation where paternal (maternal) education level is only one level higher than maternal (paternal) education level. I use large paternal educational advantage as the reference category.

5.4. Measuring Interparental Discord

I draw three items from the parent questionnaire to assess interparental discord. The first one is relationship satisfaction. The interviewed parent rated the relationship with his/her current partners on a range from 1 (completely unhappy) to 10 (completely happy). The second item asks whether the interviewed parent talked with his/her partners about separating in the past year. This item is coded 1 if such talk happened and coded 0 otherwise. The third item asks how much the interviewed parent argued or fought with his/her current partners. The value ranges from 1 to 4 (1 = not at all, 2 = a little, 3 = some, and 4 = a lot). These three items serve as observed indicators of a

latent construct reflecting interparental relationship quality.

5.5. *Measuring Parent-child Relationship Quality*

I measure four types of parent-child relationships according to the intersection between parents' and children's gender. The first type is mother-daughter relationship, I use four items from daughters' reports as observed indicators of a latent construct: (1) "most of the time, your mother is warm and loving toward you", (2) "you are satisfied with the way your mother and you communicate with each other", (3) "overall, you are satisfied with your relationship with your mother", and (4) "how close do you feel to your mother". For the first three items, the original values all range from 1 to 5 (1 = strongly agree, 2 = agree, 3 = neither agree nor disagree, 4 = disagree, 5 = strongly disagree). I recode these values based on its reverse order. The value of the fourth item ranges from 1 to 5 (1 = not at all, 2 = very little, 3 = somewhat, 4 = quite a bit, 5 = very much). The other three types are mother-son relationship, father-daughter relationship, and father-son relationship. I use similar four items to measure each of these three latent variables.

To further understand the relationship between the independent and dependent variables in this research, I introduce some control variables. The control variables include higher education level between mother's and father's and children' race. Table 1 presents the descriptive statistics of all the variables.

Table 1. Descriptive Statistics of Variables from the Add Health

Variables	N	Mean/Ratio	S.D.	Range
Dependent Variable				
Offspring's adult mental health	3197	2.432	.453	0 to 3
Independent Variables				
Parental relative education				
(three-category)				
Maternal educational advantage	3014	.244		0 to 1
Equal parental education	3014	.488		0 to 1
Paternal educational advantage	3014	.268		0 to 1
(reference group)				
Parental relative education				
(five-category)				
Large maternal education advantage	3014	.085		0 to 1
Small maternal education advantage	3014	.159		0 to 1
Equal parental education	3014	.488		0 to 1
Small paternal education advantage	3014	.097		0 to 1
Large paternal education advantage	3014	.172		0 to 1
(reference group)				
Mediating Variables				
Interparental discord				
Interparental Conflict	2763	2.185	.701	1 to 4
Relationship Satisfaction	2756	8.458	1.591	1 to 10
Talking separation (if talked)	2760	0.109		0 to 1
Father-child relationship				
Warmth	3197	4.154	.921	1 to 5
Communication	3196	3.942	1.045	1 to 5
Satisfaction	3195	4.115	.963	1 to 5
Closeness	3199	4.265	.962	1 to 5
Mother-child relationship				
Warmth	3199	4.408	.770	1 to 5
Communication	3199	4.061	1.003	1 to 5
Satisfaction	3198	4.316	.867	1 to 5
Closeness	3199	4.531	.779	1 to 5
Control Variables				
Higher parental education	3143	3.199	1.219	1 to 5
Offspring's race				
Black or African American	2814	.145		0 to 1
American Indian or Native American	2814	.023		0 to 1
Asian or Pacific Islander	2814	.037		0 to 1
Other or multiracial	2814	.031		0 to 1
White	2814	.786		0 to 1
(reference group)				

5.6. Analytical Strategy

Since I aim to explore the pathways from parental relative education to children's adult mental health and included latent constructs in the pathways, I use structural equation modeling in Stata (version 15)[2] to address my research question. I conduct a confirmatory factor analysis to test the factorial validity and reliability of the three constructs of interest (i.e., marital quality, mother-child relationship quality and parent-child relationship quality). I construct the structural models by two steps. First, I use the three-category parental relative education variable. I investigate all the hypothesized pathways in four separate structural equation models, each of which includes father-son, father-daughter, mother-son, and mother-daughter relationship. Second, I use the five-category parental relative education variable to compare the effect differences between large maternal education advantage and small advantage. The second series of structural models also contain four models according to the intersection between parents' and children' sex. To assess the fit of the measurement and structural models, I calculate chi-square statistic, the comparative fit index (CFI ≥ 0.95), the root mean squared error of approximation (RMSEA < 0.06 to 0.08 with confidence interval), and the standardized root mean squared residuals (SRMR ≤ .08) (Schreiber et al., 2006).

