

The Mediating Role of Parenting Stress in the Correlation between Internalizing Problems and Maladjustment among School-Age Children in Shanghai, China

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Abstract

Background: Children's development and general adjustment are inextricably tied to their mental and emotional well-being. The present study investigated the relationship between children's adjustment, internalizing difficulties, parenting stress, and the mediating role of internalizing problems in this relationship within the cultural context of China.

Methods: The present cross-sectional study applied a quantitative research design. The survey method was used to collect data from August 2023 to November 2023 via an online questionnaire from WenJuanXing. A total of 154 participants, including parents of children aged 6 to 12, who were currently living in Shanghai, China, were selected by simple random sampling method. The scales used in the study include: Child Adjustment and Parental Efficacy Scale (CAPES), Internalizing Problems/Strengths and Difficulties Questionnaire (SDQ), and Parenting Stress Scale (PSS). Pearson Correlation was used to examine the correlations between internalizing problems, children's maladjustment, and parenting stress. Furthermore, Hayes' PROCESS macro (2013) was used to study the mediating effect of parental stress in the relationship between internalising problems and children's maladjustment.

Results: The study found a significant positive association ($r=0.536$, $P<0.001$) between internalising issues and maladjustment among children. Additionally, a significant positive correlation was found between internalising problems and parenting stress ($r=0.425$, $P<0.001$). Furthermore, there was a weak positive correlation ($r=0.301$, $P<0.001$) between parenting stress and children's maladjustment behaviour. The present study found no significant indirect effect of parental stress as a mediating variable ($\beta=0.09$, $P=0.238$). Internalising problems were found to have a significant direct influence ($\beta=0.54$, $P=0.001$) on children's maladjustment.

Conclusions: The results demonstrated a positive relationship between internalizing problems and children's maladjustment behaviors. The present study successfully achieved its objective of shedding light on the intricate dynamics of parental stress, internalization problems, and maladjustment in the unique cultural landscape of Shanghai, China.

Keywords: Parenting stress, Internalizing problems, Children's mental health

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1. Introduction

The most important indicator of scientific yield that every educational system should consider is the mental health of children (1). Existing estimates indicate the high frequency of mental health disorders among children at 16-30% (2). A flourishing society depends heavily on the mental health and well-being of its children. The global prevalence of mental problems in children and adolescents ranges from 7% to 22%, with seeing an incidence of 12.4% to 21.8% and 10.4% to 37.6% in industrialised and underdeveloped countries, respectively (3). Maladjustment is defined as "difficulties and challenges children experience in adapting to their environment, leading to

adverse outcomes in various domains of their lives, including social, emotional, and behavioral functioning" (4).

Research demonstrated that maladaptive cognitive emotion regulation strategies have a negative influence on the mental health and quality of life of school-age children (5). Chinese parents view their children's externalizing and internalizing problems as negative and problematic (6). Internalizing problems involve anxiety, depression, social withdrawal, and physical or physical problems such as worry, fear, headaches, and stomachaches (7). It affects a person's inner life and can seem as excessive worry, fear, melancholy, or a propensity to retreat (8). Childhood

internalizing behavior issues are significant risk factors for developing internalizing illnesses later in life, such as mood and anxiety disorders. Research has consistently shown that internalizing behavioral difficulties are among the most common mental health problems in adolescents. Specifically, anxiety disorders account for 31.9% of these issues, while mood disorders account for 14.3% (9). This highlights the importance of early identification and intervention to mitigate the long-term impact of these disorders. In any case, if these issues are not addressed, they will have a negative impact on the health of children and adolescents.

Parenting stress refers to the emotional pressure and obstacles that parents face while fulfilling their parental obligations. Parenting stress is prevalent in China, affecting a large proportion of parents and families (10). Parents often face immense pressure due to high expectations for their children's academic success, adherence to societal norms, and the complexities of modern family life (11). According to a national survey conducted in China, approximately 70% of parents reported experiencing moderate to high levels of parenting stress (12). In addition, more than 60% of parents admitted feeling stressed due to societal expectations. The intense academic pressure, societal expectations, and work-life balance challenges contribute to the stress experienced by parents (13). These pressures can have an impact on parenting stress and, ultimately, children's emotional development.

