

# Parent-Child Relationships: A Shield Against Maternal Depression in the Midst of Household Chaos

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**Background:** Depression, a severe mental disorder, not only jeopardizes the health of mothers but also significantly negative impacts on families and their children. This study investigates the correlation between household chaos and maternal depression.

**Methods:** This study adopted a cross-sectional design and used the Confusion, Hubbub, and Order Scale, Dyadic Adjustment Scale, Parent-Child Relationship Scale, and Beck Depression Inventory to assess 1947 mothers of children in seven kindergartens in Shanghai, China.

**Results:** The findings revealed a significant positive correlation between household chaos, marital conflict, and maternal depression. Marital conflict also showed a significantly positively correlated with maternal depression. Marital conflict mediates the relationship between household chaos and maternal depression. Parent-child relationships moderated the direct effect of household chaos on maternal depression. When parent-child relationships were low, household chaos had a greater predictive effect on maternal depression. Conversely, when parent-child relationships were high, the predictive effect of household chaos on maternal depression was reduced.

**Conclusion:** This study reveals that parent-child relationships play a protective role in the impact of household chaos on maternal depression. This study significantly contributes to enriching the social support buffering model.

**Keywords:** household chaos, marital conflict, parent-child relationships, maternal depression

## Introduction

Depression is a debilitating condition characterized by feelings of sadness, emptiness, or irritability, often accompanied by cognitive and physical changes that impact daily functioning.<sup>1,2</sup> Research indicates that individuals with depression struggle to find joy and motivation from positive experiences and may exhibit difficulties in positive social interactions.<sup>3</sup> In China, studies on depression prevalence reveal significant differences among age groups, with higher rates observed in adolescents and adults compared to the elderly. Married adults are notably at higher risk of depression than unmarried adults.<sup>4-6</sup> There are also notable gender differences in depression prevalence. Biological factors such as cerebral structures and neural correlates, reproductive hormones, stress response pathways, the immune system and inflammatory reaction, metabolism, and fat distribution influence these differences. Women are twice as likely to experience depression as men. Additionally, women undergo specific reproductive transitional phases throughout their lives, which men do not experience.<sup>7</sup> Approximately 20% of women experience clinically significant depressive symptoms during pregnancy, and 10–15% of affected women continue to experience these symptoms postpartum.<sup>8</sup> Maternal depression adversely affects both mothers and children.<sup>9-11</sup>

Maternal depression not only negatively impacts the health of mothers but also adversely affects family coping resources and functioning.<sup>12</sup> Epidemiological and developmental studies consistently show an increased risk of adverse outcomes in children whose mothers are clinically diagnosed with depression or experience intensified depressive

symptoms.<sup>13,14</sup> Research indicates that maternal depressive symptoms are correlated with lower levels of sensitivity to children, including a lack of confidence in caring for children.<sup>15,16</sup> Consequently, mothers may perceive themselves as lacking parenting capabilities,<sup>17</sup> which influences their perceptions of their children. Depressed mothers exhibit less care and contact behaviors toward infants, show poor responsiveness to infant cues, and display withdrawal and emotional flatness (Radoš et al, 2020; Wolford et al, 2019). Children of depressed mothers also tend to display consistent patterns of interaction.<sup>18</sup> Additionally, research indicates that toddlers of depressed mothers exhibit poorer motor development, insecure attachment to mothers, and more challenging temperaments compared to toddlers of non-depressed mothers.<sup>8,19</sup> Furthermore, during the toddler stage, children of depressed mothers often experience issues with emotional regulation and delayed language development, leading to academic struggles, impaired social skills, and higher rates of behavioral problems upon entering school.<sup>10,20</sup>

Maternal depression often arises from various social and familial risk factors, including low socioeconomic status, unemployment, insufficient parental support, and other family stressors.<sup>21</sup> Research shows that adverse family outcomes, such as diminished marital quality,<sup>22</sup> heightened family discord,<sup>12</sup> and increased negative parent-child interactions,<sup>23</sup> are associated with maternal depression. While existing research on household chaos has primarily focused on its impact on children,<sup>24,25</sup> it has largely neglected its influence on maternal depression. The social support buffer model suggests that social support from spouses, friends, communities, and relatives can reduce the risk of depression by buffering stress. However, it does not consider the buffering effect of parent-child relationships on maternal depression. This study aims to expand this theory by exploring the role of parent-child relationships in this process, offering a new perspective on the mechanisms influencing maternal depression.