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[2] StataCorp. 2017. *Stata Statistical Software: Release 15*. College Station, TX: StataCorp LLC

6. Results

6.1. Measurement Model

Figure 2 shows the measurement model with three latent variables: interparental discord, father-child relationship, and mother-child relationship. All the paths between observed indicators and latent variables are statistically significant. In addition, although the standardized coefficients are omitted, the error terms of each type of parent-child relationship indicators are significantly correlated. Fit indices reveal that the model fits the data reasonably well. The correlation between the latent father-child and mother-child relationship variables are strongly positive. Adolescents who reported higher quality of relationships with fathers also reported higher quality of mother-child relationships. Moreover, each latent parent-child relationship variable is negatively correlated with the latent interparental discord variable.

6.2. Structural Models

In the first step, I use the three-category parental relative education variable to investigate four structural equation models, each of which includes father-son, mother-son, father-daughter, and mother-daughter relationships. Figure 3 shows the standardized coefficients of the structural model containing father-son relationship, while Figure 4 presents the standardized coefficients of the structural model containing mother-son relationship. The overall fit of both models is good. The two models show that (a) more interparental discord is associated with lower quality of father-son/mother-son relationships, and (b) higher quality of father-son/mother-son relationships is associated with better sons' adult mental health. However, the hypothesized linkages between maternal education advantage and interparental discord, between equal parental education and interparental discord, and between equal parental education and father-son/mother-son relationships

are not statistically significant. Therefore, compared with paternal education advantage, maternal

education advantage and equal parental education both do not generate significant impact on sons'
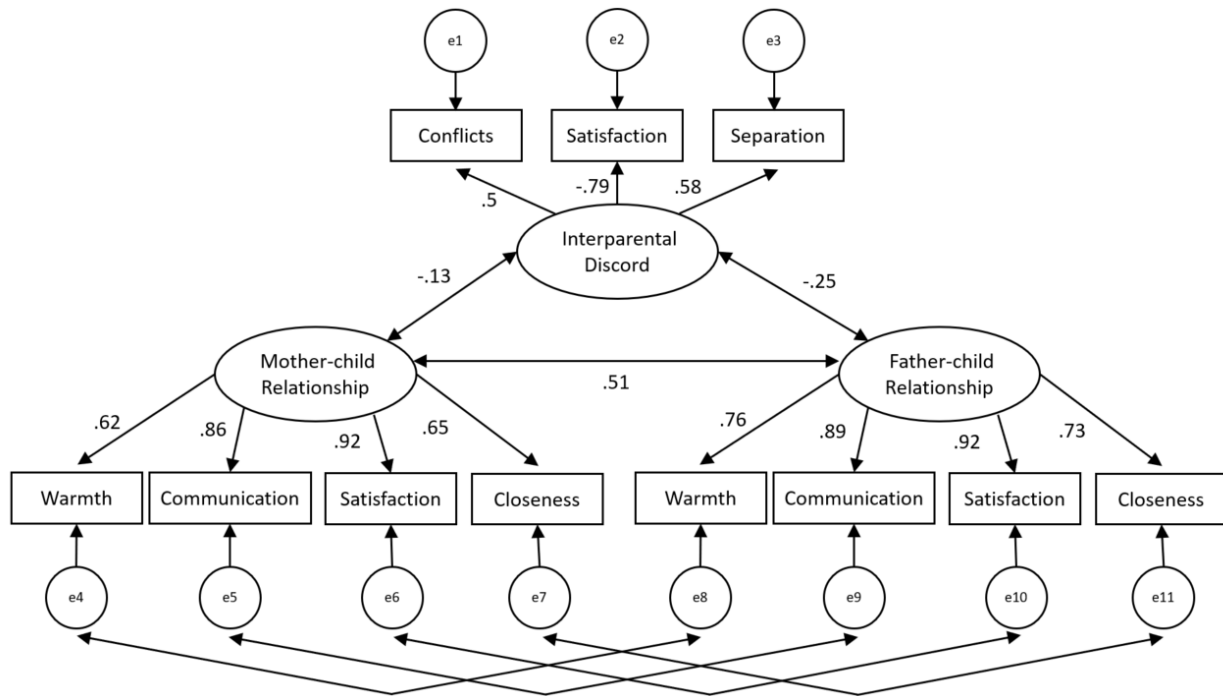
adult mental health.

