

# Left-behind Experience, Parent-child Communication and Psychological Resilience: a Structural Equation Modeling Analysis

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## Research article

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# Abstract

**Background:** Rapid urbanization has caused left-behind children to become a social problem in China. Psychological resilience is an important mediating/intermediate variable. This study aims to examine the role of parental migration status and parent communication on the psychological and related behavioral status of left-behind children through psychological resilience.

**Methods:** A cross-sectional survey was conducted in Anhui Province of China, and a questionnaire survey was conducted with 1992 teens using the Chinese version of the Parent-Adolescent Communication Scale, Connor-Davidson Resilience Scale, and Strength and Difficulties Questionnaires.

**Results:** Compared with the never left-behind group, left behind children had relatively lower PACS, CD-RISC and SDQ scores. Absence of parents is related with poorer psychological resilience, while good parent communication is related with better psychological resilience. Better psychological resilience is related with fewer psychological problems among different parental migration status. The currently left-behind status demonstrated a negative influence on psychological resilience, while never left-behind status had a positive effect.

**Conclusions:** Interventions are needed to enhance psychological resilience of left-behind children to prevent psychological and related behavioral problems.

## Highlights

- Parental migrant status exhibits adverse impacts on the healthy development of children.
- Psychological resilience is the immediate factor among parental migration status, parent communication and psychological problems.
- The currently left-behind status demonstrated a negative influence on psychological resilience.
- The relationship between parental migration status and parent-child communication was weak.
- Interventions are needed to enhance psychological resilience of left-behind children to prevent psychological and related behavioral problems.

## Background

Rapid urbanization in China has led to a large number of rural-to-urban migrant workers [1-2]. For economic and other reasons, the children of migrant workers usually stay in their areas of origin and are often raised by grandparents or relatives. Left-behind children is defined as children who remain in rural regions of China while their parents leave to work in urban areas, and they were left behind with their grandparents or relatives etc [1]. A study of Chinese left-behind children showed that there are more than 9,020,000 rural left-behind children in 2018 year [3]. Previous studies have shown that parental migrant status exerts adverse impacts on the healthy development of children [4]. Left-behind children were more

likely to suffer depression and loneliness, had a high risk of suicide, and exhibited poor nutrition and other health problems [1,4-5].

### **Parental migration status and mental health**

The focus of this study is to assess the impact of parental migration on the mental health of left-behind children. Most studies suggested that left-behind children are more likely to have mental health disorders, especially conduct problems such as hyperactivity/inattention, and peer relationship problems [6-8]. A cross-sectional survey showed that, in China, the depressive symptom score of rural left-behind children was significantly higher (40.4%) than that of the non left-behind group (27.8%), and the prevalence of personality symptom was significantly higher (64.4% VS 47.6%) [9]. But a minority of studies showed that left-behind children do not have worse mental well-being than other children [10]. Previous studies have also reported risk factors associated with mental health of left behind children, such as lack of family social capital on child interaction and emotional support , the poor utilization of social support [11], lower levels of life satisfaction and parenting efficacy [10]. However, psychological resilience may be a mediating factor of mental health from a perspective of positive psychology [12]. Few studies have assessed the role of psychological resilience as a mediating factor between parental migration status and the mental health of left behind children. One study which explored the psychological resilience of left-behind children in Sichuan province of China found that left-behind children demonstrated significantly lower resiliency scores, leading to psychological problems [13-14].

### **Parental migration status and parent-child communication**

Due to long term parental-child separation in rural-to-urban migrant families, left-behind children often have deficient communication regarding their emotional state with their parents, and are prone to develop psychological problems[15-17]. A study in Chongqing province in China showed that low frequency of parent-child communication was a risk factor for depression symptoms among left-behind children between the ages of 7-17 years[18]. Some research has indicated that parental support and parent-child communication can enhance the quality of life of left-behind children in China [19-21]. One study of 1165 rural left-behind children showed that good parent-child communication was related with greater life and school satisfaction and happiness [22]. Otherwise, with the development of modern communication technology in China, parent-child communication by telephone or WeChat video(Chinese version of Facebook) has become more convenient than before [23]. Therefore, the present parent-child communication may more influenced by parents' will, but not the poor communication condition.

