

Research Article

Maternal Differential Treatment and Psychological Well-Being: The Mediating Role of Marital Tension and Sibling Tension?

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Abstract

Objectives: Past research used equity theory and social comparison theory to explain the direct effect of maternal differential treatment (MDT) on psychological well-being. However, this focus on psychological pathways ignores possible social pathways, such as indirect effects of MDT on well-being through disrupting other family relationships. This study uses stress proliferation theory to argue that MDT, as a primary stressor in mother–child relationships, can produce secondary stressors in other family relationships (e.g., sibling tension and marital tension), which in turn leads to lower psychological well-being.

Methods: To investigate this mechanism, we conducted multilevel mediation analysis using data collected from 720 adult children nested within 308 families, as part of the Within-Family Differences Study.

Results: We found that sibling tension mediates the association between adult children's perceptions of maternal disfavoritism and their psychological well-being—a process we call the stress proliferation of maternal disfavoritism. In contrast, adult children's perceptions of maternal favoritism cannot trigger this stress proliferation process of producing marital tension nor sibling tension.

Discussion: The evaluation of the stress proliferation process of maternal favoritism and disfavoritism can help us to understand the difference in effects across various dimensions of MDT. This study contributes to the literature on social relationships as social determinants of health by investigating how intergenerational relationships are connected to other family relationships to affect family members' health.

Keywords: Adult children, Family sociology, Intergenerational relations, Mental health

Although studies have documented the effect of maternal differential treatment (MDT) on children of younger families (Jensen, Whiteman, Fingerman, & Birditt, 2013; Richmond, Stocker, & Rienks, 2005), there has been relatively little attention to the potential effects of such maternal differentiation on adult children of older families. It almost seems that people assume that maternal differentiation disappears or becomes irrelevant when children grow older and become independent. On the contrary,

research on later-life families found that MDT among adult children is common (Boll, Michels, Ferring, & Filipp, 2010; Suitor, Gilligan, & Pillemer, 2013) and consequential for psychological well-being (Suitor et al., 2018). This line of work has shown that mothers differentiate their children across a wide range of dimensions, including emotional closeness, tension, disappointment, contact, and exchange of support (Spitze, Ward, Deane, & Zhuo, 2012; Suitor et al., 2016).

MDT refers to mothers' unequal treatment of their offspring, including maternal favoritism and disfavoritism. Maternal favoritism refers to children's perceptions that they are favored by mothers on positive dimensions of mother-child relationships (e.g., they perceive that they are most emotionally close to mothers). In contrast, maternal disfavoritism refers to children's perceptions that they are disfavored by mothers on negative dimensions of mother-child relationships (e.g., they perceive that they have most conflict with mothers).

Using social comparison theory (Festinger, 1954), which states that individuals have worse self-evaluation when they consider themselves underbenefited and have better self-evaluation when they consider themselves overbenefited, studies found that perceptions of maternal disfavoritism lead to young adult children's worse psychological outcomes (Jensen et al., 2013) and more behavior problems (Young & Ehrenberg, 2007).

A small number of studies have found that maternal favoritism is positively associated with psychological well-being (Jensen et al., 2013; Shanahan, McHale, Crouter, & Osgood, 2008); however, the preponderance of the literature has shown that maternal favoritism is negatively associated with psychological well-being (Peng, Suito, & Gilligan, 2018; Young & Ehrenberg, 2007). Although measures of MDT and the age of children differ across studies, these mixed findings regarding the impact of maternal favoritism may result from a lack of attention to the ways in which the magnitude of maternal favoritism might modify the relationship. One study found that children have the best psychological well-being when they are slightly favored, but their psychological well-being decreases when the magnitude of favoritism increases (Meunier, Bisceglia, & Jenkins, 2012). This is consistent with the finding that the negative effects of MDT on psychological well-being are strongest when individuals perceive that they, rather than their siblings, are the most favored offspring (Suito, Gilligan, Peng, Jung, & Pillemer, 2017). The negative effects of maternal favoritism on psychological well-being can be explained by equity theory (Hatfield, Traupmann, Sprecher, Utne, & Hay, 1985), which proposes that individuals who receive excessive benefits in relation to their role partners experience guilt, whereas persons who feel underbenefited feel disappointment and anger, in turn, leading to lower psychological well-being. It is possible that the consequences of violating the equity rule outweigh the benefits of social comparison when siblings encounter a significant amount of maternal favoritism.

