

A Study on Factors Influencing Depression Among Female Caregivers of Left-Behind Children in Rural China (Postprint)

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Abstract

Background In rural China, the vast majority of left-behind children are cared for by their mothers and grandmothers. The mental health of caregivers constitutes one of the important factors influencing early childhood development. Currently, there is a paucity of research and comparative studies on the influencing factors of depression among mothers and grandmothers of left-behind children.

Objective To investigate the influencing factors of depression among mothers and grandmothers caring for left-behind children in rural China.

Methods Data for this study were derived from the baseline survey of the home visit intervention program of the “Rural Left-behind Children Health and Development Promotion Project” conducted by UNICEF from April to July 2018. A multistage stratified sampling method was employed: within five impoverished counties across five provinces, 1-2 townships were selected as project townships. All villages in the project townships of Pingshan County were included in the survey, while villages in other project townships were stratified according to the number of children under three years of age, with three villages randomly selected from each stratum as intervention villages. Control villages were matched within the same county based on similar numbers of children under three years of age, economic levels, and distance from the county seat. Ultimately, 113 villages across 27 townships were included in the baseline survey, with mothers or grandmothers of left-behind children under three years of age selected as study subjects. Questionnaires were administered to collect data on left-behind children and their primary caregivers, and the Zung Self-Rating Depression Scale (ZSDS) was utilized to assess caregiver depression. Multivariate logistic regression analysis was employed to explore the influencing factors of depression among primary caregivers of left-behind children.

Results A total of 728 subjects were enrolled in this study, comprising 282 mothers and 446 grandmothers. The overall depression detection rate among the 728 subjects was 32.8% (239/728), with rates of 29.8% (84/282) among mothers and 34.8% (155/446) among grandmothers of left-behind children. No statistically significant difference was observed in depression detection rates between mothers and grandmothers of left-behind children ($P > 0.05$). Multivariate logistic regression analysis revealed that child age of 1- years (OR=2.041, 95%CI=1.065-3.913), 2-3 years (OR=2.128, 95%CI=1.023-4.425), and presence of caregiving stress (OR=4.043, 95%CI=2.152-7.594) were risk factors for depression among mothers of left-behind children ($P < 0.05$), whereas average contact duration with the absent father \geq \$10 min per occasion (OR=0.396, 95%CI=0.175-0.898) was a protective factor ($P < 0.05$). Female child (OR=0.506, 95%CI=0.331-0.772) was a protective factor for depression among grandmothers of left-behind children ($P < 0.05$), while caregiver age \geq \$60 years (OR=1.879, 95%CI=1.082-3.261), health status affecting caregiving (OR=2.402, 95%CI=1.364-4.231), and high proportion of mother' s cumulative out-migration duration relative to child' s age (OR=2.468, 95%CI=1.059-5.751) were risk factors ($P < 0.05$).

Conclusion The prevalence of depression is high among female caregivers of left-behind children in rural China. As the primary caregivers of the vast majority of left-behind children, mothers and grandmothers exhibit distinct influencing factors for depression. Older child age and high caregiving pressure represent risk factors for maternal depression, while more frequent communication with the child' s father serves as a protective factor. Advanced age, self-rated health status affecting caregiving, and longer duration of the mother' s out-migration constitute risk factors for grandmaternal depression, while caring for a female child is a protective factor.

Full Text

Analysis of Influencing Factors for Depression Among Female Caregivers of Left-Behind Children in Rural China

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Abstract

Background

The vast majority of caregivers for left-behind children in rural China are the children's mothers and grandmothers. The mental health of these caregivers represents a critical factor influencing early childhood development, yet research comparing depression and its influencing factors between mothers and grandmothers of left-behind children remains scarce.

Objective

To investigate the determinants of depression among mothers and grandmothers caring for left-behind children in rural China.

Methods

Data were derived from the baseline survey of the Home Visiting Intervention component of the "Rural Left-Behind Children's Health and Development Promotion Program" conducted by UNICEF from April to July 2018. Using multi-stage stratified sampling, 1-2 townships were selected as program townships in each of five impoverished counties across five provinces. All villages in the program townships of Pingshan County were included, while villages in other program townships were stratified by the number of children under three years old, with three villages randomly selected from each stratum as intervention villages. Control villages were matched within the same county based on similar numbers of children under three, comparable economic levels, and similar distance from the county seat. Ultimately, 113 villages across 27 townships were included in the baseline survey, with mothers or grandmothers of left-behind children under three years old selected as study subjects. Questionnaires were administered to collect data on left-behind children and their primary caregivers, and the Zung Self-Rating Depression Scale (ZSDS) was used to assess caregiver depression. Multivariate logistic regression analysis was employed to explore influencing factors for depression among primary caregivers of left-behind children.