The family stress theory investigates the alterations that transpire within the dynamics of a family unit due to a stressful occurrence (14). Based on the theory, parenting stress arises when parents experience role strain and overload due to conflicting demands and pressures associated with their parental role. The theory emphasizes that families experience stress as a result of external and internal demands, transitions, and changes. These stressors can be acute or chronic and can come from various sources, such as economic pressures, parenting challenges, or family transitions (15). Prevalent family stressors in the Chinese cultural context include societal expectations, economic pressures, the one-child policy, and rapid societal changes (16). These stressors may influence parenting stress in Chinese families and affect children's emotional adjustment. Furthermore, according to Bronfenbrenner's ecological theory,

the microsystem refers to the child's local environment, which includes the home, school, and peer group. Internalizing problems, such as anxiety and depression, can arise from difficulties or challenges within these microsystems (17). For instance, a child maladjustment conflict or negative interactions within the family may develop internalizing problems that contribute to maladjustment in other areas of their life (18).

Maladjustment can be associated with increased emotional distress, including feelings of sadness, anxiety, and hopelessness (19). Children with maladjustment problems may experience difficulties in concentration, attention, and motivation, leading to academic underachievement and a negative impact on their school performance (20). Moreover, maladjusted children may display externalizing behaviors such as aggression, defiance, or impulsivity (21). These behavioral issues can lead to disciplinary problems and strain correlation with authority figures, including parents and teachers. In addition, maladjustment may negatively impact children's self-esteem and self-worth, contributing to a negative self-perception and feelings of inadequacy (22). Maladjustment issues in children, if not treated, can have long-term consequences, increasing the chance of mental health illnesses and challenges in adulthood (23).

Previous research explored the direct links between parenting stress and children's behaviors, as well as the association between internalizing problems and maladjustment (24). However, limited research has specifically examined how parenting stress may mediate the correlation between these two critical factors (25). Accordingly, parents, teachers, and mental health experts may find the results of the present study useful in developing treatments and support techniques to best enhance children's well-being. Besides, researchers can study how parental behaviors and attitudes may either worsen or lessen the influence of internalizing difficulties on children's maladjustment by examining the mediating role of parenting stress. Therefore, the main purpose of this study was to investigate the correlation between internalizing problems and children's adjustment to the mediating role of parenting stress. By exploring the mediating role of parenting stress in the correlation between children's internalizing problems and maladjustment, this

study also aimed to provide valuable insights into the complexities of children's emotional and behavioral challenges within the Chinese cultural context. Drawing on the extant literature discussed, the objectives of this study were to (a) investigate the relationships between internalising problems, children's maladjustment, and parenting stress and (b) examine the impact of parenting stress on the correlation between internalising problems and children's maladjustment.

2. Methods

In this cross-sectional study, a quantitative research design was applied. The survey method was used to collect data from August 2023 to November 2023 via an online questionnaire from WenJuanXing. A total number of 154 participants were recruited in this study. The eligible participants for this study were parents of children aged 6 to 12, currently residing in Shanghai, China. The ability to answer research questions was one of the requirements for participation in the study. Participants must also be fluent in English because all surveys are in English. Using the simple random sampling method, Pudong New District, Xuhui District and Baoshan District were randomly selected from the strata, and all primary school and secondary schools in the zone were listed. Pudong New District has 232 schools, Xuhui District has 51 schools, and Baoshan District has 92 schools. We randomly selected one school from each identified district (Pu Dong District and Bao Shan District) and recruited students from 6 classes to participate in this study.