Figure 2. Measurement Model for Interparental Discord, Father-child Relationship and Mother-child Relationship

Note: All coefficients are standardized and are significant at p < .05; χ^2 = 239.12***, d.f. = 37, CFI = .99, RMSEA = .05, SRMR = .02.
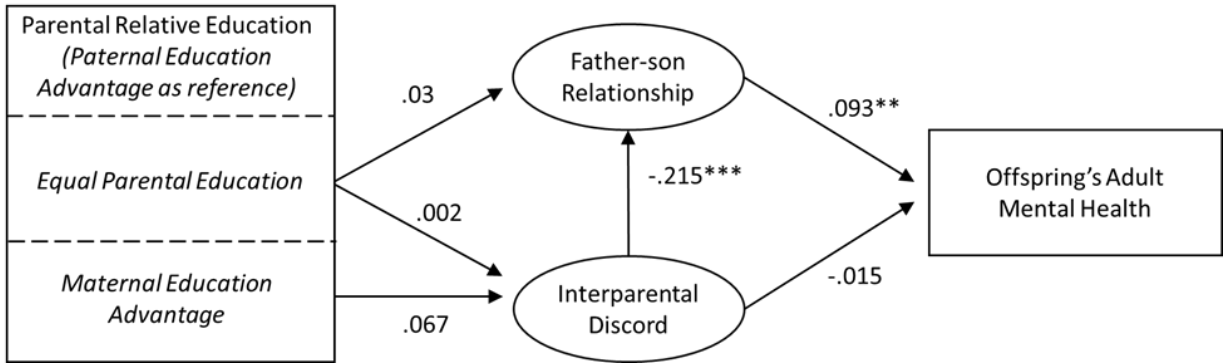
Figure 3. Results of Structural Equation Model Containing Father-son Relationship (Three-category Parental Relative Education)

Note: *p < .05, **p < .01, ***p < .001; N = 1185, χ^2 = 106.33***, d.f. = 53, CFI = .98, RMSEA = .03, SRMR = .02.
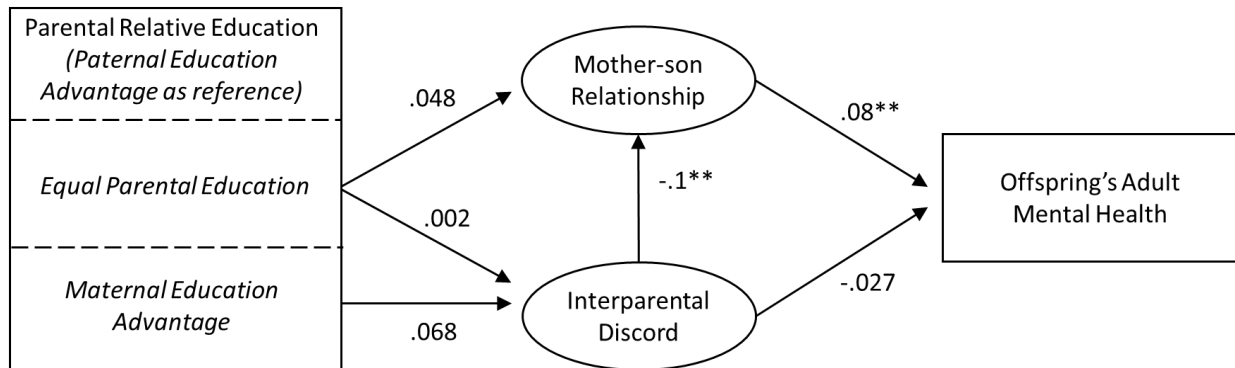

Figure 4. Results of Structural Equation Model Containing Mother-son Relationship (Three-category Parental Relative Education)

Note: *p < .05, **p < .01, ***p < .001; N = 1185, χ^2 = 74.68*, d.f. = 53, CFI = .99, RMSEA = .02, SRMR = .02.

