

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

Baocheng Pan¹, Chengli Zhao¹, Yizhao Gong¹, Jiaxuan Miao¹, Bingda Zhang², Yan Li¹

¹Shanghai Institute of Early Childhood Education, Shanghai Normal University, Shanghai, People's Republic of China; ²College of Economics and Management, Shanghai Zhongqiao Vocational and Technical University, Shanghai, People's Republic of China

Correspondence: Yan Li, Shanghai Institute of Early Childhood Education, Shanghai Normal University, 100 Guilin Road, Xuhui District, Shanghai, People's Republic of China, Email liyan@shnu.edu.cn

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.^{1,2} Research indicates that individuals with depression struggle to find joy and motivation from positive experiences and may exhibit difficulties in positive social interactions.³ 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.⁴⁻⁶ 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.⁷ Approximately 20% of women experience clinically significant depressive symptoms during pregnancy, and 10–15% of affected women continue to experience these symptoms postpartum.⁸ Maternal depression adversely affects both mothers and children.⁹⁻¹¹

Maternal depression not only negatively impacts the health of mothers but also adversely affects family coping resources and functioning.¹² 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.^{13,14} Research indicates that maternal depressive symptoms are correlated with lower levels of sensitivity to children, including a lack of confidence in caring for children.^{15,16} Consequently, mothers may perceive themselves as lacking parenting capabilities,¹⁷ 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.¹⁸ 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.^{8,19} 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.^{10,20}

Maternal depression often arises from various social and familial risk factors, including low socioeconomic status, unemployment, insufficient parental support, and other family stressors.²¹ Research shows that adverse family outcomes, such as diminished marital quality,²² heightened family discord,¹² and increased negative parent-child interactions,²³ are associated with maternal depression. While existing research on household chaos has primarily focused on its impact on children,^{24,25} 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.²⁶ It is associated with caregivers' education levels, household income, and the number of residents.²⁷ Research indicates a correlation between household chaos and various adverse outcomes for children, parents, and families.²⁶ 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.²⁴

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

Existing research shows a significant correlation between household chaos and maternal depression. Kracht, Katzmarzyk, Staiano³⁴ 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.³⁵ Yalcintas, Pike, Oliver³⁶ 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.³⁷ This conflict can range from verbal disputes to physical altercations and is often linked to poor health outcomes in the involved couples.³⁸ Marital conflict can lead to various individual, familial, physical, and psychological issues, including anxiety, depression, eating disorders, and psychosomatic problems.³⁹⁻⁴¹ Positive marital relationships

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

Household chaos may be associated with marital conflict. Fiese, Winter⁴⁴ 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.⁴⁵ Shapiro, Gottman, Carrere⁴⁶ 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^{47,48}. Hashemi, Kimiaei⁴⁹ 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.^{47,50} 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.^{51,52} Pianta, Virginia⁵³ identified three dimensions of the parent-child relationship: intimacy, conflict, and dependency. Troll, Fingerman⁵⁴ 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.⁵⁵ 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.⁵⁶

According to the Stress-Coping Theory, stressors in noisy environments negatively impact mental health, and prolonged exposure to chaos is associated with depression.⁵⁷ The Stress Buffering Model posits that emotional support from significant others, such as family members, can mitigate stress when individuals face stressful events,^{58,59} with stress being a crucial factor leading to depression.⁶⁰ 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.⁶¹

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,⁶² Positive interactions between parents and children improve parental mental health,⁶³ while adverse parent-child relationships increase susceptibility to the negative effects of family life, such as conflicts.⁶⁴ 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.⁶⁵ This 15-item scale has been widely used in studies involving Chinese populations.⁶⁶ 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 α for this scale in this study was 0.751.

