ORIGINAL ARTICLE

The Relationship between Loneliness, Self-Efficacy, and Satisfaction with Life in Left-Behind Middle School Students in China: Taking Binhai County of Jiangsu Province as an Example

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Abstract.

Objective: To explore the relationship between loneliness, self-efficacy, and satisfaction with life of Left-behind middle school students in China.

Methods: A cluster random sampling method was used to study students from Left-behind middle schools in Binhai County of Jiangsu Province. The loneliness scale, general self-efficacy scale, and satisfaction with life scale were used to conduct questionnaire surveys.

Results: Compared with non-left behind middle school students, Left-behind middle school students had higher loneliness, lower self-efficacy, and satisfaction with life. There were significant gender differences in loneliness and satisfaction with life of the two types of students. Whether to live in school or not had an insignificant impact on the loneliness and satisfaction with life of Left-behind middle school students. Loneliness had a significant negative predictive effect on the satisfaction with Left-behind middle school students' life and self-efficacy. In predicting satisfaction with life by loneliness, self-efficacy generally played a part of the mediating role, which could partially buffer the adverse effects of loneliness on student satisfaction with life.

Conclusion: The mental health of left-behind middle school students should arouse the common concern of family, school and society. Try to do some intervention counseling in reducing the experience of loneliness and enhancing the sense of self-efficacy to improve their satisfaction with life and maintain a positive mental state.

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Introduction

WITH the continuous development of China's industrialization and urbanization, many rural surplus laborers have poured into cities to look for jobs far away from their hometown, forming a "migrant worker wave" phenomenon. However, because they are restricted by the household registration (Hu Kou) policy, economic conditions, employment environment, urban enrollment conditions, and other factors, they usually do not bring their children with them into the city and can only leave them at the location of the household registration (Jiang, 2016; Tang et al., 2018). This makes it difficult for parents who are migrant workers to have the opportunity to accompany and take care of their children, resulting in the phenomenon of long-term separation of children from their parents during their growth (Zhao et al., 2017). In other words, the phenomenon of the "migrant worker wave" in contemporary China has formed a particular social group: Left-behind Children. According to the "Opinions on Strengthening the Care and Protection of Left-behind Children in Rural Areas" issued by the State Council in 2016, when both or one of the parents go out to work, and the other has no guardianship capacity, minors under 16 are Left-behind children. The long-term separation of parent and child and the lack of family education have brought many adverse effects on the life, learning, and growth of children Left-behind. Compared with non-left behind children, Left-behind children are more likely to have bad emotional and behavioral problems (Cheng & Sun, 2015; He, 2012) and lower satisfaction with life (Wei, 2015). This has gradually attracted attention from society, schools, and families. Left-behind children's mental health is becoming a critical public health issue in China. According to official statistics, from 2010 to 2014, approximately 61 million children in China were Left-behind in rural areas by their migrant parents. It accounts for nearly 22% of the country's total children (Yuan & Wang, 2016). As of 2016, the Ministry of Civil Affairs data showed that there were 9.02 million Left-behind children in rural areas across the country. This shows that governments at all levels in China have made great efforts to reduce the number of Left-behind children. Also, scholars have launched a lot of investigation and research. By 2020, searching for the "China National Knowledge Infrastructure (CNKI)" with "Left-behind children" as the keyword, a total of 6,752 entries have been retrieved, which has doubled compared to 2017 (Fu & Ling, 2017). It shows that Chinese academic circles have been paying attention to Left-behind children. However, in previous studies, more attention has been paid to Left-behind children's negative tendency, such as the adverse effects of Left-behind on their academic development and the unhealthy psychological and behavioral phenomena of Left-behind children (Yu & Zhang, 2010). In the past five years, researchers have gradually begun to focus on the positive psychological development of children Left-behind (Shao et al., 2018), which has made the research in this field more comprehensive.

Under the influence of positive psychology, the Dual-Factor Model of Mental Health (DFM) has broken through the previous psychopathological indicators as the only standard for measuring mental health, incorporating the concept of subjective well-

being (Greenspoon & Saklofske, 2001). This covers life satisfaction, positive and negative emotions (Diener, 2000). Among which life satisfaction can better reflect the subjective well-being of Chinese people (Sun et al., 2010) and can replace subjective well-being as a positive indicator of middle school students' mental health (Hai et al., 2015). Therefore, this study uses life satisfaction as a measure of Left-behind middle school students' mental health. The satisfaction with students' lives is the subjective evaluation of the individual's life based on the standard set by themselves (Zhong et al., 2007). Studies have shown that satisfaction with life is closely related to students' anxiety, depression, and other harmful emotions, as well as problem behaviors such as dropouts (de Vasconcelos, 2020; Han & Zhang, 2020). Therefore, further exploration of the influencing factors and mechanism of satisfaction with Chinese life Left-behind children is of great value to their physical and mental health and academic education.