Figure 5 presents the standardized coefficients of the structural model with father-daughter relationship, while Figure 6 shows the standardized coefficients from the structural model with mother-daughter relationship. Fit indices suggest that the overall fit of both models is good. The two models show that (a) more interparental discord is associated with lower quality of father-daughter/mother-daughter relationships, and (b) higher quality of father-daughter/mother-daugh-

ter relationships is associated with better daughters' adult mental health. In addition, the hypothesized linkage between interparental discord and offspring's adult mental health is statistically significant, which indicates that parent-daughter relationships only mediated part of the association between interparental discord and daughters' adult mental health. Interparental relationship is related to daughters' mental well-being directly or through other mediators. However, the hypothesized linkage between maternal education advantage and interparental discord is not statistically significant. Therefore, compared with paternal education advantage, maternal education advantage does not significantly hurt daughters' adult mental health.

Moreover, the hypothesized linkage between equal parental education and interparental discord is also not statistically significant. Nevertheless, equal parental education is positively and significantly associated with father-daughter relationship. Therefore, compared to paternal educational advantage, equal parental education is related to significantly better daughters' adult mental health through the mediating effect of father-daughter relationship. However, equal parental education is not significantly associated with mother-daughter relationship.
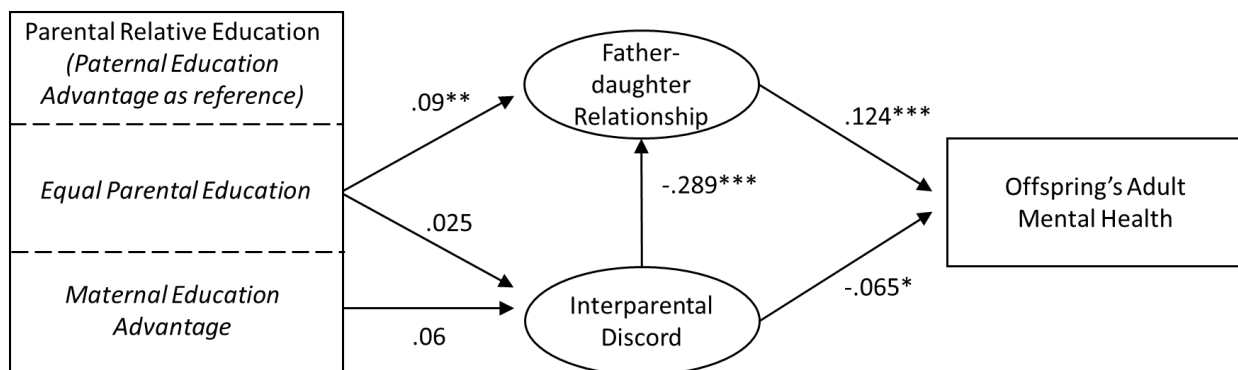

Figure 5. Results of Structural Equation Model Containing Father-daughter Relationship (Three-category Parental Relative Education)