Based on the theoretical and empirical literatures on relational equity and social comparison, a main effect of MDT on psychological well-being is not surprising. However, there may also be indirect effects of MDT on well-being that have not been explored. Drawing from theories of the life course and stress proliferation (Pearlin, Aneshensel, & Leblanc, 1997), there are grounds to propose that MDT might also impact psychological well-being indirectly through disrupting other social relationships. Pearlin, Aneshensel,

and Leblanc (1997) described how "primary" stressors, those to which people are initially exposed, can produce "secondary" stressors, in a process called "stress proliferation." For example, being a caregiver, a primary stressor, may lead to a number of other, secondary stressors (e.g., work strain). According to the stress proliferation theory and the theme of linked lives, it is reasonable to assume that a primary stressor in parent-child relationships can produce secondary stressors in other family relationships (e.g., sibling tension and marital tension), because those relationships are connected and interdependent on each other. There is some empirical evidence to support this claim. In this study, we focused on depressive symptoms as a measure of psychological well-being; sibling tension and marital tension were conceptualized as negative interaction and were measured by the frequency of sibling(s)/spouse (a) making too many demands, (b) criticizing, and (c) creating tensions/arguments.

Background

MDT, Sibling Tension, and Depressive Symptoms

Studies have found that adult children who perceive that their mothers differentiate among themselves and their siblings report lower sibling relationship quality (Boll, Ferring, & Filipp, 2003; Suito, Gilligan, Johnson, & Pillemer, 2014). For example, adult children who perceived that they were their mothers' preferred caregiver reported higher sibling tension compared with those who perceived that their mothers did not have a preferred caregiver (Suito et al., 2014).

Such high tension with siblings may be very consequential for depressive symptoms, given the importance of this tie in adulthood. The social convoy model suggests that in midlife, the most salient kin ties, beyond one's own children, are spouses, mothers, and siblings (Antonucci, Akiyama, & Takahashi, 2004). The sibling tie is unique in that it tends to be the most enduring kin tie across the life course (Bedford & Avioli, 2012). Thus, it is not surprising that studies have found that relationships with siblings impact depressive symptoms across the life course (Gilligan et al., 2017; Kim, McHale, Crouter, & Osgood, 2007). Based on these established links between MDT and sibling tension, and between sibling tension and depressive symptoms, we hypothesize that sibling tension will serve as a mediator between adult children's perceptions of MDT and their depressive symptoms.

MDT, Marital Tension, and Depressive Symptoms

Studies have found that spouses' interaction patterns and their perceptions of the quality of their marital relationships are shaped by their ties to other members of their social networks (Amato & Booth, 2001; Johnson & Galambos, 2014). One tie that is especially salient in this context is that between adult children and their parents. For example,

research has shown that nurturing behaviors by parents, positive parent–child interactions, and high parent–child relationship quality are associated with lower tension in adult children’s marital relationships (Conger, Cui, Bryant, & Elder, 2000; Lavee, Katz, & Ben-Dror, 2005). Thus, it is surprising to find that, to the best of our knowledge, no study has investigated the association between adult children’s perceptions of MDT and their marital tension. However, there are some indirect evidence supporting the association between MDT and marital tension. One study investigated young adults aged 18–22 and found that differential parental affection was associated with higher romantic relationship conflict through the pathway of more negative perception of self and others (Rauer & Volling, 2007). It is reasonable to assume that adult children who perceive that their mothers favor and disfavor some offspring over others will have higher marital tension.

A substantial body of research has demonstrated a strong link between marital quality and depressive symptoms (Proulx, Helms, & Buehler, 2007; Walker, Isherwood, Burton, Kitwe-Magambo, & Luszcz, 2013), particularly in the case of marital tension (Proulx et al., 2007; Umberson, Thomeer, & Williams, 2013). Based on these links between MDT and marital tension, and between marital tension and depressive symptoms, we hypothesize that marital tension will serve as a mediator between MDT and depressive symptoms of middle-aged adult children.