Satisfaction with life is the core indicator of subjective well-being (Cowen, 1994). Many studies have shown that loneliness negatively predicts subjective well-being and is a significant predictor (Arslan, 2020; Rew, 2002). Due to the particularity of Left-behind children's family status, the academic community pays more attention to their unique loneliness. Studies have shown that 50% of Left-behind children are lonely for a long time, and loneliness is their most common emotional experience (Zhou & Yao, 2011). The loneliness of Left-behind children is significantly higher than that of non-left behind children (Fan et al., 2017; Ren & Shen, 2008). However, another study found that compared with non-left behind children, children's loneliness experience did not increase significantly (Wang et al., 2011; Zhang et al., 2012). Therefore, there is controversy about the loneliness research of Left-behind children, and it is necessary to explore the loneliness of Left-behind children further.

Most studies show that loneliness and life satisfaction are significantly negatively correlated; that is, loneliness significantly negatively predicts life satisfaction (Salimi, 2011; Su, 2016). However, some studies show that loneliness is positively correlated with life satisfaction (Turan, 2020), which may because studies were based on senior people (Ye et al., 2016; Zou & Yang, 2017). However, Turan et al. used college students as the research object. So far, the relationship between loneliness and satisfaction with life of different groups may have different results. Previous studies have ignored the relationship between loneliness and satisfaction with the life of the select group of Left-behind children. Therefore, this research explores the relationship between loneliness and satisfaction with life of Left-behind children and then provides a theoretical basis for improving life satisfaction.

Left-behind children are in a disadvantaged situation of being separated from their parents for a long time. They may be more likely to have destructive emotions and problem behaviors. However, not all children will have these bad problems. Researchers have gradually realized that unfavorable environments do not necessarily lead to developmental disadvantages; some children develop very well, facing the same pressure. In contrast, others develop poorly (Zhang et al., 2012), and then the Theory of Children's Resilience Development (Zeng & Li, 2003). The theory's core point is that when an individual is in a disadvantaged situation, the individual's psychological resili-

ence can help him cope with pressure or adversity and develop and grow. Risk factors hinder the development of children's psychological resilience, while protective factors can reduce children's unfavorable environments and ultimately promote psychological resilience. Many researchers currently divide protective factors into individual factors, family factors, and non-family factors (Zhang, 2015). Existing empirical studies have shown that self-efficacy, as an essential protective factor of psychological resilience, can predict psychological resilience development (Chu et al., 2013). Bandura believes that self-efficacy is a hierarchical structure composed of general self-efficacy and task-related self-efficacy. The former is at the top, which refers to the general belief that an individual has in order to deal with challenges from different environments successfully or to deal with new things (Ersan et al., 2018; Li et al., 2019); the latter is at the bottom, which refers to the individual A specific belief that oneself can engage in specific activities related to a specific field of behavior (Li et al., 2019). Previous studies on middle school Left-behind children's self-efficacy paid more attention to task-related self-efficacy, such as emotional regulation self-efficacy, learning efficacy (Wang et al., 2017; Zhao & Wang, 2015), to middle school Left-behind. There are few studies on the general self-efficacy of children. However, task-related efficacy cannot represent general efficacy. Therefore, it is necessary to study the general self-efficacy of Left-behind middle school students to distinguish it from task-related self-efficacy.

Self-efficacy is an essential part of the social cognitive theory. As an external factor affecting mental health, self-efficacy has attracted more and more attention from scholars. Its relationship with mental health has been demonstrated in theoretical and empirical studies. At the theoretical level, both Health Belief Model and Protection Motivation Theory regard self-efficacy as a crucial factor affecting individual mental health (Babazadeh et al., 2016; Holden, 1991), and Social Cognitive Theory also proposes to have high self-efficacy of individuals present a higher level of positive factors for mental health (Silva, 2015). At the practical level, many studies have found a close connection between self-efficacy and mental health. The specific manifestation is that individuals with high self-efficacy tend to show higher levels of positive factors of mental health (satisfaction with life, self-esteem, and positive emotions), but low levels of negative factors (loneliness, depression, and negative emotions) (Li et al., 2019). Specifically, loneliness is negatively correlated with general self-efficacy (Dussault & Deaudelin, 2001; Yang et al., 2011; Zhou, 2014), and loneliness predicts self-efficacy (Al Khatib, 2012). There is a positive correlation between self-efficacy and satisfaction with life (Tan, 2008); self-efficacy positively predicts life satisfaction (Cikrikci & Odaci, 2015; Liang et al., 2019). Therefore, based on the theory of children's psychological resilience and previous related studies, this study predicts that general self-efficacy, as a protective factor affecting Left-behind children's loneliness, will mediate between loneliness and satisfaction with life.