The study was approved by Nanjing Meishan Hospital Ethics Committee with the code of MSYY[2023]028. Before completing the questionnaires, the study participants were briefed on the informed consent and asked to sign a written informed consent form. The questionnaires were in digital copies, using QR codes, and the participants scanned the code redirected to questionnaires created in WenJuanXing Form. For this study, 154 participants were recruited. Each participant acknowledged that participation in the study is voluntary and that they may leave at any time without incurring any fees or losing their benefits. After completing all questionnaires, each participant was given an electronic copy of the measurement results.

2.1. Child Adjustment and Parental Efficacy Scale (CAPES): CAPES is a novel parent-report instrument originating from Australia, designed to assess children's behavioral and emotional adjustment along with task-specific parental self-efficacy (26). The CAPES scale consists of two components: self-efficacy (19 items) and Intensity (27 items). In this study, CAPES Intensity was used to assess the behavioural and emotional adjustment of children aged 2 to 12 years, including two subscales: the Behaviour Scale, and the Emotional Maladjustment Scale. The former, with 24 items, evaluates children's behavioral problems, while the latter, containing 3 items, assesses emotional adjustment. Examples of the items include statements like "Gets upset or angry when they don't get their own way" and "Acts defiant when asked to do something". Responses are scored on a 4-point Likert scale, from 0 (not true of my child at all) to 3 (true of my child very much/most of the time), with certain items scored in reverse. The total maladjustment, behavioral, and emotional maladjustment scores were calculated by summing the item scores, which ranged from 0 to 81 for total maladjustment, 0 to 72 for behavioral maladjustment, and 0 to 9 for emotional maladjustment. Higher scores indicated greater levels of issues in each respective area. A study used confirmatory factor analysis (CFA) and structural equation modelling (SEM) to assess the scale's validity. CFA collected a four-factor PAFAS Parenting scale (15 items) and a three-factor PAFAS Parenting scale (8 items). SEM analysis using PAFAS and CAPES revealed a strong fit of the model of connections between parent, family, and child components to the data. The internal consistency of the PAFAS was good or acceptable, except for parental consistency (27). In a research, Guo and colleagues translated and verified CAPES in Chinese, which was then validated among Chinese parents (28). The modified self-efficacy subscale among parents with children under two years of age demonstrated high reliability (Cronbach's alpha = 0.961) and a CVI of 0.08 (27). The CVR of the scale in the total sample was 0.96 (29). In the present study, the reliability of CAPES Intensity was perfect, with a Cronbach's alpha value of 0.913 (30).

2.2. Internalizing Problems/Strengths and Difficulties Questionnaire (SDQ): SDQ stands as a widely employed and established psychological

assessment tool, with the purpose of gauging children's emotional and behavioral strengths and difficulties. Tailored for children and adolescents aged 3 to 16 years, this questionnaire is adept at identifying potential psychological challenges and strengths (31). SDQ can be used in various settings and by different individuals, such as parents, teachers, and self-report by children. SDQ comprises 25 items categorized into five subscales, each dedicated to measuring a specific aspect of emotional and behavioral functioning: a. Emotional Symptoms; b. Conduct Problems; c. Hyperactivity/Inattention; d. Peer correlation Problems; e. Prosocial Behavior. Examples of the items include statements like "He/she cares about other people's feelings." and "He/she is restless, overactive, cannot stay still for long." Scoring involves a 3-point Likert scale, ranging from 1 (not true) to 3 (certainly true) for each item, with item 7, 11, 14, 21, 25 being reverse-scored to accommodate positive and negative statements. Higher scores on the Emotional Symptoms, Conduct Problems, and Hyperactivity/Inattention subscales indicate greater difficulty, but higher scores on the Peer Correlation Problems and Prosocial Behaviour subscales indicate increased challenges and strengths, respectively. Similarly, in this study, the validity and reliability of the scale were examined, and the questionnaire's internal reliability was determined by Cronbach's alpha values ranging from 0.59 to 0.65 (32). At the same time, in one study, the CVI and CVR was obtained as 0.72 and 0.94, respectively (33). In the present study, the reliability of SDQ Intensity was perfect, with a Cronbach's alpha value of 0.851 (34).