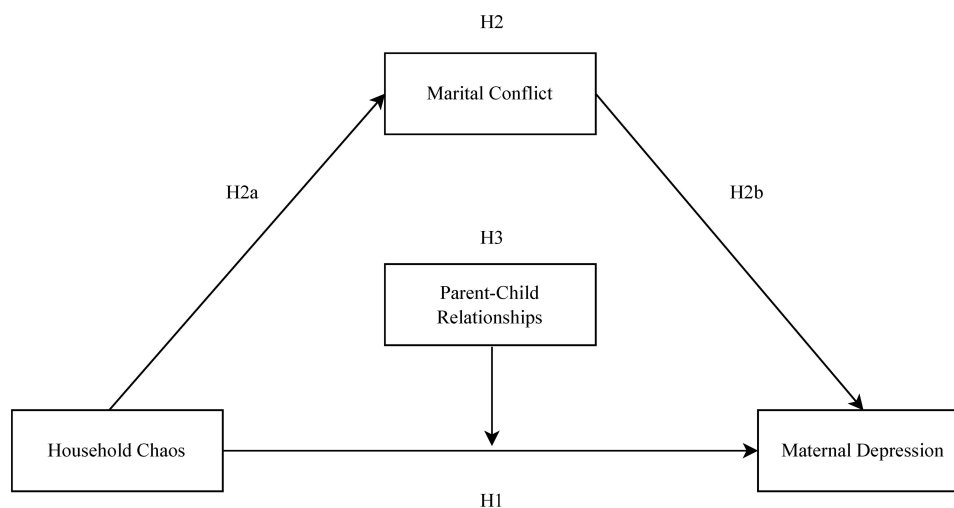


Figure 1 Research Theoretical Hypotheses.

Table 1 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,⁶⁷ which is widely used among Chinese participants.⁶⁸ 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 α for this scale in this study was 0.894.

Parent-Child Relationship

The Parent-Child Relationship Scale developed by Pianta⁶⁹ was used to measure parent-child relationships and is widely used in the Chinese population.⁷⁰ 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.⁶⁹ 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 α for this scale in this study was 0.915.

Depression

Depressive symptoms were measured using the Beck Depression Inventory,⁷¹ which is widely used in Chinese populations.⁷² 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 α 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.^{73,74} 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.⁷⁵

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		Model 2	
	Dependent Variable: Marital Conflict		Dependent Variable: Depression	
	β	t	β	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	
	β	t	β	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).

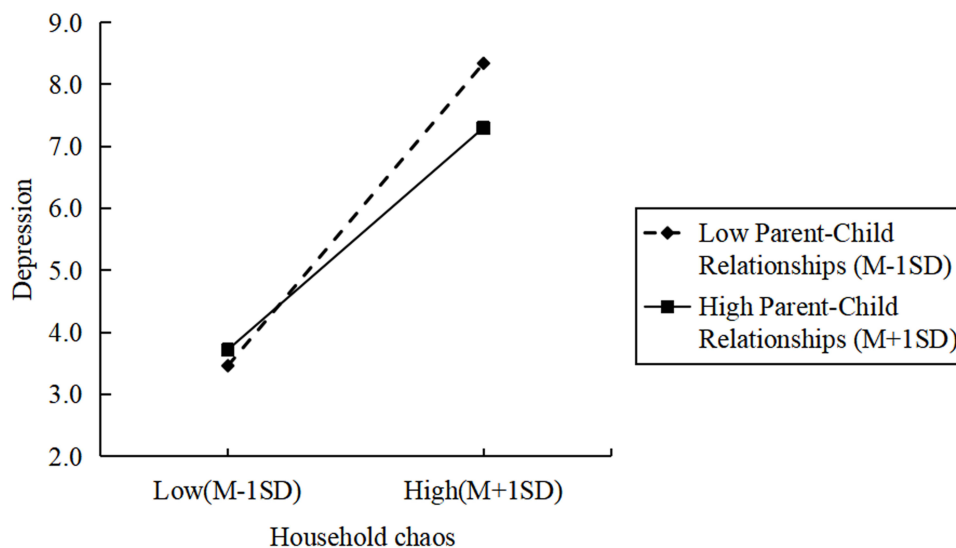


Figure 2 Simple Slope Test.