Summary of Hypotheses

As shown in Figure 1, we hypothesize that sibling tension and marital tension will both serve as mediators between MDT and depressive symptoms.

Method

Data

The data for this study were collected as part of the Within-Family Differences Study (WFDS), which involved selecting a sample of mothers 65–75 years of age with at least two living adult children and collecting data from mothers regarding each of their children. The first wave of interviews took place with 566 mothers between 2001 and 2003; the original study was expanded to include a second wave of data collection from 2008 through 2011. (Details of the design can be found at <http://web.ics.purdue.edu/~jsuitor/within-family-differences-study/>.)

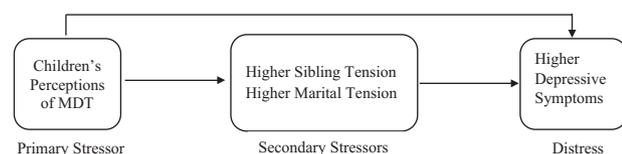


Figure 1. Stress proliferation of adult children’s perceptions of MDT. MDT = maternal differential treatment.

Massachusetts city and town lists were used as a sampling frame for the mothers. The investigators drew a probability sample of women aged 65–75 years with two or more children from the greater Boston area. The Time 1 (2001–2003) sample consisted of 566 mothers, which represented 61% of those who were eligible for participation, a rate comparable to that of similar surveys in the 2000s (Wright & Marsden, 2010). For the follow-up study, the survey team attempted to contact each mother who participated in the original study. At Time 2 (2008–2011), 420 mothers were interviewed. Of the 146 mothers who participated at only T1, 78 had died between waves, 19 were too ill to be interviewed, 33 refused, and 16 could not be reached. Thus, the 420 represent 86% of mothers who were living at T2. Comparison of the T1 and T2 samples revealed that the respondents differed on subjective health, educational attainment, marital status, and race. Mothers who were not interviewed at T2 were less healthy, less educated, and less likely to have been married at T1; they were also more likely to be Black.

Following the interviews, mothers were asked for the contact information of their adult children; at T2, 81% of the mothers provided contact information—a rate higher than typically found in studies of multiple generations (Kalmijn & Liefbroer, 2011). In cases in which the mother was not interviewed at T2, information from T1 was used to contact adult children at T2. Seventy-five percentage of the adult children for whom contact information was available agreed to participate, resulting in a final sample of 826 children nested within 360 families. Analyses comparing mothers with no participating children and mothers who had at least one participating child revealed no differences between these two groups in terms of race, marital status, education, age, or number of children, but that daughters, married, and those with higher education were slightly more likely to participate, consistent with other studies with multiple generations (Kalmijn & Liefbroer, 2011).

The analytic sample for testing sibling tension as a mediator included 720 adult children nested within 308 families. The sample was restricted to adult children (a) whose mothers were alive at the time of the child’s T2 interview, (b) who had at least one living sibling at T2, and (c) whose families had been identified as Black or non-Hispanic White (due to small sample size in other group; $n < 5$). Using these criteria, 101 children were omitted. Furthermore, five children were omitted because they were missing data on variables of interest. The analytic sample for testing marital tension as a mediator further excluded 217 children who were not married at T2, which resulted in 503 adult children nested within 216 families. Listwise deletion was used to handle missing data on the independent variables because there were fewer than 1% missing on any variable in the analysis (Allison, 2010).

Mothers’ and children’s demographic characteristics are presented in Table 1. For the full sample (sibling tension), adult children respondents were on average 49 years old,

rarely or sometimes had marital tension (mean = 2.4), rarely had sibling tension (mean = 2.03), and experienced depressive symptoms for 1 day in the past week (mean = 0.65). Respondents in the married only sample had similar distribution in those variables.