### **The current study**

In conclusion, there is a lot of literature on mental health of left-behind children, however very few studies focus on the effect of psychological resilience, which is a key mediating factor of mental health. Additionally, very few studies have explored the role of parent-child communication on psychological resilience among different parental migration status, especially under the better communication background (phone calls, video chats vs letters etc). The present study aims to fill this gap by examining

how parental migration status and parent-child communication play a role in the mental health of left-behind children through psychological resilience. This study stands out from prior studies by using structural equation modeling (SEM) in the analysis of three parental migration status models, thus enabling the comparison of associations between the different outcomes and the measurement of indirect effects.

## Methods

### Participants and procedure

A cross-sectional survey was conducted in April 2018. The participants were recruited from Wuwei and Nanling of Anhui province, which are relatively underdeveloped counties of southeastern China and have large numbers of left-behind children. We randomly selected two towns from each county, and then randomly selected one primary school and one middle school from each town. In each school, students were recruited if they met the following criteria 1) enrolled in either grade 5 to 6 in primary school or Grade 7 to 8 in junior middle school, 2) were 11-17 years old, 3) had a local household registration in either Wuwei or Nanling county, 4) were willing to participate in the study, 5) were not suffering from any psychological disorder, and 6) had both parents who were not deceased, divorced or remarried. In total, 1992 teens from 8 schools in 4 towns were included in this study. All participants signed the consent form and were aware that their participation was purely voluntary. Students were then asked to complete self-administered questionnaires in their classrooms. In order to make sure students could fill in sensitive questions, and teachers or school administrators were required not to be present at classroom. Ethical approval was obtained from Zhejiang University and local approvals were obtained from county authorities.

### Measurements

#### Measurement of parent-child communication

The communication between parent and child was assessed with the Chinese version of the Parent-Adolescent Communication Scale (PACS)[24-26]. The scale has 20 items, and includes the open family communication sub-scale and the problems in family communication sub-scale. The open family communication sub-scale measures the free exchange of ideas and feelings between parent and children. The problems in family communication sub-scale measures the willingness of parents and children to honestly express their true thoughts and feelings to each other. Each item is scored on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) in the original version scale. In order to avoid neutral attitude feedback, we adjusted all items to a 4-point Likert scale (1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree) in the current study. The total PACS score ranges from 10 to 40, and higher scores means better communication. By a study of 3349 adolescents (age range of 12-15 years ) from 35 secondary schools in China, the Cronbach alpha of this Chinese version scale is 0.88, and

the results of confirmatory factor analysis found an acceptable fit of a model ( $\chi^2 = 2597.81$ ,  $df = 146$ ,  $\chi^2/df = 17.79$ , RMSEA = 0.07, CFI = 0.88) [27-28].

### **Measurement of children's psychological resilience**

The psychological resilience of children was measured using the Chinese version of the Connor-Davidson Resilience Scale (CD-RISC)[29]. The English version consists of 25 items which assess psychological well-being in five dimensions: tenacity, tolerance of negative affect, positively acceptance of change, control and spiritual influences. The Chinese version kept these 25 items, and revised items in three dimensions, namely tenacity, strength, and optimism. Each item is scored on a 5-point Likert scale from 1 (never) to 5 (often). Each dimension was measured by the summed score of its items as a sub-scale. A total score was calculated by summing the scores of three dimensions (thus range from 25 to 125). Higher scores indicate a better psychological resilience. By one study carried out in the south province of China, the Cronbach alpha of this Chinese version scale is 0.928, and test-retest reliability ( $r=0.812$ ,  $P < 0.001$ ) and split-half reliability ( $r=0.890$ ,  $P < 0.001$ ) were good [30].

### **Measurement of psychological and behavioral status of children**

The psychological and behavioral status of students were evaluated by the Chinese version of Strength and Difficulties Questionnaires (SDQ)[31-32]. The scale contains five dimensions: emotional symptoms, conduct problems, hyperactivity, peer problem, and pro-social behavior. Each dimension has five items, and each item is scored on a 3-point Likert scale from 0 (totally noncompliant) to 2 (fully compliant). The total difficulties score is the sum of all dimension scores except the pro-social dimension, and a higher score reflects increased severity of emotional and behavioral problems. The reliability test from a study in the southeast province in China, showed that the Cronbach coefficient was 0.79, and the validity test showed the differences of the factors and total scores between abnormal sample and normal sample were significant ( $t=2.07-6.31$ ,  $P < 0.05$ ) [32].