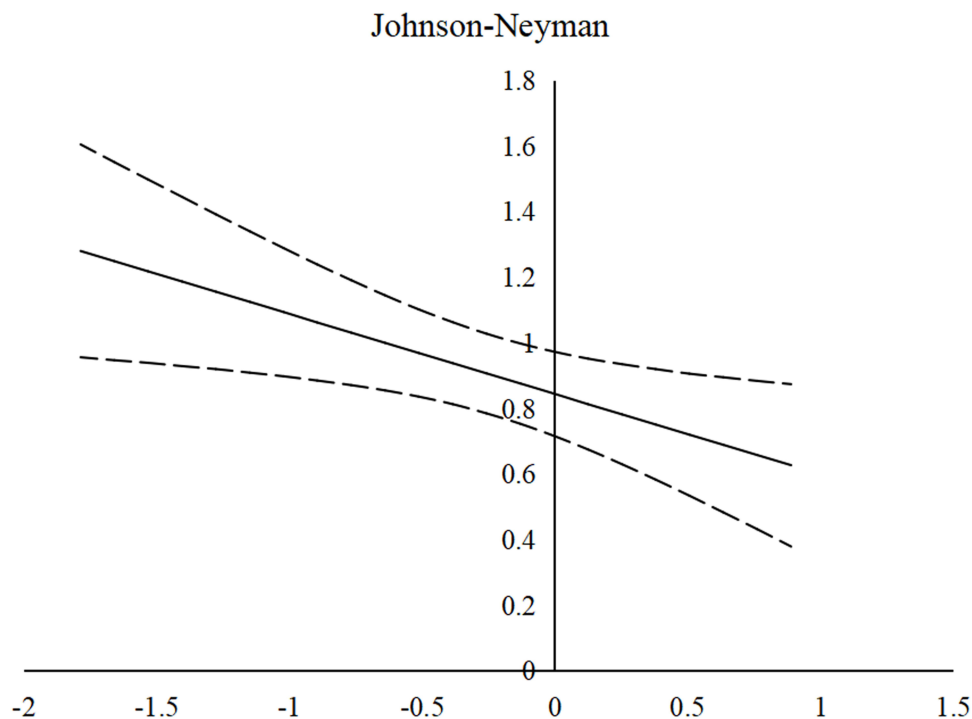


Figure 3 Johnson-Neyman Plot.

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.^{76,77} Mothers living in noisy, overcrowded, chaotic households engage in fewer physical activities³⁴ and experience fragmented sleep,⁷⁸ leading to increased fatigue⁷⁹ 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.⁸⁰ Poor-quality parent-child interactions and relationships are associated with higher maternal depression and anxiety.⁸¹ 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.⁸²

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.⁸³ 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 partners⁸⁴ and increase stress in other life areas,⁸⁵ 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,⁸⁶ 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.⁸⁷ Higher satisfaction in parent-child relationships provides emotional support, boosts parental confidence,⁸⁸ and enhances psychological well-being.⁸⁹ Intervention studies show that improving parent-child relationships increases maternal happiness⁹⁰ and emotional regulation,⁹¹ enhancing mental health and reducing depression.

Theoretical Implications

This study enhances Cohen, Wills⁸⁷ 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.⁸⁷ Traditional indicators of social support include social interactions, community involvement, and positive relationships with friends and relatives.⁵⁸ 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.⁹² 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.^{93,94} 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.

Funding

This work is sponsored by STI 2030-Major Projects (Nos. 2022ZD0209000, 2022ZD0209001, 2022ZD0209002, 2022ZD0209003, 2022ZD0209004, 2022ZD0209005, and 2021ZD0200516). This study supported by the Sunglory Educational Institute.