Measurement

Dependent Variable

To measure *depressive symptoms*, we employed the seven-item version of the Center for Epidemiological Studies Depression (CES-D) Scale (Ross & Mirowsky, 1988). The CES-D asks respondents how often in the past week they have felt a certain way. The items composing the scale are as follows: (a) Everything I did was an effort; (b) I had trouble getting to sleep or staying asleep; (c) I felt lonely; (d) I felt sad; (e) I could not get going; (f) I felt I could not shake off the blues; and (g) I had trouble keeping my mind on what I was doing. The response categories for the seven items were: 0 = less than 1 day, 1 = 1–2 days, 2 = 3–4 days, or 3 = 5–7 days. The scale was created by taking the average of the seven items ($M = 0.53$, $SD = 0.55$, and Cronbach's $\alpha = 0.78$).

Independent Variables

To create the *perceived current maternal favoritism* and *disfavoritism* measures, each respondent was asked: (a) "To which child in your family is your mother the most emotionally close?" and (b) "With which child in the family does

your mother have the most disagreements or arguments?" For each of these questions, responses were assigned to three categories: (i) child does not perceive mother as favoring/disfavoring any particular offspring; (ii) child perceives that mother favors/disfavors him or herself; or (iii) child perceives that mother favors/disfavors another child in the family (Suitor, Sechrist, Steinhour, & Pillemer, 2006). Two dummy variables were created for the three categories. For the mediation analysis, we compared children who perceived no MDT with children who perceived that they were the favored/disfavored children.

Mediators

To create the measure of *sibling tension*, we combined three items (Schuster, Kessler, & Aseltine, 1990): (a) How often do your siblings create tensions/arguments with you? (b) How often do your siblings make too many demands on you? and (c) How often do your siblings criticize you? The response categories for the three items were: 1 = never, 2 = rarely, 3 = sometimes, 4 = fairly often, or 5 = very often. The scale was created by taking the average of the three items ($M = 1.94$, $SD = 0.71$, and Cronbach's $\alpha = 0.74$).

To create the measure of *marital tension*, we combined three items (Schuster et al., 1990): How often does your husband/wife/partner (a) make too many demands on you? (b) criticize you? and (c) create tensions/arguments with you? The response categories for the three items were: 1 = never, 2 = rarely, 3 = sometimes, 4 = fairly often, or 5 = very often. The scale was created by taking the average

Table 1. Analytic Sample Descriptive Statistics from Wave 2 of WFDS

	Sibling tension	Marital tension (married only)
Mothers	N = 308	N = 216
Black (%)	22.7	16.9
Number of children (mean, SD)	3.71 (1.62)	3.78 (1.67)
Adult children	N = 720	N = 503
Age (mean, SD)	49.4 (5.67)	49.1 (5.64)
Youngest (%)	24.7	26.6
Daughters (%)	57.6	55.7
Education (mean, SD)	5.21 (1.59)	5.44 (1.49)
Marital tension (mean, SD)	2.40 (0.80)	2.40 (0.80)
Sibling tension (mean, SD)	2.03 (0.78)	1.94 (0.71)
Employed (%)	79.9	85.3
Parents (%)	77.4	86.9
Perception of most emotionally close (%)		
No differentiation	11.4	10.1
Choose self	31.8	32.8
Choose other sibling	56.8	57.1
Perception of most conflict (%)		
No differentiation	11.3	11.9
Choose self	16.5	12.9
Choose other sibling	72.2	75.2
Self-reported health (mean, SD)	3.79 (1.06)	3.92 (0.99)
Depressive symptoms (mean, SD)	0.65 (0.66)	0.53 (0.55)

Note: WFDS = Within-Family Differences Study.

of the three items ($M = 2.40$, $SD = 0.80$, and Cronbach's $\alpha = 0.79$).

Covariates

It is important to control for several characteristics of adult children and families that have been found to predict depressive symptoms or mothers' differential treatment. We controlled on family size, race (0 = White, 1 = Black), birth order (0 = first or middle born, 1 = last born), gender (0 = son, 1 = daughter), parental status (0 = no, 1 = yes), educational attainment (1 = eighth grade or less, 2 = 1–3 years of high school, 3 = high-school graduate, 4 = vocational/noncollege, 5 = 1–3 years of college, 6 = college graduate, 7 = graduate work), marital status (0 = not married, 1 = married), employment (0 = no, 1 = yes), and self-rated health (1 = poor, 2 = fair, 3 = good, 4 = very good, 5 = excellent).