Note: *p < .05, **p < .01, ***p < .001; *N* = 1387, χ^2 = 144.62***, d.f. = 53, CFI = .98, RMSEA = .04, SRMR = .02.
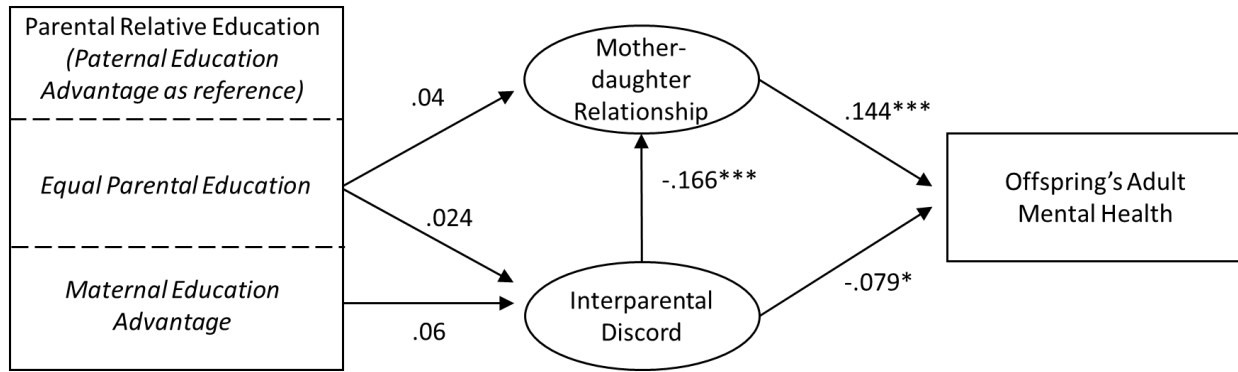
Figure 6. Results of Structural Equation Model Containing Mother-daughter Relationship (Three-category Parental Relative Education)

Note: *p < .05, **p < .01, ***p < .001; N = 1387, χ^2 = 116.88***, d.f. = 53, CFI = .98, RMSEA = .03, SRMR = .02.

In the second step, I use the five-category parental relative education variable to investigate four structural equation models, each of which includes father-son, mother-son, father-daughter, and mother-daughter relationships. Figure 7 shows the standardized coefficients of the structural model containing father-son relationship, while Figure 8 presents the standardized coefficients of the structural model containing mother-son relationship. The overall fit of both models is good. The two models clearly show a pathway linking large maternal educational advantage to sons' mental health during adulthood through the mediating effects of interparental discord and parent-son relationships. The pathways show the following findings: (a) compared to large paternal educational advantage, large maternal educational advantage is associated with more interparental discord; (b) more interparental discord is associated with lower quality of father-son/mother-son relationship; (c) higher quality of father-son/mother-son relationship is associated with better sons' adult mental health. However, the linkage between small maternal education advantage and interparental discord is not statistically significant.

Moreover, the hypothesized linkages between equal parental education and interparental dis-

cord, between equal parental education and father-son/mother-son relationships, and between interparental discord and offspring's adult mental health, are not statistically significant. These results indicate that, compared with large paternal educational advantage, equal parental education is not associated with significantly less interparental discord or better father-son/mother-son relationships. In addition, parent-son relationships mediated all the association between interparental discord and sons' adult mental health.
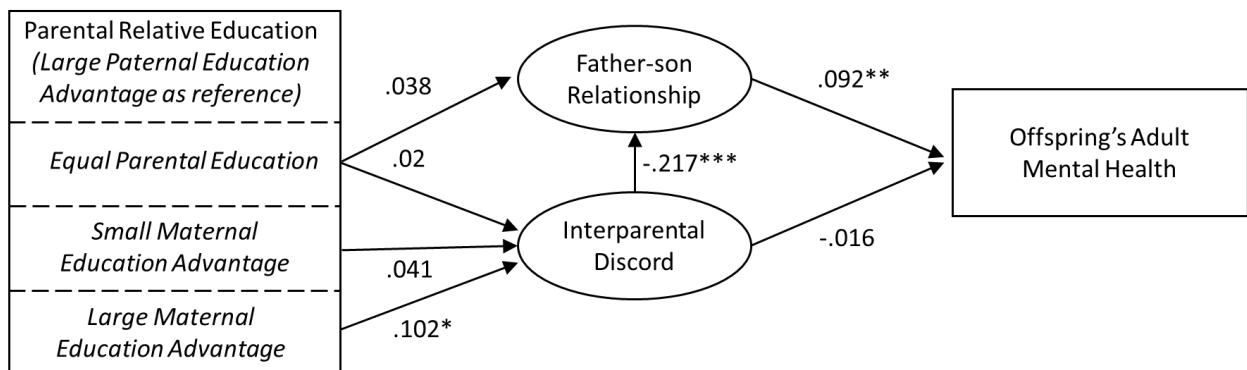