Disclosure

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

References

1. Thapar A, Eyre O, Patel V, Brent D. Depression in young people. *Lancet*. 2022;400(10352):617–631. doi:10.1016/S0140-6736(22)01012-1
2. Rice F, Riglin L, Lomax T, et al. Adolescent and adult differences in major depression symptom profiles. *J Affect Dis*. 2019;243:175–181. doi:10.1016/j.jad.2018.09.015
3. Remes O, Mendes JF, Templeton P. Biological, psychological, and social determinants of depression: a review of recent literature. *Brain Sci*. 2021;11(12):1633. doi:10.3390/brainsci11121633
4. Zhong B-L, Ruan Y-F, Y-M X, Chen W-C, Liu L-F. Prevalence and recognition of depressive disorders among Chinese older adults receiving primary care: a multi-center cross-sectional study. *J Affect Dis*. 2020;260:26–31. doi:10.1016/j.jad.2019.09.011
5. Zhao Y-J, Jin Y, Rao -W-W, et al. Prevalence of major depressive disorder among adults in China: a systematic review and meta-analysis. *Front Psychiatr*. 2021;12:659470. doi:10.3389/fpsy.2021.659470
6. Luo W, Zhong B-L, Chiu HF-K. Prevalence of depressive symptoms among Chinese university students amid the COVID-19 pandemic: a systematic review and meta-analysis. *Epidemiol Psychiatr Sci*. 2021;30:e31. doi:10.1017/S2045796021000202
7. Di Benedetto MG, Landi P, Mencacci C, Cattaneo A. Depression in women: potential biological and sociocultural factors driving the sex effect. *Neuropsychobiology*. 2024;83(1):2–16. doi:10.1159/000531588
8. Urizar GG, Muñoz RF. Role of maternal depression on child development: a prospective analysis from pregnancy to early childhood. *Child Psychiatry Human Dev*. 2022;53(3):502–514. doi:10.1007/s10578-021-01138-1
9. Śliwierski A, Kossakowska K, Jarecka K, Świtalska J, Bielawska-Batorowicz E. The effect of maternal depression on infant attachment: a systematic review. *Int J Environ Res Public Health*. 2020;17(8):2675. doi:10.3390/ijerph17082675
10. Wall-Wieler E, Roos LL, Gotlib IH. Maternal depression in early childhood and developmental vulnerability at school entry. *Pediatrics*. 2020;146(3):e20200794. doi:10.1542/peds.2020-0794
11. Hentges RF, Graham SA, Plamondon A, Tough S, Madigan S. Bidirectional associations between maternal depression, hostile parenting, and early child emotional problems: findings from the all our families cohort. *J Affect Disord*. 2021;287:397–404. doi:10.1016/j.jad.2021.03.056
12. Wong JJ, Frost ND, Timko C, Heinz AJ, Cronkite R. Depression and family arguments: disentangling reciprocal effects for women and men. *Family Prac*. 2020;37(1):49–55. doi:10.1093/fampra/cmz048
13. Goodman SH. Intergenerational transmission of depression. *Annu Rev Clin Psychol*. 2020;16(1):213–238. doi:10.1146/annurev-clinpsy-071519-113915
14. Tirumalaraju V, Suchting R, Evans J, et al. Risk of depression in the adolescent and adult offspring of mothers with perinatal depression: a systematic review and meta-analysis. *JAMA network open*. 2020;3(6):e208783–e208783. doi:10.1001/jamanetworkopen.2020.8783