In sum, there is a close relationship between loneliness, general self-efficacy, and satisfaction with life. However, whether there are differences in the loneliness of Left-behind children and non-left behind children is still controversial. Research on the relationship between loneliness and self-efficacy varies from group to group. There is

no research on loneliness and self-efficacy of middle school Left-behind children at the same time. Based on previous studies, only the primary school was examined, or the sample's age range was extensive. However, the mechanism of satisfaction with life of Left-behind children in adolescence in the middle school was not explored. Therefore, we focus our research on the middle school segment, explore the connection and difference between Left-behind middle school students and non-left behind middle school students in loneliness, general self-efficacy, and satisfaction with life, and further explore whether general self-efficacy is in loneliness Play an intermediary role with satisfaction with life. To deepen and promote the mental health education of Left-behind middle school students and promote their satisfaction with life to provide a scientific and practical theoretical basis. This study was reviewed by the Academic Ethics Committee of the School of Psychology, Nanjing Normal University. The questionnaires used in this study are all published results and do not involve any infringement.

Methodology

Research Object

In Binhai County, Jiangsu Province, four middle schools were randomly selected to conduct online questionnaire surveys, and the questionnaires were distributed by random cluster sampling. There were 4,513 people in this survey, and 4,229 valid questionnaires were returned, with an effective response rate of 93.71%. Among them, 977 children were Left-behind, and 3252 children were non-left behind, with an average age of (13.99±1.1) years old. In all Left-behind children, 502 were boys (51.4%) and 475 were girls (48.6%); 559 (57.2%) were live-in-school, 418 (42.8%) were non-school-livings; 236 (24.2%) were only children, 741 were non-only children (75.8%).

Research Tool

1. The Loneliness Scale: This study uses the third edition of the "UCLA loneliness scale," which Russell compiled in 1978 and was revised in 1995 by the domestic scholar Professor Dengfeng Wang. The scale has 20 items, and the score is divided into four levels: never, rarely, sometimes, and always. Scores above 44 points are high loneliness, 39-44 points are generally upper loneliness, 33-38 points are middle loneliness, 28-32 points are generally lower loneliness, and less than 28 points are low loneliness. The Cronbach α coefficient of this scale is 0.846.
2. Self-Efficacy Scale: Schwarzer compiled the general self-efficacy scale (GSES) used in this study in 1981, and it was revised to include ten items. The scale uses the Likert four-point method (1 = completely incorrect, 4 = completely correct), with a total score of 10-40 points. The higher the score, the higher the level of self-efficacy.
3. Satisfaction with Life Scale: This study uses the "Adolescent Student Satisfaction with life Scale" compiled by domestic scholar Xinggui Zhang et al. It con-

Table 1. Comparison of Loneliness, General Self-Efficacy, and Satisfaction with Life Between Left-Behind and Non-Left-Behind Middle School Students.

	Left-Behind Middle School Students (n = 977)	Non-Left-Behind Middle School Students (n = 3,252)	*t*	*Cohen' sd*
Loneliness	41.99 ± 9.47	40.70 ± 9.61	3.69***	0.14
General Self-Efficacy	23.68 ± 5.75	24.15 ± 5.70	-2.28*	0.08
Satisfaction with Life	176.08 ± 29.00	180.11 ± 28.00	-3.91***	0.14
*Note: *P < 0.05, **P < 0.01, ***P < 0.001.*				

tains 36 items in 6 dimensions: the friendship satisfaction dimension and the family satisfaction dimension each contain seven items, the academic satisfaction dimension and the school satisfaction dimension each have six items, and the freedom satisfaction dimension and the environmental satisfaction dimension each have five items. The scale uses the Likert 7-level scoring method (1 point: strongly disagree; 2 points: disagree; 3 points: somewhat disagree; 4 points: neither agree nor disagree; 5 points: somewhat agree; 6 points: agree; 7 points: strongly agree). The dimensional coefficients and test-retest reliability of the scale are all above 0.62.