Analytic Strategies

We conducted mediation analyses to test sibling tension as a mediator between the association between MDT (choose self vs no MDT) and depressive symptoms. Using the "Mediation" package in R (Tingley, Yamamoto, Hirose, Keele, & Imai, 2014), average mediation effects (AMEs) and average direct effects (ADEs) were assessed net of controls. AME was calculated by multiplying the effect of MDT on sibling/marital tension and the effect of sibling/marital tension on depressive symptoms. ADE was the effect of MDT on depressive symptoms net of sibling/marital tension. Because adult children were nested within families, we used "lme4" package in R to account for the nested structure and estimate the standard errors (Bates, Maechler, Bolker, & Walker, 2015). Significance of AME and ADE were determined using a quasi-Bayesian Monte Carlo simulation with 1,000 iterations. Because we had two different measures of MDT (i.e., most tension with mothers and most emotionally close to mothers), the mediation analysis was conducted for each measure separately.

The same process was used to test marital tension as a mediator between MDT and depressive symptoms. All analyses were conducted using R.

Sensitivity Analysis

The mediation analysis of sibling tension as a mediator was conducted with married adult children to have the same sample as the mediation analysis of marital tension as a mediator. The results were similar to the original mediation analysis of sibling tension in terms of the statistical significance level of the mediation effect.

To rule out the possibility that the stress proliferation process of MDT only happen when children are close to their families. We tested the association between MDT and sibling tension on a subsample of adult children scored 4 or

below on mother–child closeness and found MDT was still associated with sibling tension. In addition, we conducted analyses to test whether the effect of MDT on sibling tension is moderated by mother–child closeness and found no moderation effect.

Results

Sibling Tension as a Mediator between MDT and Depressive Symptoms

As shown in Figure 2, both direct effects were statistically significant for favoritism and disfavoritism. This means that the direct effect of the perceptions of maternal favoritism and the perceptions of maternal disfavoritism were statistically significant. Specifically, children who perceived that they were most emotionally close to mothers and children who perceived that they had most tension with mothers reported higher depressive symptoms compared to children who perceived that mothers were equally close to everyone and children who perceived that mothers had equal tension with all of their offspring, respectively.

Figure 2 also showed that perceptions of being most close to mother were not statistically significantly associated with sibling tension, whereas perceptions of having most tension with mother were statistically significantly associated with sibling tension. It is clear that sibling tension was statistically significantly associated with depressive symptoms in both analyses. Thus, it seems highly likely that sibling tension mediated between maternal disfavoritism and depressive symptoms. However, it is not clear whether sibling tension mediated between maternal favoritism and depressive symptoms. Therefore, formal tests of mediation effects of sibling tension were conducted to reach a more convincing conclusion.

As given in Table 2, the mediation effect of sibling tension was not statistically significant for maternal favoritism (most close to mother), whereas the mediation effect of sibling tension was statistically significant for maternal disfavoritism (most tension with mother). Thus, there was

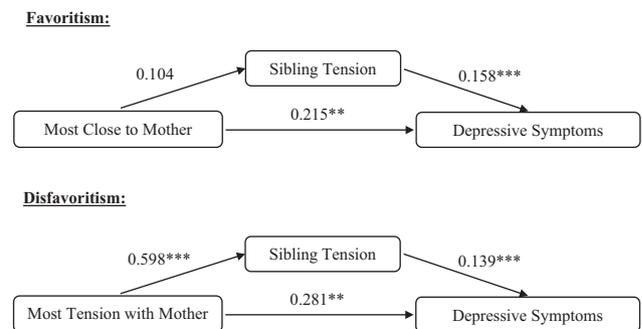


Figure 2. Sibling tension as a mediator between MDT and depressive symptoms ($N = 720$). Unstandardized coefficients with fully adjusted multilevel linear regression models. * $p < .05$. ** $p < .01$. *** $p < .001$. MDT = maternal differential treatment.