15. Nath S, Pearson RM, Moran P, et al. The association between prenatal maternal anxiety disorders and postpartum perceived and observed mother-infant relationship quality. *J Anxiety Disord.* 2019;68:102148. doi:10.1016/j.janxdis.2019.102148
16. Rado SN, Matija M, Anelinovi M, Artolovni A, Ayers S. The role of posttraumatic stress and depression symptoms in mother-infant bonding. *J Affect Disord.* 2020;268:134–140. doi:10.1016/j.jad.2020.03.006
17. Huizink AC, Menting B, De Moor M, et al. From prenatal anxiety to parenting stress: a longitudinal study. *Arch Women's Mental Health.* 2017;20(5):663–672. doi:10.1007/s00737-017-0746-5
18. Beck CT. The effects of postpartum depression on maternal-infant interaction: a meta-analysis. *Nursing Research.* 1995;44(5):298–304. doi:10.1097/00006199-199509000-00007
19. Kingston D, Tough S, Whitfield H. Prenatal and postpartum maternal psychological distress and infant development: a systematic review. *Child Psychiatry Human Dev.* 2012;43(5):683–714. doi:10.1007/s10578-012-0291-4
20. Sohr-Preston SL, Scaramella LV. Implications of timing of maternal depressive symptoms for early cognitive and language development. *Clin Child Fam Psychol Rev.* 2006;9(1):65–83. doi:10.1007/s10567-006-0004-2
21. Liang LA, Berger U, Brand C. Psychosocial factors associated with symptoms of depression, anxiety and stress among single mothers with young children: a population-based study. *J Affect Dis.* 2019;242:255–264. doi:10.1016/j.jad.2018.08.013
22. Du W, Luo M, Zhou Z. A study on the relationship between marital socioeconomic status, marital satisfaction, and depression: analysis based on Actor-Partner Interdependence Model (APIM). *Appl Res Qual Life.* 2021;16(1):1–23. doi:10.1007/s11482-020-09898-z
23. Dette-Hagenmeyer DE, Reichle B. Parents' depressive symptoms and children's adjustment over time are mediated by parenting, but differentially for fathers and mothers. *Eur J Dev Psychol.* 2014;11(2):196–210. doi:10.1080/17405629.2013.848789
24. Andrews K, Atkinson L, Harris M, Gonzalez A. Examining the effects of household chaos on child executive functions: a meta-analysis. *Psychol Bull.* 2020;147(1):16–32. doi:10.1037/bul0000311
25. Spinelli M, Lionetti F, Setti A, Fasolo M. Parenting stress during the COVID-19 outbreak: socioeconomic and environmental risk factors and implications for children emotion regulation. *Family Process.* 2020;60(2):639–653. doi:10.1111/famp.12601
26. Marsh S, Dobson R, Maddison R. The relationship between household chaos and child, parent, and family outcomes: a systematic scoping review. *BMC Public Health.* 2020;20(1):1–27. doi:10.1186/s12889-020-08587-8
27. Dumas JE, Nissley J, Nordstrom A, Smith EP, Prinz RJ, Levine DW. Home chaos: sociodemographic, parenting, interactional, and child correlates. *J Clin Child Adolesc Psychol.* 2005;34(1):93–104. doi:10.1207/s15374424jccp3401_9
28. Huang Y, Wang Y, Wang H, et al. Prevalence of mental disorders in China: a cross-sectional epidemiological study. *Lancet Psychiatry.* 2019;6(3):211–224. doi:10.1016/S2215-0366(18)30511-X
29. X-B Y, Zhang H-N, Dai Y, et al. Simvastatin prevents and ameliorates depressive behaviors via neuroinflammatory regulation in mice. *J Affect Dis.* 2019;245:939–949. doi:10.1016/j.jad.2018.11.086
30. Fabbri C. Genetic and environmental contribution to major depressive disorder and self-declared depression. *EBioMedicine.* 2016;14:7–8. doi:10.1016/j.ebiom.2016.11.030
31. Briant A, Holmes CJ, Deater-Deckard K, King-Casas B, Kim-Spoon J. Household chaos as a context for intergenerational transmission of executive functioning. *J Adolesc.* 2017;58(1):40–48. doi:10.1016/j.adolescence.2017.05.001
32. Baker CE, Brooks-Gunn J, Gouskova N. Reciprocal relations between maternal depression and child behavior problems in families served by Head Start. *Child Development.* 2020;91(5):1563–1576. doi:10.1111/cdev.13344
33. Chithiramohan T, Eslick GD. Association between maternal postnatal depression and offspring anxiety and depression in adolescence and young adulthood: a meta-analysis. *J Dev Behav Pediatr.* 2022;44(3):e231–238.
34. Kracht CL, Katzmarzyk PT, Staiano AE. Household chaos, maternal stress, and maternal health behaviors in the United States during the COVID-19 outbreak. *Women's Health.* 2021;17:17455065211010655. doi:10.1177/17455065211010655
35. Sampasa-Kanyinga H, Colman I, Goldfield GS, et al. Combinations of physical activity, sedentary time, and sleep duration and their associations with depressive symptoms and other mental health problems in children and adolescents: a systematic review. *Int J Behav Nutr Phys Act.* 2020;17(1):1–16. doi:10.1186/s12966-020-00976-x
36. Yalcintas S, Pike A, Oliver BR. Household chaos and child behavior problems predict maternal well-being. *Psychiatr Q.* 2021;92(4):1817–1824. doi:10.1007/s11126-021-09947-2
37. Reid WJ, Crisafulli A. Marital discord and child behavior problems: a meta-analysis. *J Abnorm Child Psychol.* 1990;18(1):105–117. doi:10.1007/BF00919459
38. Shrout MR, Brown RD, Orbuch TL, Weigel DJ. A multidimensional examination of marital conflict and subjective health over 16 years. *Pers Relatsh.* 2019;26(3):490–506. doi:10.1111/pere.12292
39. Manickam L, Suhani B. Marital Conflict: an exploration of relationship issues in couples through SIS-II. *SIS J Proj Psychol Ment Health.* 2014;21(1):37.
40. Singh S, Dubey BL. Therapeutic Intervention through Somatic Imagery Test-A Case Study. *SIS J Proj Psychol Ment Health.* 2020;27(2):112–115.
41. Singh S, Dubey A. Somatic imagery test as a tool for assessment of hostility and aggression: case analyses. *SIS J Proj Psychol Ment Health.* 2021;28(1):53–57.
42. Brandão T, Brites R, Hipólito J, Pires M, Nunes O. Dyadic coping, marital adjustment and quality of life in couples during pregnancy: an actor-partner approach. *J Reprod Infant Psychol.* 2020;38(1):49–59. doi:10.1080/02646838.2019.1578950
43. Zhang Y, Axinn WG. Marital experiences and depression in an arranged marriage setting. *Am J Sociol.* 2021;126(6):1439–1486. doi:10.1086/714272
44. Fiese BH, Winter MA Family stories and rituals; 2009.
45. Kamp Dush CM. Relationship-specific investments, family chaos, and cohabitation dissolution following a nonmarital birth. *Family Relat.* 2011;60(5):586–601. doi:10.1111/j.1741-3729.2011.00672.x
46. Shapiro AF, Gottman JM, Carrere S. The baby and the marriage: identifying factors that buffer against decline in marital satisfaction after the first baby arrives. *J Family Psychol.* 2000;14(1):59. doi:10.1037/0893-3200.14.1.59
47. Buckman JE, Saunders R, Stott J, et al. Role of age, gender and marital status in prognosis for adults with depression: an individual patient data meta-analysis. *Epidemiol Psychiatr Sci.* 2021;30:e42. doi:10.1017/S2045796021000342