Statistical Analysis

The data were analyzed by SPSS17.0 statistical software. Quantitative data are expressed as Mean ± SD, and *t*-test, analysis of variance, and correlation analysis were performed between variables to clarify the relationship between loneliness, general self-efficacy, and satisfaction with life. According to Zhonglin Wen's three-step method, the intermediary effect test procedure is performed to test the relationship between the variables in turn (Wen et al., 2004), that is, loneliness is used as the independent variable, self-efficacy is generally the intermediary variable, and satisfaction with life is the dependent variable. Moreover, perform sequential regression analysis. P < 0.05 is considered statistically significant.

Results

Overall Situation

The results showed that Left-behind middle school students' loneliness was higher than that of non-left behind middle school students. Simultaneously, self-efficacy and satisfaction with life were lower than those of non-left behind middle school students, and both had statistical significance (**Table 1**).

Table 2. Demographic Variables Analysis of Loneliness of Left-Behind and Non-Left-Behind Middle School Students.

| | | Loneliness | | | |
		Left-Behind Middle School Students	**Non-Left-Behind Middle School Students**	***t***	***Cohen' sd***
Gender	Male	41.27 ± 8.8	39.88 ± 9.11	3.03**	0.16
	Female	42.75 ± 10.07	41.65 ± 10.07	2.09*	0.11
	t	-2.46*			
	Cohen' sd	0.16			
Live in School	Yes	41.77 ± 9.16	42.01 ± 9.84	-0.42	0.03
	No	42.28 ± 9.87	40.42 ± 9.54	3.70**	0.19
	t	-0.84			
	Cohen' sd	0.05			
Only Child	Yes	41.87 ± 9.16	40.55 ± 9.30	1.81	0.14
	No	42.03 ± 9.57	40.03 ± 9.57	3.25***	0. 21
	t	-0.23			
	Cohen' sd	0.02			

*Note: *P < 0.05, **P < 0.01, ***P < 0.001.*

Analysis of Loneliness on Various Demographic Variables

Survey results showed (**Table 2**):

1. The loneliness of girls Left-behind was higher than that of boys, and it was statistically significant. Whether it was a boy or a girl, the Left-behind's loneliness was generally higher than that of the non-left behind, and both were statistically significant.

2. The loneliness of non-live-in-school students Left-behind middle school students was higher than that of live-in-school, but it was not statistically significant. Among live-in-school students, the Left-behind's loneliness was slightly lower than that of the non-left behind, but it was not statistically significant. Among non-live-in-school students, the Left-behind's loneliness was higher than that of the non-left behind, and it was statistically significant.

3. The loneliness of non-only children among Left-behind middle school students was higher than that of only children, but it was not statistically significant. Among only children, the Left-behind's loneliness was slightly higher than that of the non-left behind, but it was not statistically significant. Among non-only children, the Left-behind's loneliness was higher than that of the non-left behind, and it was statistically significant.

Table 3. Demographic Variables Analysis of General Self-Efficacy of Left-Behind and Non-Left-Behind Middle School Students.

		General Self-Efficacy			
		Left-Behind Middle School Students	Non-Left-Behind Middle School Students	*t*	*Cohen' sd*
Gender	Male	23.85 ± 8.53	24.35 ± 5.78	-1.68	0.08
	Female	23.49 ± 5.66	23.93 ± 5.59	-1.49	0.08
	t	0.98			
	Cohen' sd	0.06			
Live in School	Yes	24.04 ± 5.75	23.97 ± 5.60	0.23	0.01
	No	23.19 ± 5.72	24.19 ± 5.72	-3.33**	0.18
	t	2.29*			
	Cohen' sd	0.15			
Only Child	Yes	23.99 ± 6.05	24.37 ± 5.83	-0.83	0.06
	No	23.58 ± 5.65	24.11 ± 5.67	-2.27*	0.09
	t	0.96			
	Cohen' sd	0.07			
Note: *P < 0.05, **P < 0.01, ***P < 0.001.					

Analysis of General Self-Efficacy on Various Demographic Variables

Survey results showed (**Table 3**):

1. The self-efficacy of Left-behind boys was slightly higher than that of Left-behind girls, but it was not statistically significant. Whether it was a boy or a girl, the self-efficacy of Left-behind was generally slightly lower than that of non-left behind, but no statistical significance existed.

