

# Relationship between mental health and awareness of the knowledge on mental health in left-behind middle school students

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## Abstract

To explore the relationship between mental health of left-behind middle school students and awareness of mental health.

Using cluster sampling method to select 428 left-behind middle school students in Jinan, using the mental health scale of middle school students and self-compiled mental health cognitive attitude questionnaire.

We found left-behind middle school students' mental health level of force, paranoia, hostility and interpersonal sensitivity, depression, anxiety, learning pressure, maladjustment, mood swings, the psychological imbalance and total score were significant difference compared with the norm of middle school students ( $t = 10.67, 3.86, 3.78, 7.54, 2.51, 10.18, 8.79, 3.54, 6.56, -2.13, 6.83, P < .05$ ). The top 5 detection rates of psychological moderate health problems are learning stress, anxiety, force, emotional instability and interpersonal sensitivity. There were significant differences in the scores of left-behind middle school students with different awareness of mental health knowledge ( $F = 4.880, P < .01$ ) and emotional instability ( $F = 4.514, P < .05$ ). The awareness of mental health knowledge was significantly negatively correlated with the total score of mental health, hostility, interpersonal sensitivity, maladjustment, emotional instability, and psychological imbalance scores. ( $r = 0.135, 0.182, 0.194, 0.189, -0.2, 0.124, P < .05$ ).

Left-behind middle school students' psychological health status is poorer, and closely related with the awareness of the knowledge on mental health; to improve the level of cognitive evaluation of left-behind middle school students on mental health is expected to improve their psychological health.

**Abbreviations:** ANOVA = analysis of variance, MMHI-60 = Mental Health Inventory of Middle School Students-60.

**Keywords:** cognitive evaluation, left-behind middle school students, mental health

## 1. Introduction

The adolescent period characterized by its transitivity and contradiction which is called the "hurricane period" in the individual life process and it is fastigium of kinds of mental illness.<sup>[1-3]</sup> In recent years, the World Health Organization has classified rapid social changes as a major factor affecting

individual mental health. China is currently in a period of rapid economic and social transition. The mental health and social problems caused by social factors have become increasingly prominent.<sup>[4]</sup> The study has reviewed the mental health of young people in the Mainland in the past decade. About 10% to 30% of middle school students have different degrees of psychological problems.<sup>[5]</sup> Professor Xin Ziqiang has confirmed that there is a downward trend in students' mental health.<sup>[6]</sup> Yu Guoliang's research pointed out that social transformation is the most important social factor for mental health of junior high school students in China.<sup>[7]</sup> So the economic transformation, urbanization, education system reform and other social factors have great impact on young people's life and learning. Adolescents who are in the critical period of physical and mental development have become high-risk groups for mental health problems. High-risk groups such as left-behind secondary school students have appeared.<sup>[8,9]</sup>

The development and education of left-behind students' mental health have attracted widespread attention. The study found that parent-child separation, lack of affection are extremely detrimental to the growth of left-behind children and these children are prone to have a series of psychological and behavioral problems.<sup>[10-12]</sup> There is little research on their cognitive status of mental health. Cognitive factors, as an important part of stress psychological intermediation,<sup>[13-15]</sup> can lead to different physical and mental reaction. The stress theory believes that individuals will mobilize their own resources and social resources to respond to life changes or psychological stresses. Their behavioral strategies include changing their own lifestyle to adapt to new environment, adjusting cognitive strategies to be more objective and accurate to evaluate life challenges, and finding social

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support to solve problems. Among them, the cognitive evaluation of stress events directly affects the individual's coping activities, psychosomatic reactions and health status, which is one of the key mediating factors of the stress process.<sup>[13-15]</sup> Therefore, the research on the individual's cognitive status about mental health and their relationship can help to develop more targeted mental health education. Based on the background of social transformation, the study plans to comprehensively examine the mental health status of left-behind middle school students and examine its relationship with cognitive evaluation in order to timely and accurately get the dynamic trends of mental health of this high-risk group and provide empirical research foundation for effective construction of mental health education model.