Table 2. Formal Test of Sibling Tension and Marital Tension as a Mediator between MDT and Depressive Symptoms

	Mediator: sibling tension (N = 720)			
	Most closeness to mothers (favoritism)		Most tension with mothers (disfavoritism)	
	B	95% CI	B	95% CI
Mediate effect	0.017	-0.01-0.05	0.084***	0.04-0.13
Direct effect	0.215**	0.07-0.36	0.281**	0.12-0.44
Total effect (chose self vs no MDT)	0.232**	0.09-0.38	0.365***	0.20-0.52
Proportion mediated	0.071		0.228***	
	Mediator: marital tension (N = 503)			
	Most closeness to mothers (favoritism)		Most tension with mothers (disfavoritism)	
	B	95% CI	B	95% CI
Mediate effect	0.008	-0.01-0.03	0.021*	0.00-0.05
Direct effect	0.104	-0.05-0.28	0.326***	0.15-0.50
Total effect (chose self vs no MDT)	0.113	-0.04-0.28	0.348***	0.17-0.52
Proportion mediated	0.054		0.056*	

Notes: Unstandardized coefficients with fully adjusted multilevel linear regression models. MDT = maternal differential treatment.

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

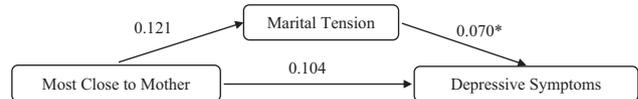
a mediating effect of sibling tension between maternal disfavoritism (chose self vs no MDT) and depressive symptoms. It is important to notice that sibling tension mediated 22.8% of the total effect of maternal disfavoritism (chose self vs no MDT) on depressive symptoms.

Marital Tension as a Mediator between MDT and Depressive Symptoms

As shown in Figure 3, the direct effect was statistically significant for maternal disfavoritism but was not statistically significant for maternal favoritism. This means that the perceptions of having the most tension with mothers predicted higher depressive symptoms, whereas the perceptions of being most close to mothers did not predict depressive symptoms. Specifically, children who perceived that they have most tension with mothers had higher depressive symptoms than children who perceived that mothers had equal tension with everyone.

Figure 3 also showed that perceptions of being most close to mother were not statistically significantly associated with marital tension, whereas perceptions of having most tension with mother were statistically significantly associated with marital tension. It is clear that marital tension was statistically significantly associated with depressive symptoms in both analyses. Thus, it seems likely that marital tension mediated between maternal disfavoritism and depressive symptoms. However, it is not clear whether marital tension mediated between maternal favoritism and depressive symptoms. Therefore, formal tests of mediation effects of marital tension were conducted to reach a more convincing conclusion.

Favoritism:



Disfavoritism:

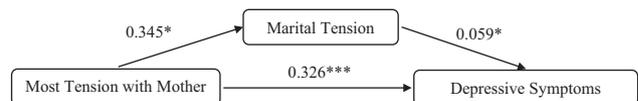


Figure 3. Marital tension as a mediator between MDT and depressive symptoms (N = 503). Unstandardized coefficients with fully adjusted multilevel linear regression models. * $p < .05$. ** $p < .01$. *** $p < .001$. MDT = maternal differential treatment.

As given in Table 2, the mediation effect of marital tension was not statistically significant for maternal favoritism, whereas the mediation effect of marital tension was statistically significant for maternal disfavoritism. Thus, there was a mediating effect of marital tension between maternal disfavoritism (chose self vs no MDT) and depressive symptoms. Marital tension mediated 5.6% of the total effect of maternal disfavoritism (chose self vs no MDT) on depressive symptoms.

Discussion

Past research have documented the effect of adult children's perceptions of MDT on psychological well-being (Loeser, Whiteman, & McHale, 2016; Sutor et al., 2017). Scholars have used equity theory (Hatfield et al., 1985) and social

comparison theory (Festinger, 1954) to explain the psychological process of this effect of MDT on psychological well-being. However, this focus on psychological pathways ignores possible social pathways which emphasize the indirect effects of MDT on psychological well-being through disrupting other family relationships. Guided by the life course perspective (Elder, 1998) and stress proliferation theory (Pearlin et al., 1997), the central question addressed in this study is whether sibling tension and marital tension mediate the association between children's perceptions of MDT and depressive symptoms. In posing this question, we drew from the life course perspective and stress proliferation theory to argue that children's perceptions of MDT can produce sibling tension and marital tension as secondary stressors and thus lead to higher depressive symptoms.