## Literature Review and Theoretical Hypotheses

### Household Chaos and Maternal Depression

Household chaos, characterized by high levels of background stimuli, lack of family routines, and unpredictability in daily activities, is a critical aspect of the family environment.<sup>26</sup> It is associated with caregivers' education levels, household income, and the number of residents.<sup>27</sup> Research indicates a correlation between household chaos and various adverse outcomes for children, parents, and families.<sup>26</sup> Chronic household chaos can impair a mother's cognitive regulatory abilities, reducing her capacity to manage negative emotions when dealing with impulsive or challenging children, leading to increased anxiety and depression.<sup>24</sup>

A recent survey reports that the lifetime prevalence of depression in China is 6.9%.<sup>28</sup> Depression is a multifactorial mood disorder influenced by both genetic and environmental factors.<sup>29,30</sup> Parents with depression may exhibit poorer cognitive and emotional functioning, resulting in less efficient maintenance of family structure and order.<sup>31</sup> Children exposed to prolonged maternal depression may show higher levels of social withdrawal, poorer emotional regulation, and more disruptive and oppositional behaviors.<sup>32</sup> Additionally, maternal depression is a significant risk factor for depression in offspring.<sup>33</sup>

Existing research shows a significant correlation between household chaos and maternal depression. Kracht, Katzmarzyk, Staiano<sup>34</sup> found that during the COVID-19 pandemic, mothers in chaotic households experienced less sleep and physical activity. Adequate sleep and physical activity are known to alleviate depression symptoms.<sup>35</sup> Yalcintas, Pike, Oliver<sup>36</sup> studied 158 twin mothers and found that higher household chaos and children's problematic behaviors were associated with maternal depression and stress. Therefore, this study proposes the following hypothesis:

H1: Household chaos is significantly and positively associated with maternal depression.

### Household Chaos, Marital Conflict, and Maternal Depression

Marital conflict, also known as marital discord, refers to disagreements, disharmony, or a lack of consensus among married parents.<sup>37</sup> This conflict can range from verbal disputes to physical altercations and is often linked to poor health outcomes in the involved couples.<sup>38</sup> Marital conflict can lead to various individual, familial, physical, and psychological issues, including anxiety, depression, eating disorders, and psychosomatic problems.<sup>39–41</sup> Positive marital relationships

are associated with fewer emotional disturbances and a better quality of life.<sup>42</sup> Conversely, negative marital experiences are positively correlated with major depression in women.<sup>43</sup>

Household chaos may be associated with marital conflict. Fiese, Winter<sup>44</sup> found that families with higher levels of chaos spend less time together and engage less in family rituals and routines, which are associated with positive family outcomes. Consequently, parents have less time to invest in their relationships with partners.<sup>45</sup> Shapiro, Gottman, Carrere<sup>46</sup> suggested that a chaotic family environment disrupts spousal intimacy, leading to decreased marital satisfaction.

Furthermore, research indicates that marital conflict significantly impacts women's mental health<sup>47,48</sup>. Hashemi, Kimiaei<sup>49</sup> conducted a controlled trial with couples experiencing marital issues and found a strong association between marital distress, domestic violence, and women's depressive symptoms. Parental depressive symptoms are also linked to impaired marital quality, including decreased satisfaction with marriage and more frequent destructive conflicts.<sup>47,50</sup> In summary, considering the potential correlations among household chaos, marital conflict, and maternal depression, and drawing from Family Systems Theory, this study posits the following hypotheses:

H2: Marital conflict mediates the relationship between household chaos and maternal depression.

H2a: Household chaos is positively associated with marital conflict.

H2b: Marital conflict is positively associated with maternal depression.