### **Covariates**

Covariates in this study included gender, age, grade, sibling and self-reported family economic status relative to others in their community (much better off/better off, the same, poorer/much poorer). Most current studies divide the dissemination of their survey into two categories: left-behind children and never left-behind children. In order to have a more sensitive comparison of the status of parental migration, children in our study were divided into three groups: G1 (currently left-behind children); G2 (previously left-behind children); G3 (never left-behind children). They were asked to answer two questions: "has your father (or mother) taken a job away from your hometown and been absent for over six months?" The options were "yes, currently absent," "yes, previously absent," and "no, never." If one or both parents were currently absent, the student was defined as G1; if one or both parents were previously absent, the student was defined as G2; and if neither parent was ever away, the student was G3.

### **Statistical analysis**

Data were analyzed using SPSS 23.0 (SPSS Inc., Chicago, IL, USA). First, sample characteristics were compared by chi-square test (for categorical variables) or analyses of variance (for continuous variables) among the three groups of children with different parental migration statuses. Second, structural equation models were used to evaluate the mediation hypothesis, and test that parental migration status and parent communication mediate psychological and related behavioral status through psychological resilience. Because these scores were not normally distributed, the differences in PACS and CD-RISC scores among the three parental migration status groups were compared by Kruskal-Wallis test. Third, we set up three mediated models divided by parental migration status (G1, G2 and G3) in order to explore the effect of parental migration status and parent-child communication on mental health through psychological resilience. These models were tested with the SPSS AMOS22.0 software using the Maximum Likelihood (ML) iteration procedure. The fit indices for a good model included: 1) ratios of  $\chi^2$  value to the degrees of freedom of between 2 and 5; 2) comparative fit index (CFI) and Tucker-Lewis Index (TLI) >0.95; and 3) root mean square error of approximation (RMSEA) < 0.05. Data were examined for normal distribution and statistical tests were two-tailed.

## Results

Of the 1992 participants, 1251 were in G1, 473 were in G2, and 268 were in G3. Demographic characteristics are shown in Table 1. More than half of the subjects were male. The ages of the three groups are similar. More than half of the subjects were in grades 7 or 8. More than 60% reported their income level as “the same” as their community. Over 65% had siblings. About 70% of subjects described their parent’s education level as secondary school or below. (Table 1)

Table 1  
Sample characteristics n (%)

	G1	G2	G3	F or $\chi^2$	p value
Gender				1.08	0.584
Male	678(54.9)	257(55.0)	137(51.5)		
Female	558(45.2)	210(45.0)	129(48.5)		
Age, mean(SD)	13.1(1.2)	13.2(1.2)	13.0(1.2)	4.25	0.014
Grade				7.76	0.021
Grade5 to 6	538(43.0)	184(38.9)	132(49.4)		
Grade7 to 8	712(57.0)	289(61.1)	135(50.6)		
Perceived income level compared to community				5.94	0.204
Much better off /better off	317(25.6)	120(25.7)	85(32.0)		
The same	818(65.9)	306(65.5)	165(62.0)		
Poorer/much poorer	106(8.5)	41(8.8)	16(6.0)		
Any siblings				3.69	0.158
Yes	820(65.6)	314(66.4)	192(71.6)		
No	431(34.5)	159(33.6)	76(28.4)		
Mother education level				3.11	0.045
Primary school and below	424(33.9)	184(38.9)	93(34.7)		
Secondary school	548(43.8)	191(40.4)	98(36.6)		
Senior high school and above	104(8.3)	44(9.3)	39(14.6)		
Unknown	175(14.0)	54(11.4)	38(14.2)		
Father education level				5.23	0.005
Primary school and below	288(23.0)	130(27.5)	56(20.9)		
Secondary school	677(54.1)	226(47.8)	115(42.9)		
Senior high school and above	134(10.7)	65(13.8)	61(22.8)		
Unknown	152(12.2)	52(11.0)	36(13.4)		
*G1 (currently left-behind children); G2 (previously left-behind children); G3 (never left-behind children)					