48. Wilson SJ, Syed SU, Yang IS, Cole SW. A tale of two marital stressors: comparing proinflammatory responses to partner distress and marital conflict. *Brain Behav Immun*. 2024;119:898–907. doi:10.1016/j.bbi.2024.05.003
49. Hashemi SF, Kimiaei SA. The effectiveness of emotion focused cognitive therapy in decreasing depression due to marital relationship problems. *Univers J Psychol*. 2017;5(4):196–203. doi:10.13189/ujp.2017.050405
50. Faisal-Cury A, Tabb K, Matijasevich A. Partner relationship quality predicts later postpartum depression independently of the chronicity of depressive symptoms. *Brazilian J Psychiatr*. 2020;43(1):12–21. doi:10.1590/1516-4446-2019-0764
51. Furman W, Buhrmester D. Children's perceptions of their personal relationships in their social networks. *Developmental Psychology*. 1985;21(6):1016–1024. doi:10.1037/0012-1649.21.6.1016
52. Zhu Y, Deng L, Wan K. The association between parent-child relationship and problematic internet use among English-and Chinese-language studies: a meta-analysis. *Front Psychol*. 2022;13:885819. doi:10.3389/fpsyg.2022.885819
53. Pianta RC, Virginia UO. Child-Parent Relationship Scale. *Unpublished Measure*. 1992;427.
54. Troll LE, Fingerman KL. Connections between Parents and Their Adult Children; 1996.
55. Umberson D. Relationships with children: explaining parents' psychological well-being. *J Marriage Family*. 1989;51(4):999–1012. doi:10.2307/353212
56. Spaulding J, GeorgeSimpson. *Suicide: a study in sociology*. Suicide: a study in sociology; 1999.
57. Gary W, Evans A, Rachel S. Motivational consequences of environmental stress. *J Environ Psychol*. 2004;24(2):143–165.
58. Szkody E, Stearns M, Stanhope L, McKinney C. Stress-buffering role of social support during COVID-19. *Family Process*. 2021;60(3):1002–1015. doi:10.1111/famp.12618
59. Cohen S, McKay G. Social support, stress and the buffering hypothesis: a theoretical analysis. In: *Handbook of Psychology and Health, Volume IV*. Routledge; 2020:253–267.
60. Chojnowska S, Ptaszyńska-Sarosiek I, Kępka A, Knaś M, Waszkiewicz N. Salivary biomarkers of stress, anxiety and depression. *J Clin Med*. 2021;10(3):517. doi:10.3390/jcm10030517
61. Uzun H, Karaca NH, Metin Ş. Assessment of parent-child relationship in Covid-19 pandemic. *Child Youth Services Rev*. 2021;120:105748. doi:10.1016/j.chilcyouth.2020.105748
62. Prime H, Wade M, Browne DT. Risk and resilience in family well-being during the COVID-19 pandemic. *Am Psychologist*. 2020;75(5):631.
63. Tan SA, Pung PW, Wu SL, Yap CC, Jayaraja AR, Chow BG. Parent-child relationship and parents' psychological well-being among Malaysian families amid pandemic: the role of stress and gender. *Child Fam Soc Work*. 2024;29(1):35–47. doi:10.1111/cfs.13049
64. Henry CS, Sheffield Morris A, Harrist AW. Family Resilience: moving into the Third Wave. *Family Relat*. 2015;64(1):22–43. doi:10.1111/fare.12106
65. Matheny AP, Wachs TD, Ludwig JL, Phillips K. Bringing order out of chaos: psychometric characteristics of the confusion, hubbub, and order scale. *J Appl Develop Psychol*. 1995;16(3):429–444. doi:10.1016/0193-3973(95)90028-4
66. Jiang Y, He T, Lin X, Zhou Q, Wu Q. Caregivers' joint depressive symptoms and preschoolers' daily routines in Chinese three-generation families: does household chaos matter? *Curr Psychol*. 2021:1–9.