## The Moderating Role of Parent-Child Relationships

The parent-child relationship is an interactive bond characterized by asymmetrical and complementary behaviors between parents and children, reflecting their emotional connection.<sup>51,52</sup> Pianta, Virginia<sup>53</sup> identified three dimensions of the parent-child relationship: intimacy, conflict, and dependency. Troll, Fingerman<sup>54</sup> emphasized that the parent-child relationship is unique and distinct due to its level of intimacy. Research suggests that mother-child relationships may be more intricate and impactful than father-child relationships.<sup>55</sup> Sociological and psychological theories assert that the parent-child relationship is one of the most influential social bonds, significantly affecting parents' behaviors, attitudes, values, and adjustments.<sup>56</sup>

According to the Stress-Coping Theory, stressors in noisy environments negatively impact mental health, and prolonged exposure to chaos is associated with depression.<sup>57</sup> The Stress Buffering Model posits that emotional support from significant others, such as family members, can mitigate stress when individuals face stressful events,<sup>58,59</sup> with stress being a crucial factor leading to depression.<sup>60</sup> Research indicates that daily positive emotions, particularly during parent-child interactions, serve as a protective factor, reducing the adverse impacts of stress on parents and alleviating negative psychological states.<sup>61</sup>

Therefore, the parent-child relationship may modulate the impact of household chaos on maternal depression. Studies during the COVID-19 period found that high-quality parent-child relationships can promote resilience and mitigate the risk of negative outcomes.<sup>62</sup> Positive interactions between parents and children improve parental mental health,<sup>63</sup> while adverse parent-child relationships increase susceptibility to the negative effects of family life, such as conflicts.<sup>64</sup> Thus, the parent-child relationship may serve as a protective factor against maternal depression, reducing the impact of household chaos.

This study proposes the following hypothesis:

H3: The parent-child relationship moderates the relationship between household chaos and maternal depression.

## Current Study

This study examines the relationship between household chaos and maternal depressive symptoms, emphasizing the mediating role of marital conflict and the moderating role of parent-child relationships. We addressed the following research questions:

1. Is household chaos significantly associated with maternal depressive symptoms?
2. Does marital conflict mediate the relationship between household chaos and maternal depressive symptoms?
3. Do parent-child relationships moderate the relationship between household chaos and maternal depressive symptoms?

To investigate these questions, this study surveyed 1947 mothers with children in Shanghai, China, analyzing the relationships between household chaos, marital conflict, parent-child relationships, and maternal depressive symptoms. This research offers new insights into the impact of family environment on maternal mental health and provides empirical evidence for designing related interventions. This study aim for the results to offer valuable guidance for alleviating maternal depressive symptoms and improving the family atmosphere. The theoretical hypothesis model of this study is shown in Figure 1.

## Materials and Methods

### Participants and Procedure

A stratified convenience sampling method was used in this study. Initially, kindergartens in Shanghai were stratified based on geographic location, size, and socioeconomic background. From each stratum, seven kindergartens were conveniently selected. The research team contacted the kindergarten management, explained the study, and obtained their consent. Teachers then distributed invitation letters and informed consent forms to all parents. Parents who agreed to participate signed the consent forms and returned them to the teachers.