Figure 7. Results of Structural Equation Model Containing Father-son Relationship (Five-category Parental Relative Education)

Note: *p < .05, **p < .01, ***p < .001; $N = 1185$, $\chi^2 = 122.13$***, d.f. = 63, CFI = .98, RMSEA = .03, SRMR = .02.
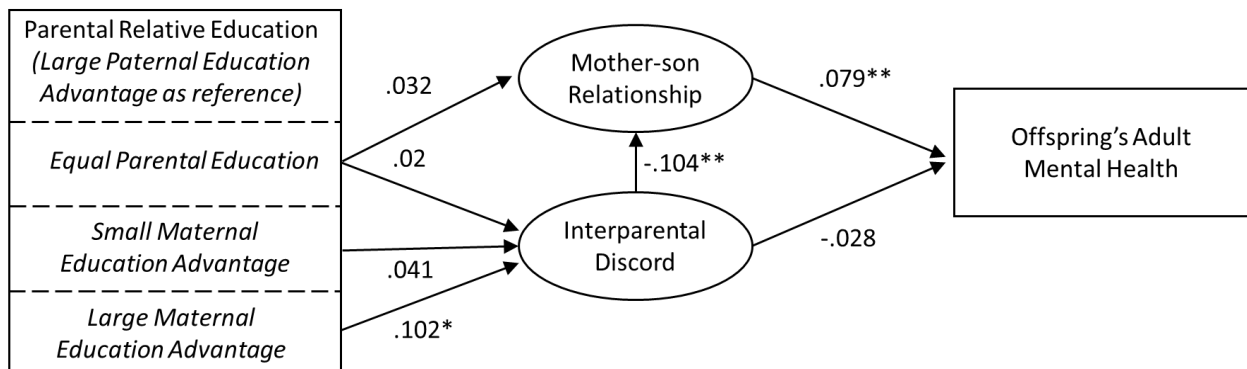

Figure 8. Results of Structural Equation Model Containing Mother-son Relationship (Five-category Parental Relative Education)

Note: *p < .05, **p < .01, ***p < .001; $N = 1185$, $\chi^2 = 87.07$*, d.f. = 63, CFI = .99, RMSEA = .02, SRMR = .02.

Figure 9 presents the standardized coefficients of the structural model with father-daughter relationship, while Figure 10 shows the standardized coefficients from the structural model with mother-daughter relationship. Fit indices suggest that the overall fit of both models is good. The two models clearly show a pathway similar to that among sons: (a) compared to large paternal education advantage, large maternal educational advantage is associated with more interparental discord; (b) more interparental discord is associated with lower quality of father-daughter/mother-daughter relationship; (c) higher quality of father-daughter/mother-daughter relationship is associated with better daughters' adult mental health. Thus, large maternal educational advantage is negatively related to daughter's mental health during adulthood through the mediating effects of interparental discord and parent-daughter relationships. Models of daughters also demonstrate that the linkages between small maternal education advantage and interparental discord are not statistically significant.

Moreover, the hypothesized linkage between equal parental education and interparental discord is not statistically significant. Nevertheless, equal parental education is positively and significantly associated with father-daughter relationship. Therefore, compared to large paternal educational advantage, equal parental education is related to significantly better daughters' adult mental health through the mediating effect of father-daughter relationship. However, equal parental education is not significantly associated with mother-daughter relationship. In addition, the hypothesized linkage between interparental discord and offspring's adult mental health is statistically significant, which indicates that parent-daughter relationships only mediated part of the association between interparental discord and daughters' adult mental health. Interparental relationship is related to daughters' mental well-being directly or through other mediators.
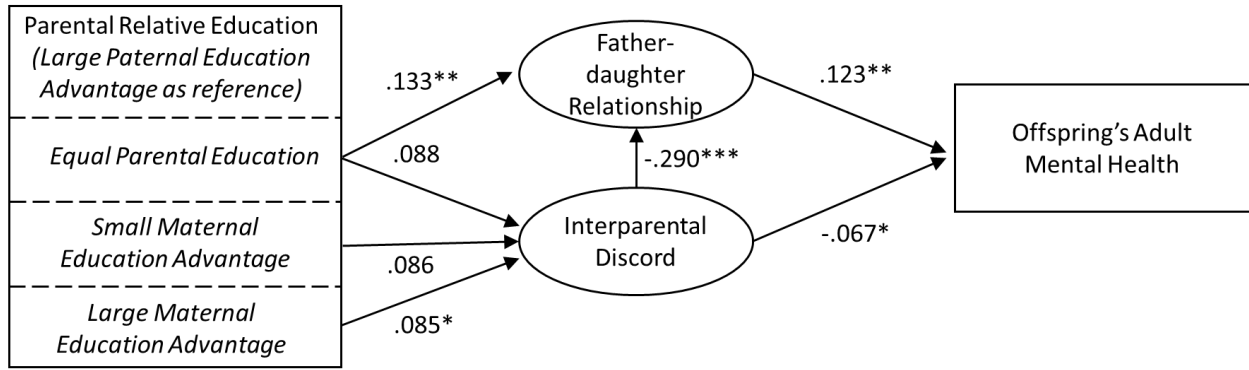
Figure 9. Results of Structural Equation Model Containing Father-daughter Relationship (Five-category Parental Relative Education)