67. Spanier GB. Measuring dyadic adjustment: new scales for assessing the quality of marriage and similar dyads. *J Marriage Family*. 1976;38(1):15–28. doi:10.2307/350547
68. Fu W, Wilhelm LO, Wei Y, Zhou G, Schwarzer R. Emotional intelligence and dyadic satisfaction buffer the negative effect of stress on prenatal anxiety and depressive symptoms in Chinese women who are pregnant with twins. *Anxiety Stress Coping*. 2020;33(4):466–478. doi:10.1080/10615806.2020.1745193
69. Pianta R. *Child-Parent Relationship Scale (CPRS)*. Charlottesville, VA: University of Virginia; 1992.
70. Wang Y, Pan B, Yu Z, Song Z. The relationship between preschool teacher trait mindfulness and teacher-child relationship quality: the chain mediating role of emotional intelligence and empathy. *Curr Psychol*. 2023;43(3):1–12.
71. Beck AT, Steer RA, Brown GK. *Beck Depression Inventory*. Harcourt Brace Jovanovich New York;; 1987.
72. Sun FK, Wu MK, Yao Y, Chiang CY, Lu CY. Meaning in life as a mediator of the associations among depression, hopelessness and suicidal ideation: a path analysis. *J Psychiatr Ment Health Nurs*. 2022;29(1):57–66. doi:10.1111/jpm.12739
73. Cunningham TJ, Fields EC, Garcia SM, Kensinger EA. The relation between age and experienced stress, worry, affect, and depression during the spring 2020 phase of the COVID-19 pandemic in the United States. *Emotion*. 2021;21(8):1660. doi:10.1037/emo0000982
74. Bauldry S. Variation in the protective effect of higher education against depression. *Soc Ment Health*. 2015;5(2):145–161. doi:10.1177/2156869314564399
75. Podsakoff PM, Mackenzie SB, Lee JY, Podsakoff NP. Common method biases in behavioral research: a critical review of the literature and recommended remedies. *J Appl Psychol*. 2003;88(5):879–903. doi:10.1037/0021-9010.88.5.879
76. Hur E, Buettner CK, Jeon L. Parental depressive symptoms and children's school-readiness: the indirect effect of household chaos. *J Child Family Stud*. 2015;24(11):3462–3473. doi:10.1007/s10826-015-0147-1
77. Zhang X. Household chaos and caregivers' and young children's mental health during the COVID-19 pandemic: a mediation model. *J Child Family Stud*. 2022;31(6):1547–1557. doi:10.1007/s10826-022-02283-4
78. Whitesell CJ, Crosby B, Anders TF, Teti DM. Household chaos and family sleep during infants first year. *J Family Psychol*. 2018;32(5):622–631. doi:10.1037/fam0000422
79. Thomas KA, Spieker S. Sleep, Depression, and Fatigue IN LATE POSTPARTUM. *MCN*. 2016;41(2):104–109.
80. Barnes J, Gardiner J, Sutcliffe A, Melhuish E. The parenting of preschool children by older mothers in the United Kingdom. *Eur J Dev Psychol*. 2014;11(4):397–419. doi:10.1080/17405629.2013.863728
81. Karreman A, Starmans MPR, Riem MME. Maternal depressive symptoms and affective responses to infant crying and laughing. *J Family Psychol*. 2023;37(7):1026–1036. doi:10.1037/fam0001128
82. Griffith AK. Parental burnout and child maltreatment during the COVID-19 pandemic. *J Family Violence*. 2022;37(5):725–731. doi:10.1007/s10896-020-00172-2
83. Masarik AS, Conger RD. Stress and child development: a review of the family stress model. *Curr Opin Psychol*. 2017;13:85–90. doi:10.1016/j.copsy.2016.05.008
84. Choi H, Marks NF. Marital Conflict, Depressive Symptoms, and Functional Impairment. *J Marr Family*. 2008;70:377–390.