The results suggested that both sibling tension and marital tension mediated the association between children's perceptions of maternal disfavoritism and depressive symptoms. However, it is important to note that sibling tension mediated 22.8% of the association, whereas marital tension mediated only 5.6% of the association. One reason for the stronger mediation effect of sibling tension is that sibling tension is more sensitive to perceptions of maternal disfavoritism than is marital tension ($b = 0.598$ in Figure 2 vs $b = 0.345$ in Figure 3). This may be because, although both sibling tension and marital tension may arise as the result of the spillover effect of perceptions of maternal disfavoritism, siblings engage in social comparison with each other in terms of their perceptions of maternal disfavoritism, and thus may suffer directly from perceptions of maternal disfavoritism. In contrast, relationships with spouses/partners are less likely to be under the influence of this social comparison regarding maternal disfavoritism.

These findings suggest that one pathway of the effect of maternal disfavoritism on psychological well-being is through producing secondary stressors in sibling and marital relationships. Understanding this mechanism is helpful for the development of translational research and increasing the efficacy of interventions aimed at improving psychological well-being and family relationships. In order to design effective interventions, especially for those targeting social relationships, it is crucial to understand the intervening mechanisms as well as the relative impact of each of those mechanisms on health outcomes (Kawachi & Berkman, 2001). This study suggests that sibling tension and marital tension can be the active ingredients of possible interventions aimed at reducing the negative effect of perceptions of maternal disfavoritism. However, because marital tension only mediated 5.6% of the total effect, caution is advised when interpreting marital tension as an important mediating mechanism.

In contrast, the results showed that neither sibling tension nor marital tension mediated the association between children's perceptions of maternal favoritism and depressive symptoms. It means that there is no stress proliferation process of MDT in the case of maternal favoritism. The null

result regarding the stress proliferation process of maternal favoritism is not surprising given studies that found that perceptions of being most emotionally close to mothers are not associated with sibling tension (Gilligan, Sutor, Kim, & Pillemer, 2013). This can be explained by the *Negativity Effect Model*, a finding of the broader literature on the effects of positive and negative experiences on psychological well-being. This model hypothesizes that negative effects of social ties are stronger than positive effects of social ties. The greater influence of bad experiences over good ones is found in everyday events, major life events, close relationship outcomes, social ties, interpersonal interactions, and learning processes (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Paolini & McIntyre, 2019). Given the stronger influence of perceptions of maternal disfavoritism than perceptions of maternal favoritism, it makes sense that perceptions of maternal disfavoritism are able to trigger the stress proliferation process of MDT and to produce sibling tension, whereas perceptions of maternal favoritism are unable to trigger this process.

Sutor and colleagues (2017) found that the psychological well-being of adult children appears to be differentially affected by different dimensions of MDT. The evaluation of the stress proliferation process of maternal favoritism and disfavoritism can help us to understand the difference in effects across various dimensions of MDT. This study found that depressive symptoms were influenced not only by the direct effect of MDT but also by the indirect effect of sibling tension that generated from MDT. It is possible that some dimensions of MDT, especially maternal favoritism, have a small or no effect on psychological well-being because they do not generate sibling tension and marital tension. By mapping the pathways from MDT through family tension to psychological well-being, the nature of these dynamic connections can be clarified. Theoretically, an understanding of the stress proliferation process of MDT helps to bring studies of MDT's negative effects on psychological well-being into the family system approach and the life course perspective. It also helps us to bridge the research on MDT and family tension and research on MDT and psychological well-being.

Directions for Future Research

First, due to the nature of cross-sectional data, we cannot ascertain the causal direction of the mediation effect of sibling tension on the association between maternal disfavoritism and psychological well-being. It is possible that if an adult child is depressed, s/he may be more likely to perceive maternal disfavoritism and sibling tension. Supporting this argument, researchers found that people with major psychological disorders, especially depression, tend to report negative events, negatively biased perceptions, and false-negative memories (Joormann, Teachman, & Gotlib, 2009; Vuolo, Ferraro, Morton, & Yang, 2014). However, caution should be advised in interpreting the

above findings, because adult children in this study experienced depressive moods, on average, less than 1 day per week, which is relatively healthy and does not qualify them for major depression. In addition, longitudinal studies have found that MDT has detrimental effects on children's depressive symptoms and sibling relationships rather than the reverse (Richmond et al., 2005; Shanahan et al., 2008). Thus, despite these limitations, the evidence tends to support the idea that adult children's perceptions of maternal disfavoritism produce sibling tension and thus lead to higher depressive symptoms.