There were significant differences in the PACS, CD-RISC, and SDQ scores among the three groups of children with different parental migration status (Table 2). The total PACS scores were both highest in G3 (mother  $56.02 \pm 8.91$ ; father  $57.27 \pm 10.11$ ) and lowest in G2 (mother  $54.07 \pm 9.21$ ; father  $54.85 \pm 10.52$ ). The total CD-RISC score was highest in G3 ( $85.45 \pm 17.14$ ), and lowest in G1 ( $81.26 \pm 15.83$ ). The total SDQ score was highest in G1 ( $12.74 \pm 5.37$ ), and lowest in G3 ( $11.13 \pm 5.09$ ).

Table 2

Comparisons among parental migration status regarding parent-child communication, psychological resilience score, and strength and difficulties questionnaires score, mean (SD)

	G1	G2	G3	H
Mother-adolescent communication score	55.4(9.7)	54.1(9.2)	56.0(8.9)	11.82**
Father-adolescent communication score	56.1(10.2)	54.9(10.5)	57.3(10.1)	8.41*
Psychological resilience score	81.3(15.8)	82.4(15.3)	85.5(17.1)	14.93***
Total difficulties score	12.7(5.4)	12.5(5.2)	11.1(5.1)	21.14***
*:p<0.05, **: p<0.01, ***: p<0.001				

The SEM results showed that the fit for each of the three models were acceptable. All of CFI and TLI > 0.93, and RMSEA < 0.074 (see Table 3). Figure 1–3 show the direct effects of parental migration status and parent-child communication on psychological resilience. In G1, currently left-behind status exhibited a negative effect (SSCs=-0.08,  $p < 0.001$ ) on CD-RISC, and PACS scores (father SSCs = 0.21,  $p < 0.001$ ; mother SSCs = 0.23,  $p < 0.001$ ) were positively associated with CD-RISC scores. Currently left-behind status had no significant correlation to PACS scores ( $p > 0.05$ ). In G2, PACS scores (father SSCs = 0.21,  $p < 0.001$ ; mother SSCs = 0.23,  $p < 0.001$ ) were positively associated with CD-RISC scores. Previously left-behind status has a negative effect (SSCs=-0.06,  $p < 0.001$ ) on PACS scores, and no significant correlation to CD-RISC scores ( $p > 0.05$ ). In G3, never left-behind status plays a positive role (SSCs = 0.06,  $p < 0.01$ ) on CD-RISC scores, and PACS scores (father SSCs = 0.20,  $p < 0.001$ ; mother SSCs = 0.23,  $p < 0.001$ ) were positively associated with CD-RISC. Never left-behind status had no significant correlation to PACS ( $p > 0.05$ ). In all three models, the direct effect of CD-RISC on SDQ was significant (SSCs=-0.21,  $p < 0.001$ )

Table 3  
The fit indices of the multigroup models

Models	$\chi^2$	df	$\chi^2/df$	CFI	TLI	RMSEA
G1	170.156***	10	17.02	0.994	0.941	0.071
G2	168.842***	10	16.88	1.000	1.000	0.004
G3	170.020***	10	17.00	0.994	0.936	0.074
*:p<0.05, **: p<0.01, ***: p<0.001						

## Discussion

This study measured the score of PACS, CD-RISC, and SDQ among three groups of children with varying statuses of parental migration. Compared with the never left-behind group, children who were currently or previously left behind had relatively lower PACS and CD-RISC scores, and higher SDQ scores. Similar findings have been reported in previous studies, such as Su et al. found that children with one or two migrating parents reported the lowest levels of satisfaction and psychological adjustment [22]. It is worth noting that children whose parents were previously absent demonstrated the lowest PACS scores, this is the first study to report such a finding. It is possible that the experience of parental absence at a young age affects the formation of effective parent-child communication processes. This study also demonstrated that children with currently migrating parents have the lowest CD-RISC and the highest SDQ scores. This is consistent with other research findings, namely that left-behind children were significantly more likely to display externalizing and internalizing problems [33–34].