85. May RDC, May DC. Spillover between marital quality and job satisfaction: long-term patterns and gender differences. *J Marr Family*. 2003;65(2):482–495. doi:10.1111/j.1741-3737.2003.00482.x
86. Lazarus RS, Folkman S. *Stress, Appraisal, and Coping*. Springer publishing company; 1984.
87. Cohen S, Wills TA. Stress, social support, and the buffering hypothesis. *Psychol Bull*. 1985;98(2):310–357. doi:10.1037/0033-2909.98.2.310
88. Amp MJD, Giallo R. Fatigue, parenting stress, self-efficacy and satisfaction in mothers of infants and young children. *J Reprod Infant Psychol*. 2012;30(2):145–159. doi:10.1080/02646838.2012.693910
89. Coleman PK, Karraker KH. Maternal self-efficacy beliefs, competence in parenting, and toddlers' behavior and developmental status. *Infant Ment Health J*. 2010;24:126–148.
90. King KL, Priddis LE, Kane RT, et al. Enhancing maternal sensitivity and emotional wellbeing through a preventative parent-child relationship intervention in a community setting. *J Child Family Stud*. 2015;24(6):1582–1592. doi:10.1007/s10826-014-9962-z
91. Huber A, McMahon C, Sweller N. Improved parental emotional functioning after circle of security 20-week parent-child relationship intervention. *J Child Family Stud*. 2016;25(8):1–15. doi:10.1007/s10826-016-0426-5
92. Larranaga E, Yubero S, Ovejero A, Navarro R. Loneliness, parent-child communication and cyberbullying victimization among Spanish youths. *Comp Human Behav*. 2016;65:1–8. doi:10.1016/j.chb.2016.08.015
93. Megreya AM, Al-Attayah AA, Moustafa AA, Hassanein EEA. Cognitive emotion regulation strategies, anxiety, and depression in mothers of children with or without neurodevelopmental disorders. *Res Autism Spectrum Disord*. 2020;76:101600. doi:10.1016/j.rasd.2020.101600
94. Ahmad HA, Alkhatib A, Luo J. Prevalence and risk factors of postpartum depression in the Middle East: a systematic review and meta-analysis. *BMC Preg Childbirth*. 2021;21(1):1–2.

Psychology Research and Behavior Management

Dovepress

Publish your work in this journal

Psychology Research and Behavior Management is an international, peer-reviewed, open access journal focusing on the science of psychology and its application in behavior management to develop improved outcomes in the clinical, educational, sports and business arenas. Specific topics covered in the journal include: Neuroscience, memory and decision making; Behavior modification and management; Clinical applications; Business and sports performance management; Social and developmental studies; Animal studies. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/psychology-research-and-behavior-management-journal>