Because 14% of mothers from T1 were not interviewed at T2 and they were less healthy, less educated, less likely to have been married, and more likely to be Black compared with mothers in T2. It is possible that this difference in mothers' health, education, marital status, and race can lead to biased results of the stress proliferation process of MDT. For example, the impact of MDT was found higher among Blacks than Whites (Suitor et al., 2017). It is reasonable to assume that the stronger effects of MDT are fueled by the stronger stress proliferation process of MDT in Black families. Future studies should investigate the moderation effect between mothers' characteristics and the stress proliferation of MDT. Regarding mothers' self-rated health, education, and marital status, we found that these mothers' characteristics have no moderation effect on the association between MDT and depressive symptoms (table not shown). This suggests that the difference in mothers' self-rated health, education, and marital status may have minimal impact on our findings.

The stress proliferation process of MDT has implications for intervention studies, especially in the context of caregiving. There is evidence that caregiving is increasingly a team effort, with multiple family members (mostly patients' spouse and adult children) negotiating and coordinating their care efforts (Szinovacz & Davey, 2007). Providing care to one's mother also tends to increase adult children's interactions with one's mother as well as with one's siblings, which increases the opportunity for social comparisons and may make MDT more salient. Therefore, adult child caregivers may be particularly vulnerable to the effects of both the primary stressor of MDT as well as the secondary stressor of sibling tension, which would in turn make them particularly vulnerable to psychological distress. Future studies should investigate the stress proliferation process of MDT for adult child caregivers.

Finally, this study can be expanded to include a wider range of ties, such as adult children's relationship with their own children. This kind of study not only can further explore the stress proliferation process of MDT, but also can help researchers in understand the reproduction of intergenerational relationships.

Conclusion

In the past decades, social determinants of health have been recognized as major causes of health and health inequalities

across multiple disciplines (de Andrade et al., 2015; Link & Phelan, 1995). One important branch of the studies on social determinants of health has focused on social relationships as a major risk factor for health (Holt-Lunstad, Smith, & Layton, 2010). Research on social relationships and health often focuses either on one specific relationship (e.g., marital relationship and parent-child relationship; Suitor et al., 2017) or an overall measure of social network characteristics (e.g., network size; Perry & Pescosolido, 2015). The theme of linked lives suggests that the interaction between different social relationships is the key to understand the mechanism of health consequences of social relationships. However, little is known about the interaction/interconnectedness between different social relationships. The present investigation is important because it bridges microlevel investigations of a specific relationship and macrolevel investigations of the structure of social networks. Although the microlevel investigation provides needed information on effects of different social relationships on health, it assumes that the specific relation under study is independent of other social relations. Macrolevel investigations acknowledge the interconnectedness of social relationships and are helpful in providing information on an overall effect of social networks on health. However, this approach runs a risk of oversimplifying the interaction between different social relations. This study contributes to the literature on social relationships as social determinants of health in later life by investigating how intergenerational relationships are connected to other family relationships to affect family members' well-being.

In sum, this study found that sibling tension and marital tension (albeit small) mediated the association between maternal disfavoritism and depressive symptoms, whereas sibling tension or marital tension did not mediate the association between maternal favoritism and depressive symptoms. In other words, adult children's perceptions of maternal disfavoritism affect their depressive symptoms through a direct effect on depressive symptoms and a stress proliferation process that increases sibling tension. In contrast, adult children's perceptions of maternal favoritism affect their depressive symptoms only through a direct effect.

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Authors' Contributions

Siyun Peng planned the study, conducted the data analysis, and wrote the paper. Jill Suito and Megan Gilligan helped to plan the study and to revise the manuscript.

Conflict of Interest

None declared.

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