2. The self-efficacy of live-in-school students among Left-behind middle school students was higher than that of non-live-in-school students, and it was statistically significant. Among live-in-school students, the Left-behind self-efficacy was slightly higher than that of non-left behind, but it was not statistically significant. Among non-live-in-school students, the Left-behind's self-efficacy was lower than that of the non-left behind, and it was statistically significant.

3. The self-efficacy of the only child Left-behind middle school students was slightly higher than that of the non-only child, but it was not statistically significant. Among the only children, the Left-behind's self-efficacy was slightly lower than that of the Left-behind, but it was not statistically significant. Among non-only children, the Left-behind's self-efficacy was lower than that of the non-left behind, and it was statistically significant.

Table 4. Demographic Variables Analysis of Satisfaction with Life of Left-Behind and Non-Left-Behind Middle School Students.

| | | Satisfaction with Life | | | |
		Left-Behind Middle School Students	Non-Left-Behind Middle School Students	*t*	*Cohen' sd*
Gender	Male	177.60 ± 27.46	181.32 ± 26.80	-2.73**	0.14
	Female	174.48 ± 30.50	178.70 ± 29.28	-2.71**	0.14
	t	1.68			
	Cohen' sd	0.11			
Live in School	Yes	177.39 ± 29.22	180.11 ± 27.41	-1.62	0.10
	No	174.33 ± 28.65	180.11 ± 28.14	-3.90***	0.20
	t	1.64			
	Cohen' sd	0.11			
Only Child	Yes	176.76 ± 29.64	179.58 ± 28.33	-1.25	0.10
	No	175.86 ± 28.81	180.21 ± 27.95	-3.73***	0.15
	t	0.42			
	Cohen' sd	0.03			

Note: *P < 0.05, **P < 0.01, ***P < 0.001.

Analysis of Satisfaction with Life on Demographic Variables

Survey results showed (**Table 4**):

1. The satisfaction with boys' lives was slightly higher than that of girls Left-behind, but it was not statistically significant. Whether it was a boy or a girl, the satisfaction with life of the Left-behind was lower than that of the non-left behind, and both had statistical significance.

2. The satisfaction with life of live-in-school students among Left-behind middle school students was higher than that of non-live-in-school students, but it was not statistically significant. Among live-in-school students, the satisfaction with life of the Left-behind was lower than that of the non-left behind, but it was not statistically significant. Among non-live-in-school students, the satisfaction with life of the Left-behind was lower than that of the non-left behind, and it was statistically significant.

3. The satisfaction with the only child Left-behind middle school students was higher than that of the non-only child, but it was not statistically significant. Among only children, the satisfaction with life of the Left-behind was slightly lower than that of the non-left behind, but it was not statistically significant. Among the non-only children, the satisfaction with life of the Left-behind was lower than that of the non-left behind, and it was statistically significant.

Table 5. Correlation Analysis of Loneliness, General Self-Efficacy, and Satisfaction with Life of Left-Behind Middle School Students.

	General Self-Efficacy	Loneliness
Satisfaction with Life	0.43**	-0.62**
Friendship Satisfaction	0.43**	-0.47**
Family Satisfaction	0.31**	-0.51**
Academic Satisfaction	0.43**	-0.97**
Free Satisfaction	0.34**	- 0.42**
School Satisfaction	0.23**	-0.53**
Environmental Satisfaction	0 .17**	-0.52**
Loneliness	-0.21**	1.00

*Note: *P < 0.05, **P < 0.01, ***P < 0.001.*

Correlation Analysis of Loneliness, General Self-Efficacy, and Satisfaction with Life of Left-behind Middle School Students

Table 5 shows that Left-behind middle school students' general self-efficacy is positively correlated with satisfaction with life. The same is true for all dimensions of satisfaction with life. Generally, self-efficacy is negatively correlated with loneliness. There is a negative correlation between loneliness and satisfaction with life and a negative correlation in specific dimensions.

Loneliness and Satisfaction with Life: Analysis of the Mediation Effect of General Self-Efficacy

According to the results of the correlation analysis, it was found that there is a negative correlation between loneliness and satisfaction with life in Left-behind middle school students, a positive correlation between self-efficacy and satisfaction with life, and a negative correlation between loneliness and self-efficacy. However, the causal relationship between the three was not clear. Therefore, the procedural test method was used to verify further whether there was a mediating effect (Wen et al., 2004).