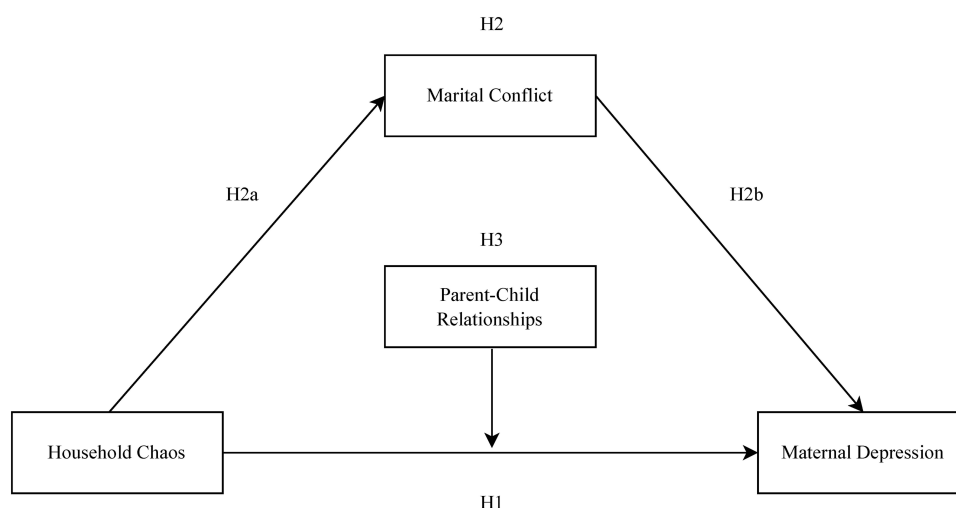
Inclusion criteria required that the parent be the primary caregiver, willing and able to sign the consent form, and capable of completing the questionnaire. Parents who did not sign the consent form or had severe health issues or cognitive impairments were excluded. From April to May 2022, 2040 electronic questionnaires were distributed. After excluding incomplete and significantly brief responses, 1947 valid questionnaires were included in the analysis, resulting in a response rate of 95.44%. The mothers' ages ranged from 24 to 52 years, with a mean age of 34.70 years ( $SD = 3.99$ ). Detailed demographic information is presented in Table 1.

This study received ethical review and approval from the corresponding author's affiliated institution, adhering to the Helsinki Declaration guidelines. Informed consent was obtained from each participant, ensuring ethical compliance and respect for participants' rights throughout the study.

## Measures

### Household Chaos

Household chaos was measured using the Confusion, Hubbub, and Order Scale developed by Matheny Jr, Wachs, Ludwig, Phillips.<sup>65</sup> This 15-item scale has been widely used in studies involving Chinese populations.<sup>66</sup> A sample item is "There is very little commotion in our home". Each item is scored on a binary scale, with 1 point for "yes" and 0 points for "no". Seven items are reverse-scored, with total scores ranging from 0 to 15, where higher scores indicate greater household chaos. The Cronbach's  $\alpha$  for this scale in this study was 0.751.



**Figure 1** Research Theoretical Hypotheses.

**Table I** Demographic Features of Participants (N = 1947)

Variables		Frequency	Percentages
Mother's age	24–30 years old	271	13.92%
	31–40 years old	1511	77.61%
	41–50 years old	164	8.42%
	≥ 51 years old	1	0.05%
Mother's education	High school (technical school) and below	92	4.73%
	College degree	298	15.31%
	Undergraduate degree	1189	61.07%
	Master degree or above	368	18.90%
Number of children	1	1314	67.49%
	2	632	32.46%
	3	1	0.05%
Whether grandparents are involved in raising children	Yes	1555	79.87%
	Not	392	20.13%
Whether or not she is a stay-at-home mother	Yes	294	15.10%
	Not	1653	84.90%
Spouse's age	23–30 years old	159	8.17%
	31–40 years old	1434	73.65%
	41–50 years old	334	17.15%
	≥ 51 years old	20	1.03%
Children's age	20–35 months	179	9.19%
	36–51 months	963	49.46%
	52–67 months	485	24.91%
	68–83 months	319	16.38%
	≥ 84 months	1	0.05%
Children's gender	Boys	994	51.05%
	Girls	953	48.95%

### Marital Conflict

Marital conflict was assessed using the Dyadic Adjustment Scale developed by Spanier,<sup>67</sup> which is widely used among Chinese participants.<sup>68</sup> This 8-item scale includes items such as “In the past year, have you and your partner had conflicts and arguments about financial issues?” Each item is scored on a 4-point scale (1 = never, 4 = often). Higher scores indicate more frequent marital conflicts. The Cronbach's  $\alpha$  for this scale in this study was 0.894.

### Parent-Child Relationship

The Parent-Child Relationship Scale developed by Pianta<sup>69</sup> was used to measure parent-child relationships and is widely used in the Chinese population.<sup>70</sup> The questionnaire includes 30 items, such as “My child sees me as a source of punishment and criticism”. The original scale has three dimensions: intimacy, conflict, and dependence. Due to low reliability of the dependence dimension in previous studies, it was excluded.<sup>69</sup> The conflict dimension was reverse-scored and combined with the intimacy dimension to calculate an average composite score. The scale is scored on a 5-point scale (1 = strongly disagree, 5 = strongly agree), with higher scores indicating a better parent-child relationship. The Cronbach's  $\alpha$  for this scale in this study was 0.915.