The structural equation model shows how parental migration status and parent-child communication affect the children's psychological and related behavioral characteristics through psychological resilience. Our findings suggest that psychological resilience is a mediating factor among parental migration status, parent communication and psychological problems. The absence of parents has a negative effect on psychological resilience, while good parent communication has a positive effect. Our data also suggests that better psychological resilience can reduce psychological problems among different parental migration statuses. It seems that resilience may play a key role in helping left-behind children to maintain psychological wellbeing. There are few studies which use structural equation models to analyze the mediating role of psychological resilience, and this is the first study to report such a finding by comparison of the three parental migration status models. Ye et al. reported that resilience was found to be a protective factor for depressive symptoms and also mitigated the effects of peer victimization on depressive symptoms among rural-to-urban migrant children in China[35]. Therefore, resilience-based interventions might be useful to enhance the mental health of left-behind children, especially for currently left-behind children.

Our results showed that currently left-behind status had a negative influence on psychological resilience, while never left-behind status had a positive effect on psychological resilience. These results suggest that

separation from parents do play a role in children's mental health. This is echoed in other research on the subject: children who were separated from parents at a younger age had more symptoms of anxiety and depression[36–37]. While most studies in this area divided participants into left-behind children and never left-behind children, this study divided participants into currently left behind, previously left-behind and never left-behind groups. This allows for greater specificity in different statuses of parental migration.

This study demonstrated that parent-child communication has almost the same effect on psychological resilience under different parental migration status, and this conforms with previous research on this subject. We also found that communication with mothers was slightly more correlated with psychological resilience than was communication with fathers. Communication between parents and children is usually considered as an important factor, and similar findings have also been reported in other studies. Van et al. (2015) reported that parent-child communication was a promising factor to focus on in interventions aimed at preventing mental illness, and Elgar et al. (2013) reported that parent-child communication during family dinners had 13–30% positive effect on mental health[38–39].

Contrary to prior studies, the current study shows that there is no consistent correlation between parental migration status and parent-child communication. We found only that being previously left-behind had a slightly negative correlation to parent-child communication. Most of prior studies indicated that the absence of parents does effect communication duration and frequency, and creating a lack of social support for their children and leading to psychological problems [1, 17, 40]. We speculate that children who experience being left behind in their early childhood have changes in their ability to communicate with their parents. And currently left-behind children are relatively older, and have a fixed communication with their parents. As better communication conditions (such as phone calls, video chats, etc.) in China, communication between migrant parents and left-behind children is easier now relative to the past [23]. So lack of timely communication might be have less significant influence as previously reported, and this topic warrants further research. However, this study did not measure the exact time and length of parental absence among children. Therefore, it is impossible to further judge the effect of separation length on parent-child communication. One study supports our findings to some extent: Hedenbro and Rydelius (2019) indicates that early child-mother-father communication was related with children's social competence at the age of 15[41].

## Limitations

Firstly, this study did not measure the time and duration of parental absence, so we cannot compare the differences among children who were left behind at different stages of childhood. Secondly, the Parent-Adolescent Communication Scale measures subjective feelings, and children who are left behind for a long time will have a bias in this area. They may mistakenly report their present status of communication with their parents is normal and good, as it may be better than it was when their parent was absent, even if it does not live up to more common standards for parental communication among those whose parents have never migrated or migrated for shorter periods of time. Thirdly, our study considered only a

limited range of potential determinants: we did not explore areas such as children's relationship with their caretakers and other related factors (i.e., family social capital, et al.)

## **Conclusion**

This manuscript highlights that psychological resilience is the key mediating factor associated with parental migration status and parent-child communication. Better psychological resilience is related with fewer psychological problems among different parental migration status. To promote the health left-behind children, interventions are needed to enhance psychological resilience, which may prevent psychological and related behavioral problems.

## **Abbreviations**

PACS: Parent-Adolescent Communication Scale; CD-RISC: Connor-Davidson Resilience Scale; SDQ: Strength and Difficulties Questionnaires.

## **Declarations**

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### **Authors' Contributions**

FW conceptualization \ design the study; ZC completed the first draft of this article, WF participated in data collection and analysis, and LQH, YN revised the manuscript and made valuable suggestions on scholarly writing. All authors contributed to and have approved the final manuscript.