Results

A total of 728 subjects were included, comprising 282 mothers and 446 grandmothers. The overall prevalence of depression was 32.8% (239/728). The depression detection rates were 29.8% (84/282) among mothers and 34.8% (155/446) among grandmothers, with no statistically significant difference between the two groups ($P > 0.05$). Multivariate logistic regression analysis revealed that child age of 1-2 years (OR=2.041, 95%CI=1.065-3.913), child age of 2-3 years (OR=2.128, 95%CI=1.023-4.425), and experiencing caregiving stress (OR=4.043, 95%CI=2.152-7.594) were risk factors for maternal depression ($P < 0.05$), while average communication duration with the absent father ≤ 10 minutes per contact (OR=0.396, 95%CI=0.175-0.898) was a protective factor ($P < 0.05$). For grandmothers, caring for a female child (OR=0.506, 95%CI=0.331-0.772) was a protective factor ($P < 0.05$), while caregiver age ≥ 60 years (OR=1.879, 95%CI=1.082-3.261), health status affecting caregiving

ability (OR=2.402, 95%CI=1.364-4.231), and higher proportion of the mother's cumulative out-migration time relative to the child's age (OR=2.468, 95%CI=1.059-5.751) were risk factors ($P<0.05$).

Conclusion

The prevalence of depression is high among female caregivers of left-behind children in rural China. As the primary caregivers for the vast majority of left-behind children, mothers and grandmothers experience different depression-influencing factors. Older child age and high caregiving pressure constitute risk factors for maternal depression, while frequent communication with the child's father serves as a protective factor. Advanced age, self-rated health status affecting caregiving, and extended absence of the child's mother are risk factors for grandmother depression, while caring for a granddaughter is a protective factor.

Keywords: Depression; Caregiver; Left-behind children; Rural left-behind women; Root cause analysis

Introduction

Caregivers are the individuals with whom young children have the most intimate and frequent contact during critical developmental periods, playing a pivotal role in early childhood development. Caregiver mental health is a key factor influencing child health outcomes. Research indicates that children of mothers with depressive tendencies face increased risks of various mental health conditions, including depression and behavioral disorders, as well as other internalizing and externalizing problems. Mothers with mental health issues may provide lower-quality care, engage in less positive interaction with children, and exhibit poorer communication effectiveness.

Currently, the phenomenon of left-behind children is widespread in impoverished rural areas of China, with one or both parents migrating for employment, leaving mothers or grandmothers as primary caregivers. Previous studies have found that approximately 80% of rural child caregivers are female, with women experiencing depression at twice the rate of men. Moreover, rural women have significantly lower access to mental health services compared to their urban counterparts. However, research focusing on female caregivers of left-behind children remains limited, particularly studies comparing depression between mothers and grandmothers. Given that these two groups may face different depression risk profiles based on their distinct caregiving responsibilities and pressures, as well as differential access to rural mental health services, investigating and comparing the prevalence and influencing factors of depression among these primary caregiver groups in impoverished rural China holds practical value for improving mental health outcomes across different populations and represents a critical factor in promoting early childhood development.

Methods

1.1 Study Subjects Data were derived from the baseline survey of the Home Visiting Intervention component of the “Rural Left-Behind Children’s Health and Development Promotion Program” conducted by UNICEF from April to July 2018. The project was implemented across five impoverished counties in five provinces: Yudu County in Jiangxi Province, Sansui County in Guizhou Province, Tongjiang County in Sichuan Province, Lushi County in Henan Province, and Pingshan County in Hebei Province. One to two townships were selected as program townships in each county. Among these, four counties (Yudu, Sansui, Tongjiang, and Lushi) had larger populations of left-behind children under three years old; for these counties, multi-stage stratified sampling was employed to select program villages. Villages within each program township were stratified by the number of children under three years old, and three villages were randomly selected from each stratum through cluster sampling. Due to the smaller number of intervention villages in Pingshan County, all intervention villages were included in the survey. The original study was an intervention study; therefore, within each program township, control villages were matched based on similar income levels, distance from the county seat, and number of children under three years old. When multiple villages met the criteria, one control village was randomly selected. Ultimately, 113 villages across 27 townships were included in the baseline survey. All left-behind children under three years old in these villages and their primary caregivers were recruited as survey subjects if they met the following inclusion criteria: children aged 0-35 months, children residing permanently in the village with at least one parent working away from home, and caregivers who consented to participate.