### Depression

Depressive symptoms were measured using the Beck Depression Inventory,<sup>71</sup> which is widely used in Chinese populations.<sup>72</sup> This 21-item inventory rates each item on a scale of 0 to 3, with total scores summing the ratings of all items. A sample item is “I felt that I could not shake off the blues even with help from my family or friends”. Higher scores indicate more severe depression. The Cronbach's  $\alpha$  for this inventory in this study was 0.911.

# Statistical Methods and Analytical Approach

We determined the minimum sample size based on the principle that it should be 5–10 times the number of scale items. The actual sample size collected exceeded this requirement (370–740 participants), providing excellent statistical power. Data were analyzed using SPSS 22.0 and SPSS PROCESS 4.0. SPSS 22.0 was used for data entry, descriptive statistics, and correlation analysis. SPSS PROCESS 4.0 was utilized to test mediating and moderated mediation effects. Moderated mediation analysis was conducted using the SPSS PROCESS macro with parameter estimation via bootstrap sampling (5000 samples). A 95% confidence interval excluding zero indicates a significant parameter. We controlled for maternal age and education, given their impact on depression.<sup>73,74</sup> All primary variables were standardized: household chaos as the independent variable, depression as the dependent variable, marital conflict as the mediating variable, and parent-child relationship as the moderating variable. First, we tested the mediation effect using SPSS PROCESS Model 4. Then, we examined the moderated mediation effect using SPSS PROCESS Model 5.

## Results

### Examination of Common Method Bias

The Harman single-factor analysis was used to assess common method bias. The results identified 11 eigenvalues greater than 1, with the first factor explaining 19.684% of the variance. This percentage is well below the critical threshold of 40%, indicating no significant common method bias.<sup>75</sup>

### Descriptive Statistics and Correlation Analysis of Variables

Table 2 presents the Pearson correlation analysis results. Household chaos, marital conflict, parent-child relationship, and depression were all significantly correlated. Specifically, household chaos showed a significant positive correlation with marital conflict and maternal depression, and a significant negative correlation with the parent-child relationship. Marital conflict was significantly negatively correlated with the parent-child relationship and significantly positively correlated with maternal depression. The parent-child relationship was significantly negatively correlated with maternal depression.

### Test of Moderated Mediation Effects

Using SPSS PROCESS Model 4, we tested mediation effects while controlling for mother’s age and education. Household chaos significantly predicted marital conflict ( $\beta = 0.089$ ,  $p < 0.001$ ), maternal depression ( $\beta = 0.931$ ,  $p < 0.001$ ), and marital conflict predicted maternal depression ( $\beta = 1.818$ ,  $p < 0.001$ ). The 95% CI [0.099, 0.224] excluded 0, indicating a significant mediation effect. Marital conflict partially mediated the relationship between household chaos and maternal depression, with a mediation effect size of 0.162, accounting for 14.82% of the total effect (1.093). The results are detailed in Table 3.

To investigate the moderating role of the parent-child relationship, we introduced it into the model. Using SPSS PROCESS Model 5, the moderation effect was analyzed. The interaction term between household chaos and the parent-child relationship significantly negatively predicted maternal depression ( $\beta = -0.244$ ,  $t = -2.483$ ,  $p < 0.01$ ), confirming a moderated mediation effect. The results are detailed in Table 4.

**Table 2** Means, Standard Deviations, and Correlations of the Variables (N = 1947)

Variable	M	SD	1	2	3	4	5	6
1. Age	34.700	3.988	I					
2. Education	2.940	0.727	0.072**	I				
3. Household Chaos	2.486	2.529	−0.006	−0.017	I			
4. Marital Conflict	1.888	0.583	−0.017	−0.026	0.386**	I		
5. Parent-Child Relationships	4.111	0.530	0.038	0.096**	−0.413**	−0.345**	I	
6. Depression	5.822	6.710	−0.022	−0.059**	0.413**	0.295**	−0.233**	I

Note: \*\*p < 0.01.