## 2. Materials and methods

### 2.1. Study population

The cluster sampling method was used to select the left-behind students from 5 middle schools in Jinan as participants, and 428 questionnaires were given out to the students. The 396 valid questionnaires were received, with an effective rate of 92.5%. There were 210 males and 186 females. The age range was 13 to 18 ( $16.00 \pm 1.07$ ) years old.

### 2.2. Mental health inventory of middle school students (MMHI-60)

MMHI-60 was compiled by Wang Jisheng et al<sup>[16]</sup>, and used to measure the level of mental health of middle school students. A total of 60 items in the scale are divided into 10 subscales using Likert 5-point scoring (1 for "none", 2 for "mild", 3 for "moderate" and 4 for "bias "Heavy", 5 for "Serious"). Assess the mental health status of middle school students according to the total scores of each subscale and scale: 2 to 2.99 points indicate mild mental health problems, 3 to 3.99 points indicate moderate mental health problems, and 4 to 4.99 points indicate that there are more serious mental health problems. A score of 5 indicates that there are very serious mental health problems. The subscales and overall internal consistency coefficients in this study were 0.557 to 0.957.

### 2.3. Self-compiled mental health cognitive attitude questionnaire

Procedures:

1. Determine the three aspects to be investigated, namely: cognition of basic mental health; cognition of psychological counseling and treatment; attitudes towards psychological patients who seek professional psychological help. Then, questionnaires were sent to undergraduates majoring in clinical medicine and the above-mentioned three aspects were examined in the form of questions and answers.
2. Five graduate students in medical psychology prepared the draft of the questionnaire based on the collected information; at the same time, they applied small-scale tests and proposed amendments
3. Prepare the second draft based on the addition, deletion, and revision of the questions and options for the small-scale survey; at the same time, make a small-scale survey and listen to the suggestions of the participants.
4. The finalized questionnaire includes 20 items (single-choice questions) that examine 3 aspects: Awareness of basic mental health knowledge: including 10 items, using a 0 to 4 five-grade scale.

The higher the score, the more knowledge of basic mental health knowledge is understood; Cognition of psychological counseling and treatment related knowledge: including 5 items, using 0 to 4 grade 5 scores, the higher the score, the more knowledge of psychological counseling and treatment; Attitudes to mental illness patients who seek professional psychological help: Including 5 items, using 0 to 4 grade 5 scores, the higher the score, the more active the attitude is. All questions scored together, the higher the score, the more active the cognitive evaluation of mental health is.

In this study, standardized and trained researchers distributed and recovered questionnaires to participants by using standard guides to explain the purpose and significance of the study and obtained the informed consent of the participants.

### 2.4. Statistical analysis

Double EpiDate 3.1 data entry was used to ensure the accuracy of the data. SPSS 23.0 statistical software was used to process the data, and the measurement data was expressed as ( $\bar{X} \pm s$ ). The independent sample t-test and one-way analysis of variance (ANOVA) were used for the comparison between groups. The relationship between mental health and the cognition of mental health of left-behind middle school students were analyzed by Pearson correlation analysis with  $P < .05$  as the inspection level.

## 3. Result

### 3.1. Left-behind middle school students' mental health score

Left-behind middle school students' MMHI-60's score and its comparison with the norm of middle school students<sup>[16]</sup> and the detection rate are shown in Table 1. The results of the study showed that, except for the psychological disequilibrium factor, the other factors' average and the total average were higher than the norm of middle school students. The difference was statistically significant. The detection rates of factor scores  $\geq 3$  (medium severity) ranked in the top 5 (the problem is more common) are learning pressure, anxiety, obsessive-compulsive, mood swings, and interpersonal sensitivity. The overall rate of detection of psychological symptoms is approximately 9%.

### 3.2. Comparison of mental health levels of left-behind middle school students at different cognitive levels

Divide the score of Mental Health Awareness and Attitude Questionnaire into the first 30% (low), middle 40% (middle), and last 30% (High). The mean and average scores of the MMHI-60 factors were compared. The results showed that there was a significant difference in the 2 factors of maladjustment and mood swings. The difference was statistically significant. To further compare the differences between the groups, the low cognitive group was significantly higher than the middle and high cognitive groups in the scores of mal-adjustment; the low cognitive group was significantly higher than the high cognitive group in the scores of mood swings. All have statistical significance (Table 2).