Step 1. Take loneliness as the independent variable and satisfaction with life as the dependent variable to investigate loneliness's regression analysis on life satisfaction. The results showed that loneliness could predict life satisfaction, and the net explanation of variance was 37.8%.

Step 2. Take loneliness as the independent variable and general self-efficacy as the dependent variable to investigate loneliness's regression analysis on general self-efficacy. The results showed that loneliness could predict general self-efficacy, and the net explanation of variance was 5.5%, P < 0.01.

Table 6. The Mediating Role of Left-Behind Middle School Students' General Self-Efficacy in Loneliness and Satisfaction with Life (R Value).

	Predictor Variable	Outcome Variable	R^2	F	β	t
1st Step	Loneliness	Satisfaction with Life	0.38	2,571.93***	-0.62	-50.71***
2nd Step	Loneliness	General Self-Efficacy	0.06	245.44***	-0.23	-15.67***
3rd Step	Loneliness	Satisfaction with Life	0.47	1,837.81 ***	-0.54	-47.01***
	General Self-Efficacy				0.30	26.20***

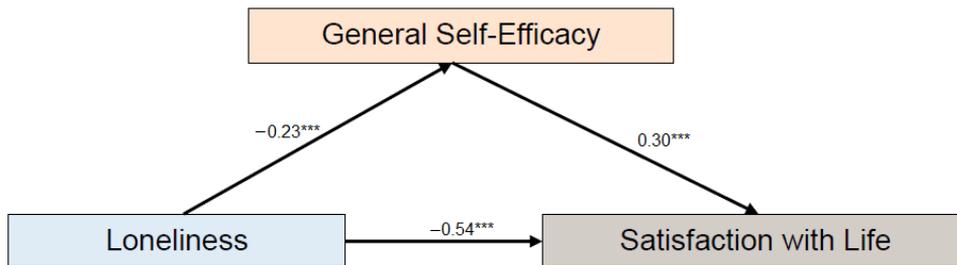Note: *P < 0.05, **P < 0.01, ***P < 0.001.

Figure 1. The Mediating Role of General Self-Efficacy between Loneliness and Satisfaction with Life.

Step 3. Use loneliness and general self-efficacy as independent variables and satisfaction with life as dependent variables to test the former's regression analysis. It was found that after introducing the general self-efficacy into the equation, the main effect of loneliness on satisfaction with life increased (from β = -0.62 to β = -0.54), and the net explanatory amount of variance increased to 46.5%. This showed that general self-efficacy plays a mediating effect between loneliness and satisfaction with life. The results are shown in **Table 6** and **Figure 1**.

Discussion

Analysis of the Results of the Loneliness in Left-behind Middle School Students

This study shows that the loneliness of Left-behind middle school students is significantly higher than that of non-left behind middle school students. This once again verifies that children Left-behind will experience more loneliness (Ren et al., 2020). Left-behind Due to long-term separation from their parents, children significantly lack emotional communication with their parents. Their personalities tend to become introverted, withdrawn, and have low gregariousness (Liu et al., 2007). They tend to feel lonely.

What is more noteworthy is that the loneliness of Left-behind girls is significantly higher than that of Left-behind boys, which is different from previous studies (Ren et al., 2020). Due to the unique delicate and sensitive emotional characteristics of girls' gender, their performance in adolescence becomes more apparent, making them more prone to mood swings when encountering frustration or stress, thus exhibiting symptoms such as anxiety, tension, and depression. The particular living state of Left-behind is more likely to lead to their lonely inner experience.

When investigating the impact of live-in-school on the loneliness of Left-behind middle school students, this study showed a phenomenon that was rarely involved in previous studies, that is, the loneliness of Left-behind live-in-school students was lower than left-behind non-live-in-school students and non-left behind live-in-school students. This is somewhat inconsistent with previous studies. When surveyed with general rural elementary and middle school students, the loneliness of live-in-school students was significantly higher than that of non-live-in-school students (Huang et al., 2009), which may be due to Huang et al. did not distinguish between Left-behind and non-left behind status. Another reason for the low loneliness of students who were left-behind live-in-school may be that their live-in-school experience has increased the interaction with peers and the integration in the group, to some extent, alleviated their loneliness.