**Table 3** Direct Effect Analysis in the Mediation Model (N = 1947)

Variables	Model 1 Dependent Variable: Marital Conflict		Model 2 Dependent Variable: Depression	
	$\beta$	t	$\beta$	t
Household Chaos	0.089	18.432***	0.931	15.894***
Marital Conflict			1.818	7.154***
Age	-0.002	-0.621	-0.022	-0.65
Education	-0.015	-0.869	-0.444	-2.354*
$R^2$	0.15		0.195	
F	113.919***		117.281***	

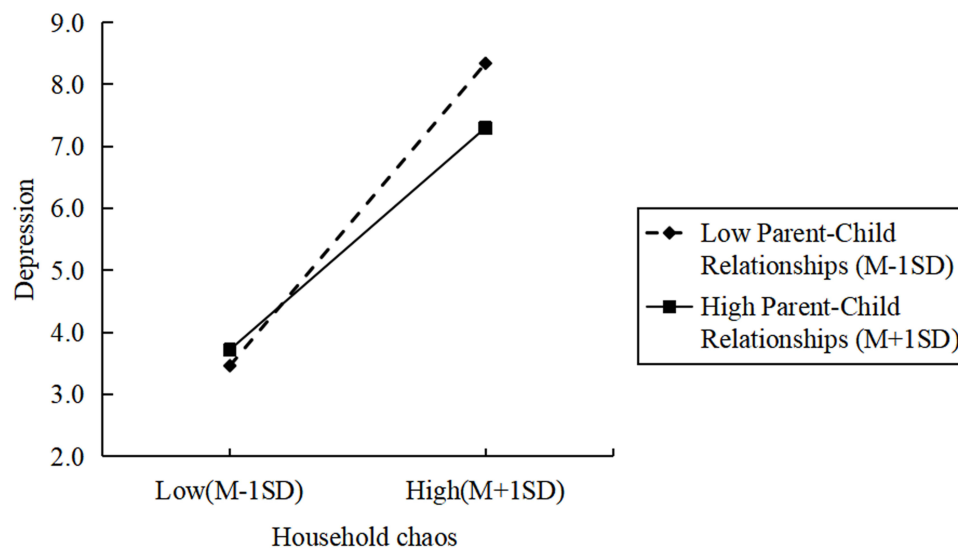
Notes: \* $p < 0.05$ , \*\*\* $p < 0.001$ .

**Table 4** Moderated Mediation Analysis (N = 1947)

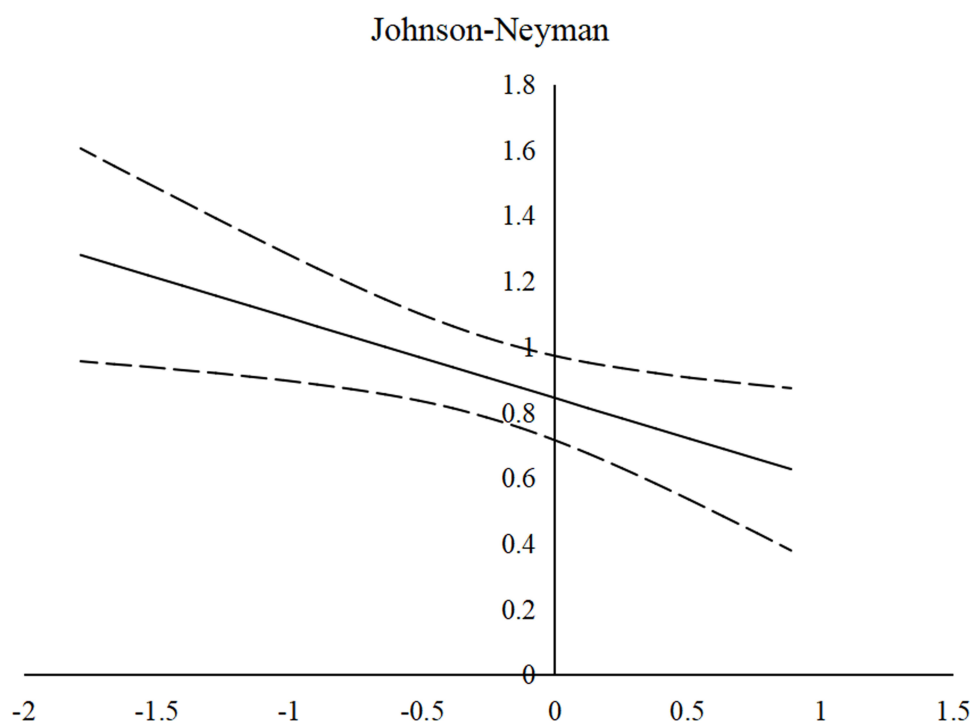
Variables	Dependent Variable: Marital Conflict		Dependent Variable: Depression	
	$\beta$	t	$\beta$	t
Household Chaos	0.089	18.432***	0.844	12.842***
Marital Conflict			1.77	6.792***
Parent-Child Relationships			-0.363	-1.234
Household chaos *Parent-Child Relationships			-0.244	-2.483*
Age	-0.002	-0.621	-0.023	-0.665
Education	-0.015	-0.869	-0.413	-2.185*
$R^2$	0.15		0.198	
F	113.919***		79.901***	