### 3.3. Relationship between mental health status and awareness of mental health

The results of the study showed that there are negative correlations between cognitive scores on Left middle school

**Table 1**  
The mental health score of left-behind middle school students.

Dimension	Left-behind middle school students (n=396)	Norm (n=2446)	t	≥3 detection rate (%)
Force	2.27±0.72	1.89±0.61	10.67***	18.7
Paranoid	1.89±0.68	1.76±0.68	3.86***	8.1
Hostility	1.86±0.75	1.72±0.75	3.78***	10.6
Interpersonal sensitivity	2.15±0.80	1.85±0.73	7.54***	14.1
Depression	2.01±0.74	1.92±0.67	2.51*	9.1
Anxiety	2.25±0.87	1.81±0.75	10.18***	19.1
Learning Pressure	2.35±0.96	1.92±0.67	8.79***	22.2
Maladjustment	2.04±0.66	1.92±0.62	3.54***	9.1
Mood swings	2.23±0.77	1.98±0.70	6.56***	18.2
Psychological imbalance	1.88±0.70	1.95±0.65	-2.13*	7.6
Average score of mental health	2.09±0.62	1.88±0.57	6.83***	8.6

All values are means ±SD; P values by t test

\*\*\* P<.001.

\*\* P<.01.

\* P<.05.

**Table 2**  
Comparison of mental health levels of left-behind middle school students at different cognitive levels.

Dimension	Low (n=120)	Medium (n=162)	High (n=114)	F
Force	2.33±0.67	2.22±0.70	2.30±0.77	0.969
Paranoid	1.91±0.51	1.90±0.72	1.87±0.78	0.137
Hostility	1.97±0.74	1.80±0.74	1.83±0.76	1.947
Interpersonal sensitivity	2.27±0.75	2.10±0.80	2.09±0.85	2.107
Depression	2.02±0.68	2.00±0.67	2.01±0.89	0.130
Anxiety	2.26±0.74	2.25±0.86	2.25±1.00	0.005
Learning pressure	2.44±0.83	2.28±0.75	2.34±1.30	1.002
Maladjustment	2.19±0.64	1.95±0.62	2.00±0.70	4.800**
Mood swings	2.39±0.80	2.21±0.73	2.10±0.79	4.514*
Psychological imbalance	1.99±0.63	1.80±0.66	1.87±0.79	2.538
Average score of mental health	2.18±0.53	2.05±0.60	2.07±0.73	1.597

All values are means ±SD; P values by analysis of variance (ANOVA) with the least significant difference (LSD) post-hoc comparison tests.

\*\* P<.01.

\* P<.05.

students' mental health and total scores and factors' respectively scores of mental health. There was statistically significant correlation between the total score of mental health and the 5 factors of hostility, interpersonal sensitivity, maladjustment, mood swings, and psychological imbalance, as shown in Table 3.

**3.4. Regression analysis between mental health status and awareness of mental health**

Regression analysis of mental health status and cognitive evaluation of left-behind middle school students takes gender as control variable, cognitive evaluation of mental health negatively predicted mental health shown in Table 4.

**4. Discussion**

The results of this study indicate that the average score of MMHI-60 in left-behind middle school students is significantly higher than that of the norm of middle school students, and that about 9% of left-behind middle school students have reached moderate severity. The detection rate of "moderate severity" of factors such as obsessive-compulsive, anxious, learning stress, and emotional instability is over 15%, which is consistent with the results of many studies in which left-behind children were involved.<sup>[17,18]</sup> Left-behind middle school students' psychological problems are mainly manifested in low levels of self-confidence, more compulsive behaviors and concepts; self-inflicted learning burdens, difficulties in coping with everyday learning, and unstable academic performance; often experiencing fear and

**Table 3**  
Correlation analysis of mental health cognitive assessment and mental health of middle school students.

	Force	Paranoid	Hostility	Interpersonal sensitivity	Depression	Anxiety	Learning pressure	Mal-adjustment	Mood swings	Psychological imbalance	Mental health
Cognitive attitude	-0.031	-0.081	-0.182***	-0.194***	-0.040	-0.079	-0.013	-0.189***	-0.200***	-0.124*	-0.135**

\*\*\* P<.001.