Note: *p < .05, **p < .01, ***p < .001; N = 1387, χ^2 = 156.44***, d.f. = 63, CFI = .98, RMSEA = .03, SRMR = .02.
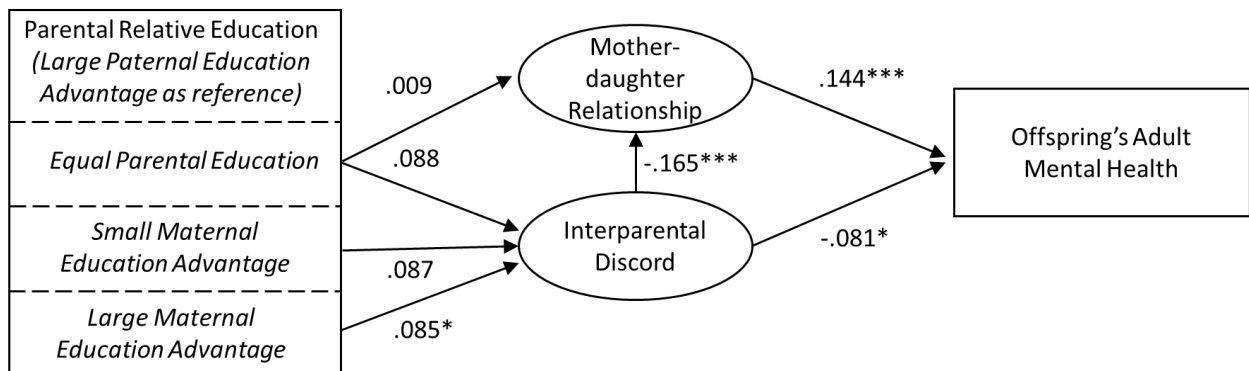

Figure 10. Results of Structural Equation Model Containing Mother-daughter Relationship (Five-category Parental Relative Education)

Note: *p < .05, **p < .01, ***p < .001; N = 1387, χ^2 = 132.03***, d.f. = 63, CFI = .98, RMSEA = .03, SRMR = .02.

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7. Discussion

Family SES deeply influences relationship processes and individuals' development (Conger et al., 2010). On the one hand, family SES in early life stages exerts long term effects on individuals' adult mental health. On the other hand, socioeconomic (dis)similarity between partners is closely related to their relationship well-being. However, the two approaches fail to inform each other – they both overlook how parental relative SES is associated with offspring's mental health over the life course. In this research, I develop a conceptual model linking parental relative education to offspring's mental health during adulthood through family relationships in adolescence. Moreover, I incorporate the interaction between parents' and children's gender.