Notes: \* $p < 0.05$ , \*\*\* $p < 0.001$ .

A simple slope analysis was conducted by adjusting one standard deviation above and below the mean of the parent-child relationship. Figure 2 shows that household chaos significantly predicted maternal depression in both high and low parent-child relationship groups, but the effect was smaller in the high parent-child relationship group (simple slope = 0.714,  $t = 7.377$ ,  $p < 0.001$ ) compared to the low group (simple slope = 0.973,  $t = 14.181$ ,  $p < 0.001$ ).

**Figure 2** Simple Slope Test.





**Figure 3** Johnson-Neyman Plot.

To estimate the conditional effects of the parent-child relationship, the Johnson-Neyman technique was used. [Figure 3](#) demonstrates that household chaos significantly and positively predicts maternal depression across all levels of the parent-child relationship.

## Discussion

The study found that household chaos leads to maternal depression through marital conflict, with parent-child relationships moderating this effect. Specifically, weak parent-child relationships amplify the impact of household chaos on maternal depression, while strong parent-child relationships mitigate it.

## Relationship Between Household Chaos and Maternal Depression

The study shows that household chaos is positively associated with maternal depression, consistent with previous research.<sup>76,77</sup> Mothers living in noisy, overcrowded, chaotic households engage in fewer physical activities<sup>34</sup> and experience fragmented sleep,<sup>78</sup> leading to increased fatigue<sup>79</sup> and elevated levels of depression and anxiety. Household chaos is also linked to more parent-child conflicts, reduced intimacy, less supportive parenting, and increased negative parenting.<sup>80</sup> Poor-quality parent-child interactions and relationships are associated with higher maternal depression and anxiety.<sup>81</sup> Additionally, chaotic households often have income instability and low economic levels. Mothers, as primary caregivers, must balance caregiving and work demands, potentially resulting in mental health issues and parental fatigue.<sup>82</sup>

## Mediating Role of Marital Conflict

Mediation analysis indicates that marital conflict mediates the relationship between household chaos and maternal depression. Psychological distress from economic hardship leads to issues in marital relationships, generating more conflicts and less support.<sup>83</sup> This study's results align with previous research, showing that adverse family environments can lead to maternal depression through marital conflict. Chaotic, noisy environments disrupt spousal intimacy, reducing marital satisfaction. Poor-quality marriages limit emotional support from partners<sup>84</sup> and increase stress in other life areas,<sup>85</sup> raising the risk of depression.