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### **Availability of data and materials**

All data generated or analyzed during this study are included in this published article and its Additional files.

### **Ethics approval and consent to participate**

Ethical permission for the study was obtained from the ethics commission of Zhejiang University [No.ZGL201804-2].

### **Consent for publication**

The authors consent for publication of this paper. All authors have read and approved the final manuscript. This manuscript has not been published and is not under consideration for publication elsewhere.

### Competing interests

The authors declare that they have no conflict of interest related to this study.

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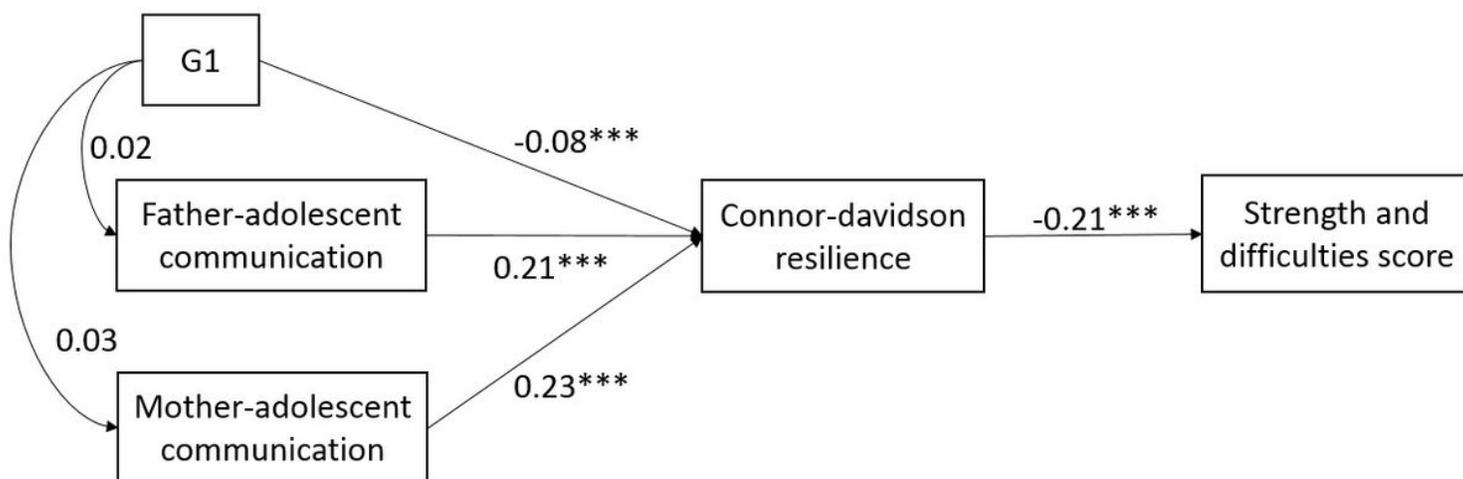
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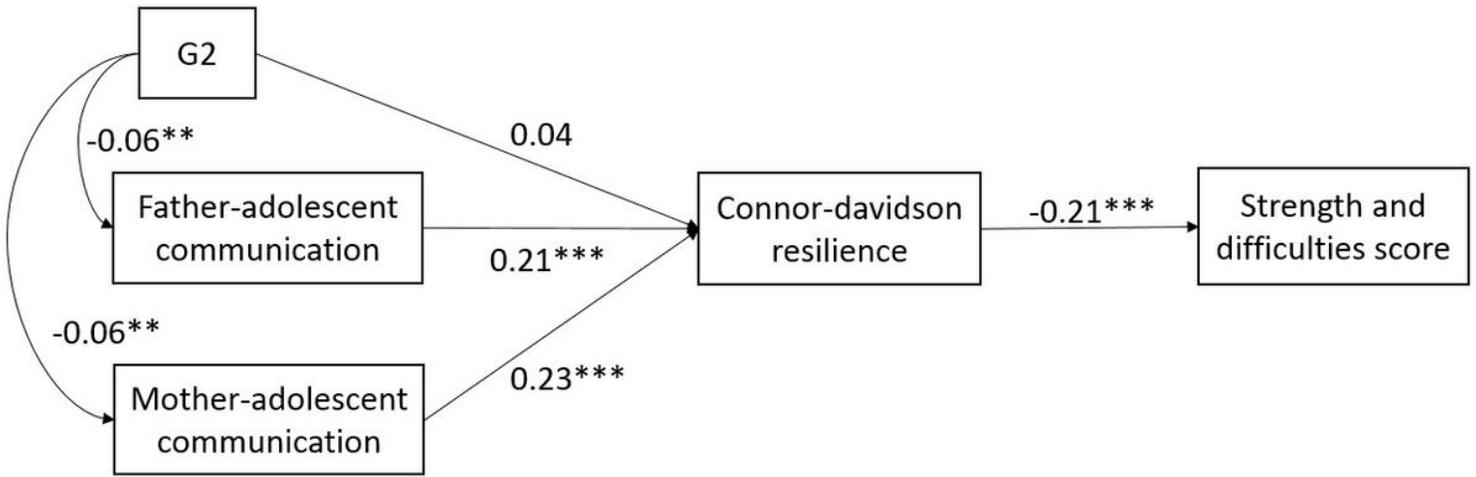
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## Figures