I find that, for both sons and daughters, the effects of maternal education advantage on children's adult mental health vary across different degrees of educational difference favoring mothers. Models in the first step indicate that, compared to paternal education advantage, maternal education advantage overall does not lead to offspring's worse adult mental health. According to the structural models in the second step, large maternal education advantage is associated with worse offspring's mental health during adulthood, while small maternal advantage does not a generate significant impact. Compared to large paternal education advantage, large maternal educational advantage increases interparental discord and decreases the quality of both father-child and mother-child relationships. Then, adolescents who maintain lower-quality bonds with parents suffer worse mental health when they enter adulthood. I find this pathway for both sons and daughters. In addition, large maternal educational advantage negatively affects daughters' adult mental health directly through interparental discord, without a mediating role for parent-child relationships. This path does not appear among sons. The reason may be that daughters are more emotionally sensitive to parents' conflicts than are sons. Thus, interparental discord can directly impact their mental

well-being. Inconsistent with the conceptual model, equal parental education fails to significantly improve the quality of interparental relationships and further benefit children's adult mental well-being.

Although these findings show the negative impact of educational difference favoring mothers, I should first clarify that this study does not imply that females should not pursue higher level of education in order to maintain their children's well-being. Past studies support that children can obtain health benefits from higher maternal education itself (Victoria et al., 1992; Frost et al., 2005). I suggest that the mechanism underlying such negative impact is the operation of gender status processes. Status beliefs about group differences exist in gender-, race-, or class-typed settings and influence individuals' social relations. When individuals from low-status groups are perceived to challenge the status hierarchy, they often encounter a hostile backlash from others of high-status (Ridgeway, 2014). High-status group members distance themselves from, or cause harm to, out-group members in order to restore their status legitimacy (Maass et al., 2003). In the gender status processes, men often hold a superior sense of group position and assume masculinity as high-status value. Being educational inferior to their wives can be a threat to men's masculinity. Thus, men are likely to engage in behaviors that are more closely align them with the hegemonic ideal (Munsch, 2015). Such behaviors may include infidelity, domestic violence, or neglect, which cause more discord in the couple relationships. Moreover, according to this study, the husband may not feel threatened if his wife's education level is just slightly higher than his. Only a huge educational gap favoring women can initiate the operation of gender status processes.

Furthermore, for both daughters and sons, mother-child relationships did not act as a mediating role linking equal parental education and better mental health. This is supported by Bonke and

Esping-Andersen's (2009) finding that educational homogamy is associated with a stronger paternal investment to developmental care, but it does not produce any decline in maternal care. However, there is a difference between daughters and sons when it comes to father-child relationships. Equal parental education leads to better daughters' bonds with fathers, which predict better mental health during the adult years. However, sons' bonds with fathers do not exert the mediating effects. Previous research suggests that fathers spend more time with sons than with daughters (Lundberg, 2005). In addition, fathers with sons are more likely to get involved with family life (Raley and Bianchi, 2006). Thus, since fathers already invest much energy in and time to develop relationships with sons, equal parental education may not generate a further significant growth. For daughters, however, the growth can be more significant.

This research makes key contributions to the understanding of the connections among SES, family processes, and individuals' well-being. On the one hand, parental SES is multifaceted, including both absolute level and relative difference. While previous studies mainly focus on the absolute level, I fill the gap by exploring the importance of the relative difference between paternal and maternal SES. On the other hand, existing research on the consequences of couple SES similarity is limited to couples' lives. I extend the influences of couple SES similarity to the well-being and development of the next generation.

Furthermore, this research also provides implications for future studies. First, when revealing the influence of parental relative education on offspring's adult mental health, I choose family relationships as mediators. Future studies can explore more new mediating pathways. For instance, scholars can investigate factors in adulthood. In addition, they can take into account psychological mechanisms. Second, individuals may not have equitable access to educational resources even if they obtain the same education level. Schools can be divided into key schools and regular schools,

which are entitled to different educational resources (Ye et al., 2018). Therefore, researchers can consider the stratification of same-level schools when measuring parental education level. Third, although using education as an indicator of SES has many advantages, researchers can also study parental relative difference in the other two measures, that is, income and occupation status. Since these two measures reflect different aspects of SES, they may generate unique effects. Fourth, some scholars emphasize that educational gap between partners and its negative effects on marital stability no longer exist in recent cohorts (Schwartza and Han, 2014). Thus, future research will benefit from collecting new data to investigate whether such changes also occur in interparental relationship quality for recent cohorts. If such changes do happen, the associations between parental relative SES and children's well-being would also be different.

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