2.3. Parenting Stress Scale (PSS): PSS is an 18-item self-report questionnaire designed to gauge parents' stress levels and attitudes toward parenthood. Participants are tasked with rating each item based on their perceptions of their typical correlation with their child using a 5-point Likert scale ranging from (1) strongly disagree to (5) strongly agree (35). Examples of the items include statements like "I am happy in my role as a parent" and "I enjoy spending time with my children". To calculate the total score for parental stress, items 1, 2, 5, 6, 7, 8, 17, and 18 will be reverse-scored. The total scores range from 18 to 90, with higher scores indicating higher levels of parental stress. Similarly, the Parenting Stress Scale (PSS) has been validated in China and in a study, the

convergent, discriminant, and criteria validity of the CPSS scores was supported by its association with related variables in the expected directions (36). In a similar study, the Lawshe Table was used to establish the numerical value of the CVR scale. The CVR threshold in this investigation was 0.62, according to the expert panel. Furthermore, CVI was determined using experts' judgements of item significance (37). In this investigation, PSS demonstrated acceptable internal consistency, with Cronbach's alpha values of 0.752 (38).

2.4. Statistical Analysis

Once all data were collected, a data screening was performed to exclude participants that did not fulfil the inclusion or exclusion criteria; data cleaning was carried out to eliminate missing values and extreme values to ensure that the raw data was free from error. Analysis of data was conducted once all the data were screened. A descriptive analysis was conducted on participants' demographic information, items on the questionnaires that required reversed scoring were reversed, and the mean and total scores were computed for all three instruments. Pearson Correlation was used to examine the correlations between internalizing problems, children's maladjustment, and parenting stress. Moreover, PROCESS macro was used to investigate the mediating role of parenting stress in the correlation between internalizing problems and children's maladjustment.

3. Results

Data analysis was done after the 154 participants completed all of the surveys. The participants' demographic information is presented in Table 1. 44.81% (n=69) of participants' children aged between 6 and 8, while 55.19% (n=85) of participants' children aged between 9 and 12. Regarding gender, 75.32% (n=116) of the participants were male, and 24.68% (n=38) were female. Regarding residence, 79.22% (n=122) of the participants lived in downtown, 18.18% (n=28) lived in towns, and the remaining 2.6% (n=4) lived in villages.

The results of Table 1 reveal a significant positive correlation between internalizing problems and children's maladjustment ($r=0.536$, $P<0.001$). This signifies that adolescents with elevated levels of internalizing problems also exhibit higher levels of

Table 1: Correlation between children’s maladjustment, internalizing problems, and parenting stress

	Mean±SD		1	2	3
Internalizing problems (1)	17.79±5.99	Pearson's r	—		
		df	—		
		P value	—		
Parenting stress (2)	46.12±8.90	Pearson's r	0.425***	—	
		df	152	—	
		P value	P<0.001	—	
Child adjustment (3)	37.03±9.25	Pearson's r	0.536***	0.301***	—
		df	152	152	—
		P value	P<0.001	P<0.001	—

*P<0.05; **P<0.01; ***P<0.001; SD: Standard Deviation

Table 2: Mediation analysis

Paths	B	SE	t	95% CI		β
				Lower	Upper	
Internalizing problem -> Parenting stress	0.6306	0.1091	5.7817	0.4151	0.8460	0.4246***
Internalizing problem -> Children’s maladjustment	0.8278	0.1057	7.8349	0.6190	1.0365	0.5363***
Parenting Stress-> Children’s maladjustment	0.0934	0.0785	1.1838	-0.0621	0.2479	0.0894
Internalizing problem -> Parenting stress->Children’s maladjustment	0.7692	0.1165	6.6003	0.5389	0.9994	0.4984***

B=Unstandardized Regression Coefficient; SE=Standard Error; LLCI=Lower Level Confidence Interval; ULCI=Upper Level Confidence Interval; β=Standardized Regression Coefficient; *P<0.001

children’s maladjustment. However, it is important to note that the strength of this correlation is considered moderate. Additionally, a significant positive correlation between internalizing issues and parenting stress was discovered (r=0.425, P<0.001). The severity of the internalizing issues and the increased stress of parenting are the implications of the outcome. Notably, the aforementioned correlation’s strength is regarded as modest. Furthermore, a weak positive correlation (r=0.301, p<0.001) between parenting stress and children’s maladjustment. While the strength of the correlation is considered weak. The meaning behind the result is that higher parenting stress may result in severe children’s maladjustment.