## Moderating Role of Parent-Child Relationships

The study also identifies the moderating effect of parent-child relationships on the link between household chaos and maternal depression. When parent-child relationships are weak, household chaos is significantly associated with maternal depression; when strong, the association is not significant. According to stress-coping theory,<sup>86</sup> stress results from an imbalance between coping resources and environmental demands. Chaotic environments, marital conflicts, and poor parent-child relationships can overwhelm a mother's coping ability and resources, increasing the risk of depression. Positive parent-child relationships reduce parenting stress and serve as a crucial protective factor.<sup>87</sup> Higher satisfaction in parent-child relationships provides emotional support, boosts parental confidence,<sup>88</sup> and enhances psychological well-being.<sup>89</sup> Intervention studies show that improving parent-child relationships increases maternal happiness<sup>90</sup> and emotional regulation,<sup>91</sup> enhancing mental health and reducing depression.

## Theoretical Implications

This study enhances Cohen, Wills<sup>87</sup> social support buffering model by examining the role of parent-child relationships in maternal depression. The model posits that social support from spouses, friends, communities, and relatives mitigates the adverse effects of stress on individuals' well-being, promoting overall health and reducing depression risk.<sup>87</sup> Traditional indicators of social support include social interactions, community involvement, and positive relationships with friends and relatives.<sup>58</sup> However, this study innovatively explores how parent-child relationships also function as crucial social support within the family context, extending the application of the buffering model.

## Practical Implications

This study's findings provide insights for family education practices. Firstly, acknowledging the detrimental impact of a chaotic family environment on maternal depression is crucial. Implementing measures to reduce disorder, chaos, and overcrowding in the home can foster an organized, stable, harmonious, and peaceful family environment. Secondly, addressing marital dissatisfaction can mitigate individual depression risk, benefiting maternal mental health. Efforts should focus on minimizing marital conflicts and cultivating positive marital relationships. Additionally, fostering positive parent-child relationships can provide emotional support to mothers, helping alleviate negative emotions, enhance life satisfaction, and improve subjective well-being.<sup>92</sup> Promoting interactions such as family games and various forms of parent-child companionship can further strengthen emotional bonds between mothers and children.

## Limitations and Future Prospects

Despite the rigorous design and meticulous data analysis employed in this study, several limitations deserve acknowledgment. Firstly, the use of a cross-sectional design to explore mediating and moderating effects, while theoretically grounded, limits causal inference and understanding of dynamic mechanisms. Future research would benefit from longitudinal designs. Secondly, this study relies solely on maternal self-reports to examine the relationship between household chaos and maternal depression, providing a perspective limited to mothers. Future studies should incorporate diverse assessment methods, including input from children or fathers. Thirdly, the data are exclusively drawn from the Shanghai region, necessitating caution in generalizing findings. Lastly, the study focuses narrowly on household chaos, marital conflict, and parent-child relationships in relation to maternal depression.<sup>93,94</sup> Future research should consider additional variables within the framework of maternal depression, such as family economic status, structure, number of children, marital status, and partner's age and education level.

## Conclusion

This study underscores the critical role of parent-child relationships in mitigating the adverse effects of household chaos on maternal depression. Our findings establish a significant positive correlation between household chaos, marital conflict, and maternal depression. Notably, marital conflict mediates the relationship between household chaos and maternal depression, emphasizing the intricate dynamics within the family environment that contribute to maternal mental health issues.

Crucially, the study highlights the moderating role of parent-child relationships. When these relationships are strong, the negative impact of household chaos on maternal depression is significantly diminished. Conversely, weaker parent-child relationships exacerbate the detrimental effects of household chaos, increasing the risk of maternal depression. This protective function of parent-child relationships aligns with and enriches the social support buffering model, demonstrating that supportive and positive interactions between parents and children can serve as a vital buffer against environmental stressors.

Our findings have important implications for interventions aimed at reducing maternal depression. Enhancing parent-child relationships through targeted programs and strategies can provide mothers with essential emotional support, thereby improving their mental health and overall family well-being. Future research should continue to explore the multifaceted nature of maternal depression, considering additional variables and employing longitudinal designs to further validate and expand upon these findings.

## Ethics Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the Helsinki declaration. This study was approved by the Scientific Research Ethics Committee of Shanghai Normal University. The datasets and analysis syntax for this study are available from the corresponding author.

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## Disclosure

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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