Although the loneliness of Left-behind live-in-school students is lower than that of Left-behind non-live-in-school students and non-left behind live-in-school students, there is a difference between them. It is not significant. This may be due to the uneven collection of Left-behind and non-left behind samples in this study. Besides, the difference in the effects of live-in-school and only-child status on the Left-behind loneliness was not statistically significant. However, it can be seen from the data that the loneliness of live-in-school Left-behind students was lower than non-live-in-school Left-behind students, and the loneliness of only-child Left-behind students was lower than non-only-child Left-behind students. This result may be related to that live-in-school increases the chances of peer interaction; that is, more companions reduce the loneliness experience of live-in-school Left-behind students. Students with only children Left-behind became the only concern of parents. Multiple children would weaken parents' attention to a child, resulting in slightly higher loneliness of students who were not only-child Left-behind than those who are only-child Left-behind.

Analysis of General Self-Efficacy Results of Left-behind Middle School Students

This study also found significant differences in general self-efficacy between Left-behind middle school students and non-left behind middle school students, consistent with previous studies (Zhao et al., 2012). Specifically, Left-behind middle school students' general self-efficacy was significantly lower than that of non-left behind middle school students. Moreover, this study further found that the self-efficacy of live-in-school Left-behind students is higher than that of non-live-in-school Left-behind students. This shows that live-in-school has a positive effect on the self-efficacy training and development of Left-behind middle school students. This is similar to the results of the aforementioned loneliness. Live-in-school students study and live with their peers for a long time and spend relatively little time alone. In addition, teachers and live-in-school students get along day and night, to a certain extent, to make up for the lack of parents' absence, and their care and encouragement will also make Left-behind children more confident (Qi & Yang, 2013).

Analysis of the Results of Satisfaction with Life in Left-behind Middle School Students

Also, Left-behind with previous studies, the satisfaction with life Left-behind loneliness above was significantly lower than that of non-left behind ones (Su, 2017). We believe that the right family education environment is also an essential impact on children's satisfaction with life, especially parents' companionship and care (Song et al., 2018). Children in the Left-behind state lack family support and timely empathy and supervision from their parents, which will undoubtedly increase the emotional distress and various pressures of Left-behind children (Wen & Lin, 2011), thereby reducing the happiness of Left-behind students sense. Although the parents and the student may not separate around all the year-round, the parents can communicate with the children regularly through the Internet media, inquire about the children's learning and living conditions, partially compensate for the lack of parent-child communication and parental companionship of the Left-behind children, and improve their physical and mental development and social adaptation (Niu et al., 2019).

Analysis of the Mediating Role of General Self-Efficacy between Loneliness and Satisfaction with Life

This study explored the relationship between the loneliness of Left-behind middle school students, general self-efficacy, and satisfaction with life through intermediary analysis and found that Left-behind middle school students' loneliness can directly negatively predict satisfaction with life. This is consistent with previous studies on the elderly population (Wang & Yao, 2020), but it is different from the university student population (Turan, 2020). This may be due to the difference between the Left-behind children and the elderly passively facing the lack of family intimacy (Ye et al., 2016). At the same time, because one or both parents are not around, the interaction between the Left-behind child and the parent is reduced, which is not conducive to the formation of a secure attachment relationship, and it will also negatively affect the Left-behind

child to form a favorable and trustworthy relationship with other people such as peers and teachers (Ren, 2020). When the Left-behind middle school students with higher loneliness are subjectively evaluating their living conditions, they do not get enough support from others and cannot meet their psychological expectations; they are likely to generally show a low level of life satisfaction. Secondly, generally, self-efficacy plays a part in the intermediary role between loneliness and satisfaction with life. In other words, the loneliness of Left-behind middle school students will affect their satisfaction with life, part of which is generated through general self-efficacy mediation. According to Bandura's self-efficacy theory, other factors that affect self-efficacy include support from others, mental state, and personality. Loneliness belongs to the individual's internal psychological state and is an essential factor affecting self-efficacy (Yong & Du, 2019). Also, multiple studies have found that damaging loneliness may cause depression, low self-esteem, and shyness, and other psychological and behavioral manifestations (Dai et al., 2017; Li et al., 2013), and tend to withdraw and deny themselves, thereby reducing self-efficacy, which impact on life satisfaction. Also, loneliness negatively predicts general self-efficacy, and general self-efficacy positively predicts satisfaction with life, which fully supports the theory of children's psychological resilience. That is, general self-efficacy, as a protective factor, can help Left-behind children actively cope with loneliness caused by disadvantaged situations; at the same time, this also suggests that we can improve children's satisfaction with life the general self-efficacy of Left-behind children.