The bootstrap process mediation analysis results in Table 2 and Figure 1 examining

the mediating role of parenting stress in the correlation between internalizing problems and children’s maladjustment revealed important insights. Contrary to the initial hypothesis, the indirect effect of parenting stress in this correlation was not found to be significant (β=0.09, P=0.238, 95% CI [-0.05, 0.11]), indicating a lack of statistically significant mediation. Specifically, when internalizing problems were regressed on children’s maladjustment, the direct effect was significant (β=0.49, P<0.001), suggesting a direct association between internalizing problems and maladjustment. However, including parenting stress as a mediator did not significantly change this correlation. The results implied that, in this context, parenting stress does not mediate the correlation between internalizing problems and children’s maladjustment.

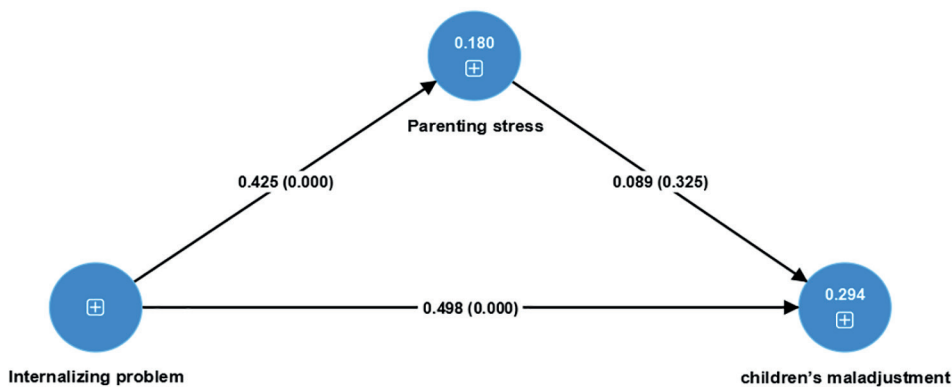


Figure 1: The figure shows the parenting stress as the mediator on the correlation between internalizing problem and children’s maladjustment.

4. Discussion

The results indicated a significant positive correlation between internalizing problem and children's maladjustment. The concepts and connections between internalizing problems and children's maladjustment have been well-researched and established. Internalizing behavior refers to a child's emotional or psychological state, which can include anxiety and depressive disorders, somatic complaints, and adolescent suicide (39). Children experiencing internalizing problems may struggle to cope with emotional challenges, leading to maladjustment in various aspects of their lives. As a result, internalizing problems are frequently associated with various aspects of maladjustment in children, such as academic difficulties, social withdrawal, and behavioral disturbances. The phenomenon of adolescent maladjustment has often been classified into two distinct syndromes: externalizing and internalizing problems. Maladaptive explanatory styles have been found to be associated with the emergence of internalizing symptoms of depression as well as anxiety (40). Furthermore, internalizing problems have been linked to a heightened risk for the development of comorbid psychological disorders and long-term psychosocial impairments if left unaddressed. Thus, maladaptive explanatory styles may be the root cause of the internalizing problems that children encounter (41). Previous cross-sectional studies consistently found a positive relationship between parental stress and internalising difficulties (10, 12, 16, 24, 25), which was supported by later longitudinal research (42). Notably, the study discovered parallel paths between parental stress and both internalising and externalising difficulties, indicating that development occurs concurrently throughout childhood (25). While this study found no evidence supporting parental stress as a mediator, it does highlight prospective areas for further research. Exploring other variables, such as cultural influences, parental coping techniques, and social support systems, might help us better understand the mechanisms driving child maladjustment.