Based on the baseline survey data, this study selected mothers and grandmothers as primary caregivers of left-behind children. Missing data were handled through listwise deletion, yielding a final sample of 728 individuals, including 282 mothers and 446 grandmothers of left-behind children.

1.2 Research Instruments and Procedures The Zung Self-Rating Depression Scale (ZSDS) was used to assess depression status among primary caregivers of left-behind children. The ZSDS comprises 20 self-report items, with respondents rating their symptoms and subjective feelings over the past week on a 1-4 scale. The sum of raw scores across all 20 items was calculated, then multiplied by 1.25, with the integer portion representing the standard score. Based on Chinese normative data, a standard score of 53 served as the cutoff, with scores <53 indicating no depression and ≥53 indicating depression. Caregiver depression assessment was part of the original project survey.

Questionnaires were designed based on UNICEF’s Multiple Indicator Cluster Surveys (MICS) to collect demographic information, primary caregiver charac-

status affecting caregiving, caregiving stress, and average contact duration with the absent father ($P < 0.05$).

For grandmothers of left-behind children, no statistically significant differences in depression detection rates were found across child age, caregiver education level, household chore stress, contact frequency with the absent father or mother, average contact duration with the absent father, or proportion of father's cumulative out-migration time relative to child's age ($P > 0.05$). Statistically significant differences were observed in depression detection rates based on child gender, number of household appliances or vehicles, caregiver age, health status affecting caregiving, caregiving stress, average contact duration with the absent mother, and proportion of mother's cumulative out-migration time relative to child's age ($P < 0.05$).

2.3 Multivariate Logistic Regression Analysis of Caregiver Depression

Using caregiver depression as the dependent variable (yes=1, no=0), multivariate logistic regression analysis was performed with variables including child gender, child age, household economic status, and other factors potentially related to caregiver mental health based on professional judgment, as well as factors showing statistical significance in univariate analysis.

For mothers of left-behind children, multivariate logistic regression revealed that child age of 1-2 years (OR=2.041, 95%CI=1.065-3.913), child age of 2-3 years (OR=2.128, 95%CI=1.023-4.425), and experiencing caregiving stress (OR=4.043, 95%CI=2.152-7.594) were risk factors for depression ($P < 0.05$), while average communication duration with the absent father \leq 10 minutes per contact (OR=0.396, 95%CI=0.175-0.898) was a protective factor ($P < 0.05$).

For grandmothers of left-behind children, multivariate logistic regression showed that caring for a female child (OR=0.506, 95%CI=0.331-0.772) was a protective factor against depression ($P < 0.05$), while caregiver age \geq 60 years (OR=1.879, 95%CI=1.082-3.261), health status affecting caregiving (OR=2.402, 95%CI=1.364-4.231), and higher proportion of mother's cumulative out-migration time relative to child's age (OR=2.468, 95%CI=1.059-5.751) were risk factors ($P < 0.05$).

Discussion

3.1 High Prevalence of Depression Among Female Caregivers

This study examined the current prevalence of depression and its influencing factors among two primary groups of female caregivers—mothers and grandmothers—of left-behind children aged 0-3 years in rural China. The depression detection rate in our study population was 32.8%, consistent with previous research indicating that 23%-40% of child caregivers in rural China experience mental health problems. Studies have shown that the lifetime prevalence of depressive disorders

among Chinese adults is 6.8%, with significantly higher risk among homemakers and separated individuals compared to employed persons and those living with partners. These findings underscore that female caregivers of left-behind children in rural China face substantially elevated depression risk.

3.2 Factors Influencing Depression in Mothers Versus Grandmothers

Parental out-migration represents a common influencing factor for depression among female caregivers, though the specific factors differ between mothers and grandmothers. For mothers, maintaining certain communication durations with the absent father helped reduce depression risk. Prolonged spousal separation may gradually diminish mutual support in daily life and emotional well-being. Communication with the absent father and sharing experiences of living apart can alleviate loneliness experienced by mothers remaining at home, with research suggesting that sharing family life information is associated with greater family well-being.