Significance and Application Value of the Study

The mental health of children Left-behind in China has been a hot issue that society has paid close attention to in recent years. This problem's emergence and response are related to all aspects of family, school, and society. According to the results of this study, the loneliness experience of Left-behind middle school students is reduced. At the same time, their self-efficacy is improved, which can effectively improve their satisfaction with life. In order to realize this vision, some work can be done from the following aspects.

1. **School Level.** The emphasis is on creating a harmonious campus and class atmosphere to form a good relationship between peers and teachers. Consider carrying out group counseling activities to enhance the self-esteem and self-confidence of Left-behind middle school students. It can also help Left-behind middle school students actively cope with bad emotional experiences such as loneliness and anxiety through case consultation and behavior modification. According to this study's results, choosing boarding schools for Left-behind middle school students may be a useful measure because boarding schools generally implement closed management, which has a good supervision effect on Left-behind children. Moreover, it can reduce the bad behavior problems caused by an unsupervised state. For live-in-school students, the time spent with peers and teachers is significantly longer. The school teacher temporarily assumes the role of "surrogate parent," supervises students' learning while tak-

ing care of their lives, and can promptly find out their learning, life, and psychological problems and provide help and guidance, so the support from peers and teachers can significantly reduce the loneliness of the Left-behind students.

2. **Family Level.** Left-behind children's parents cannot be with them, but they should try their best to contact the child, strengthen communication with the child, and understand their problems and needs. The object of this research is Left-behind, middle school students. The physiology and psychology of children of this age are undergoing tremendous changes, and they are prone to deviations in their outlook on life and values. They tend to keep some troubles and confusions in their hearts. On the one hand, parents must understand the physical and mental changes of children during a particular period, and on the other hand, they must spare no effort to provide them with timely help. Although the barrier of physical distance, in reality, cannot make parent-child closer contact, with the help of some modern communication tools, it is still possible to maintain close contact with children at a psychological distance. Even if just listen to children's confession is a great relief and support to them.

3. **Individual Level.** According to the well-known psychologist Erikson's theory of personality development, children in middle school are in puberty, and their instincts will bring some problems. It is incredibly easy to feel confused when facing new social requirements and social conflicts. The biggest crisis at this stage is self-identity and role confusion. It is even more critical for Left-behind middle school students to learn to understand themselves from multiple angles correctly. By participating in some beneficial group activities to expand their friends, they accumulate more positive emotional experience, based on proper attribution to face the negative emotions in their lives. Of course, students must also learn to seek all kinds of social support activities and use others' power to gain personal growth, improving self-efficacy.

There are still some shortcomings in this research that need to be improved in future research. First of all, this study adopts a cross-sectional design to reveal the simultaneity relationship between loneliness, general self-efficacy, and life satisfaction. Studies have shown that loneliness has a significant upward trend in adolescence. Adolescents in grades 7 and 8 spend more time alone than children in grades 5 and 6, and their attitude towards being alone is more favorable (Liu et al., 2013). Therefore, it is necessary to adopt a tracking design in the future to examine the development and changes of Left-behind children's loneliness, general self-efficacy, and satisfaction with life over a more extended period, as well as possible dynamic connections, in order to fully and deeply clarify the impact of loneliness on satisfaction with life of children of a certain age in the context of Left-behind. Secondly, this study only reveals the influence of general self-efficacy on satisfaction with life. According to Bandura's self-efficacy theory, self-efficacy is affected by individual success experience, others' substitution experience, verbal persuasion, and physical and emotional states. In the future, based on existing research, tentative interventions can be made on the general self-efficacy of

Left-behind children to clarify the mechanism of general self-efficacy between loneliness and satisfaction with life more clearly and comprehensively.

Conclusions

This study draws the following conclusions:

1. The loneliness experience of Left-behind middle school students is significantly higher than that of non-left behind middle school students. The loneliness experience of girls is significantly higher than that of boys.

2. The general self-efficacy of Left-behind middle school students is significantly lower than that of non-left behind middle school students. The self-efficacy of live-in-school Left-behind students is significantly higher than that of non-live-in-school Left-behind students.

3. The level of satisfaction with Left-behind middle school students' life is significantly lower than that of non-left behind middle school students. However, there is no significant difference in factors such as gender, live-in-school, an only child.

4. Loneliness negatively predicts general self-efficacy and satisfaction with the life of Left-behind middle school students. General self-efficacy plays an intermediary role in the relationship of loneliness, predicting satisfaction with life.

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