4.1. Implication

The research underscored the pivotal role of parental stress in mediating the correlation between internalizing problems and children's maladjustment. Interventions targeting parental

stress management and coping strategies are paramount. Psychological support programs, counseling services, and stress reduction workshops tailored for parents can empower them to effectively manage stressors, thus potentially mitigating the negative impact on children's well-being. Educational institutions and professionals working with children should be informed about the nuanced correlation between parental stress, internalizing problems, and children's maladjustment. Training programs for educators and school counselors can enhance their understanding, enabling them to identify signs of internalizing problems early and offer appropriate support to both children and parents. Policy initiatives should prioritize mental health services for families. Increased accessibility to affordable mental health care, especially focusing on parental support, can substantially alleviate stress-related challenges within families. Additionally, policies promoting work-life balance for parents could significantly reduce stressors associated with parental responsibilities. Future research endeavors should explore diverse cultural contexts and socioeconomic backgrounds to enhance the generalizability of these findings. Investigating the effectiveness of specific interventions in diverse cultural settings would also contribute substantially to the field.

4.2. Limitation and Recommendation

Certain limitations to this study must be noted. First of all, the study focused on a specific demographic within Shanghai, potentially limiting the generalizability of our findings to broader populations within the city or different regions in China. Cultural, socioeconomic, and educational differences may affect the applicability of our results to diverse contexts. Secondly, the research reliance on self-reported data introduces the possibility of response biases. Participants might underreport or overstate certain aspects due to social desirability or recall biases, affecting the accuracy of the collected information. Thirdly, while researchers explored parenting stress as a mediating factor, other variables such as family dynamics, socioeconomic status, or parental mental health were not deeply investigated.

Correspondingly, several recommendations are essential for future research efforts. Firstly, researchers should aim for a more diverse and

representative sample, incorporating various demographics within Shanghai and different regions across China. This inclusive approach can yield a more comprehensive understanding of the interplay between parenting stress, internalizing problems, and children's maladjustment across diverse populations. Secondly, to mitigate self-report biases, researchers could employ mixed-methods research designs. Integrating qualitative interviews or observational methods alongside self-reported data collection can provide a more nuanced perspective. Lastly, future studies should adopt a holistic perspective by exploring additional mediating factors such as family dynamics, socioeconomic status, and parental mental health. A comprehensive exploration of these variables can offer valuable insights into the complex correlations under investigation, contributing to a more thorough and insightful interpretation of the research outcomes.

5. Conclusions

The intricate interplay between internalized problems and maladjustment suggests that a singular focus on parenting stress may be insufficient. Given Shanghai's rapid sociocultural transformation, factors like peer correlations, academic pressure, and cultural expectations may emerge as pivotal influencers on children's mental health. Recognizing the limitations of a sole emphasis on parenting stress offers a more holistic perspective for intervention design. While acknowledging the critical role of parental support and stress management, interventions should encompass broader aspects of a child's life, tailored to address the specific challenges faced by the youth in Shanghai. In conclusion, by acknowledging the multifaceted nature of this correlation, future interventions and research endeavors can adopt a comprehensive approach, ensuring a more effective and all-encompassing support system for children's mental health in this dynamic city.

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implementing this project.

Authors' Contribution

Mengna Sheng: Substantial contributions to data collection, analysis, and interpretation of results, as well as drafting the work. Saeid Motevalli: Substantial contributions to analysis and interpretation of results, planning and supervision, and aided in interpreting results, drafting the work and reviewing it critically for important intellectual content. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work, such as the questions related to the accuracy or integrity of any part.

Ethical Approval

Following ethical procedures governing the engagement of minors, the parental agreement was acquired for children aged 6 to 12 who participated in this study. Before participation, individuals received informative letters to ensure understanding, and their participation was fully voluntary. All data collected remained anonymous and used strictly for research reasons and the participants had the opportunity to withdraw the research at any moment. Also, written informed consent was obtained from the participants.

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