For grandmothers, longer cumulative absence of the child's mother was associated with higher depression risk. Rural elderly women at an age when they should be receiving care instead find themselves serving as child caregivers, facing a dual crisis of absent care for themselves and heavy caregiving responsibilities. Research indicates that co-residence with grandchildren without co-residence with adult children intensifies the negative health effects of grandparenting, while living with adult children helps mitigate these adverse effects. In traditional Chinese family structures, children's mothers are more likely than fathers to co-reside with grandparents as co-caregivers; therefore, longer maternal out-migration duration corresponds to extended periods of grandparents serving as primary caregivers. Studies have found that short-term grandparenting has positive effects on physical and mental health of middle-aged and older adults, but these benefits decline with increasing caregiving duration.

Child characteristics were associated with caregiver mental health. Compared to children under one year, mothers of children aged 1 year showed elevated depression risk. Previous research has also found that caregiver depression risk is positively correlated with infant age, with caregivers of boys showing higher depression risk than caregivers of girls. As infants grow older, corresponding changes in feeding practices and rapid development of language and motor systems require appropriate care and interaction from caregivers. Rural mothers may experience insufficient caregiving experience and support, perceiving greater burden and negative emotions. Grandmothers caring for boys exhibited higher depression rates than those caring for girls, possibly because boys tend to be more active, creating greater physical and psychological burden for elderly caregivers with limited energy.

Caregiving stress emerged as a significant factor for maternal depression, with mothers perceiving greater caregiving stress showing higher depression risk, consistent with previous findings of positive correlation between caregiving burden and depressive tendencies. Due to the substantial time and energy devoted to

childcare, mothers can typically only engage in agricultural work or temporary non-agricultural employment with low barriers to entry, potentially facing issues such as career disruption, lack of social interaction, and insufficient caregiving experience, thereby generating negative emotions. Additionally, after husbands migrate for work, mothers remaining at home must personally manage household chores, elder care, and child-rearing responsibilities, further exacerbating caregiving burden.

For grandmothers, age and self-perceived health status were associated with mental health. This study found that caregivers aged ≥ 60 years faced higher depression risk, consistent with previous research showing higher depression prevalence among older adults or caregivers. Furthermore, grandmothers who perceived their health status as affecting caregiving showed higher depression rates. On one hand, grandparents in middle-to-old age have higher chronic disease prevalence; on the other hand, lacking direct assistance from children's parents, grandparenting may negatively impact both physical and mental health. Multiple studies have found associations between self-rated health and depressive symptoms among older adults, with negative self-assessments often reflecting perceived impacts on daily activities and greater pessimism, predisposing to depressive symptoms.

Contrary to previous research, this study did not find significant effects of family economic status on depression among mothers or grandmothers of left-behind children. This may be because the study was conducted in economically disadvantaged areas with relatively small household economic disparities. Alternatively, the number of household appliances and vehicles owned may not adequately reflect the economic status of study participants, warranting consideration of additional indicators.

3.3 Recommendations Targeted interventions and public policies should be implemented from multiple perspectives to address caregiver depression and its adverse effects on early childhood development. First, improving accessibility of childcare services in rural areas and providing support for left-behind child caregivers in economic, caregiving knowledge, and skill domains could reduce caregiving burden. Second, enhancing the quality of elderly health services and improving rural elderly health service systems could ensure effective treatment and management of chronic diseases among rural older adults. Additionally, increasing the number of mental health professionals in rural areas, conducting regular mental health screenings, and implementing health education programs could promote rural mental health development through multiple approaches. Facilitating high-quality communication between left-behind family members and migrant workers may also improve physical and mental health among caregivers of left-behind children in rural areas. Enhancing mental health among rural women is essential not only for new-era rural revitalization but also for the development of the next generation and human resources.

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Table 1 Univariate analysis of depression among mothers of left-behind children in rural areas [n (%)]

Table 2 Univariate analysis of depression among grandmothers of left-behind children in rural areas [n (%)]

Table 3 Multivariate logistic regression analysis of influencing factors for depression among mothers of left-behind children in rural areas

Table 4 Multivariate logistic regression analysis of influencing factors for depression among grandmothers of left-behind children in rural areas

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