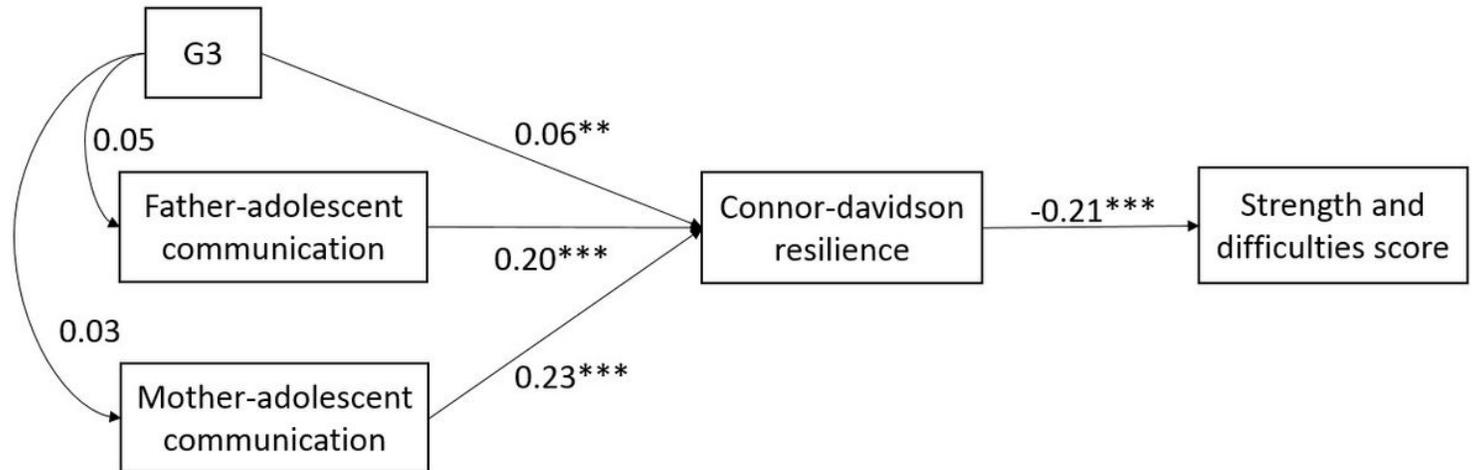
**Figure 1**

Structural equation model with the standardized coefficients among G1, parent-child communication and psychological resilience \*:  $p \leq 0.05$ , \*\*:  $p \leq 0.01$ , \*\*\*:  $p \leq 0.001$



**Figure 2**

Structural equation model with the standardized coefficients among G2, parent-child communication and psychological resilience \*:  $p \leq 0.05$ , \*\*:  $p \leq 0.01$ , \*\*\*:  $p \leq 0.001$



**Figure 3**

Structural equation model with the standardized coefficients among G3, parent-child communication and psychological resilience \*:  $p \leq 0.05$ , \*\*:  $p \leq 0.01$ , \*\*\*:  $p \leq 0.001$