\*\* P<.01.

\* P<.05.

**Table 4****Regression analysis of cognitive evaluation on mental health.**

Independent variable	Regression coefficient				$R^2$	$F$	$P$
	$\beta$	$SE$	$t$	$P$			
Norm	2.548	0.186	13.736	<.001	0.025	4.973	<.01
Cognitive attitude	-0.138	0.005	-2.761	<.01			

anxiety, uncertainty of reality and the future.; sensitive, impulsive, negative emotional experience, being hostile to others, difficulties in constructing a stable social network, and getting less social support. When they are in the face of stressful events, negative emotions such as anxiety and anger are more likely to occur, and the ability to control emotions is poor, thus creating a vicious circle. The period of middle school students is a crucial period for the formation and development of personality. The negative emotions, life and learning experiences emerging during this period will have a major impact on their personality, so the physical and mental health of left-behind students need to be paid much attention. With the lack of complete family education, parent-child communication and affectionate care, as well as the disconnection between home education and school education, it is of great significance to conduct appropriate psychological counseling and education care. The relationship between mental health and cognitive evaluation of left-behind middle school students

The accuracy of awareness of self and psychological wellbeing is highly correlated. We broaden the concept of insight to self-awareness of our contribution in the world. In essence, usage of insight in psychology often implies divergence between knowledge of self and knowledge of the outside world. Low insight closely linked to mood swings, maladjustment, psychological imbalance, hostility, and interpersonal sensitivity. Disturbance in psychological processes could result in disturbances of in sight. The results of the study show that left-behind middle school students' cognitive evaluation of mental health is closely related to their own mental health. The higher the cognitive attitude score is, the better their mental health is, which mainly manifests in five dimensions of mood swings, maladjustment, psychological imbalance, hostility, and interpersonal sensitivity. There are significant differences in the factors of mood swings and maladjustment among the low, middle, and high cognitive level groups. The psychological mediation mechanism of stress is composed of individual's cognitive evaluation, coping style, social support and personality characteristics. Left-behind middle school students who have a good cognitive assessment of mental health can view stressful events and adverse stress in the living and learning environment from a more rational and positive perspective, therefore, they are good at regulating their own emotion, and are good at discovering the beneficial aspects of pressure events, and can better accept the negative impact brought by the incident and make their emotion stable and positive, so as to reduce anxiety, hostility and other negative emotions. At the same time, active cognitive evaluation can reduce irrational beliefs caused by bad environment,<sup>[19]</sup> and can be analyzed and actively applied in the face of dilemmas and environmental changes. They can respond to problems and resolve dilemmas actively with social support, interpersonal resources, and adapt changes in the environment by using their own advantages, rather than taking bad behaviors such as attacks and violence. In the face of interpersonal conflicts, appropriate

cognitive evaluation can help the middle school students stay empathetic, and deal with the conflict from the offender's point of view, so as to create sympathy feelings with offenders and maintain a good interpersonal relationship.<sup>[20]</sup> Good interpersonal relationships and a stable social network can make them more enjoyable and improve the individual's mental health. Guiding significance of cognitive evaluation of mental health in the health education for left-behind middle school students.

The results of this study suggest that we should pay attention to the role of cognitive evaluation in the psychological health education for left-behind primary and middle school students. We should improve their cognitive evaluation strategies to psychological problems, adjust their behavioral strategies to correctly understand their left-behind environment and master the methods to deal with the external bad environment and internal bad feelings. Additionally, we should also help them maintain harmonious interpersonal relationships, trust the surrounding family and social environment maintain a positive attitude and learn to use their own resources to gain more achievements and well-being, and then assist them in forming a good personality, and ultimately advance their healthy development.

### Author contributions

**Data curation:** Jinjing Du, Zhongchen Li.

**Funding acquisition:** Qian Zhang.

**Methodology:** Wen Qiang Chen.

**Writing – original draft:** Guodong Jia.

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