

The Relationship between Hope and Suicidal Ideation among Chinese Junior High School Students: The Moderating Role of Gender

Yuntian Xie, Fan Lei, Qin Zhang, Jing Luo

Department of Applied Psychology, Changsha Normal University, China

ABSTRACT: In order to investigate the relationship between hope and suicidal ideation among junior high school students and the moderating effect of gender, a questionnaire survey was conducted among 1906 junior high school students in Ganzhou, Jiangxi Province, China. The results showed that : (1) there was a significant negative correlation between hope and suicidal ideation ($r=0.411$, $p<0.01$); (2) gender significantly moderated the relationship between hope and suicide ideation. Specifically, compared with boys in junior high school, girls' hope had a greater influence on suicidal ideation. Therefore, in the course of suicide intervention for junior high school students, gender differences should be considered and the quality of hope should be emphasized.

KEYWORDS— Hope, Suicidal Ideation, Junior High School Students, Gender

I. INTRODUCTION

Suicide is a public health security issue of common concern to the world, and also an important social issue facing the world [1]. It is one of the leading causes of death, especially among teenagers [2]. Adolescence is a critical and special period of individual physical and psychological development, and also a period of high incidence of various psychological and behavioral problems [3]-[4]. However, junior high school students are in an important stage of this period, their physical and psychological development is unbalanced, there are psychological conflicts such as independence and dependence, maturity and childish. They also lack experience in dealing with and solving problems in study and life, and are prone to suicidal ideation and behavior [5]-[6]. Therefore, it is of great practical significance to pay attention to and study suicidal ideation in junior high school students for identifying suicide groups and preventing suicide among adolescents.

Suicidal ideation refers to an individual's intention to end his or her life ideologically or cognitively [7], which is characterized by concealing, extensiveness, contingencies and differences [8]. It is an early psychological activity of suicide attempt and death, and an inevitable psychological process and important link of suicide behavior [9]. A meta-analysis involving 27 literatures showed that the detection rate of suicidal ideation among Chinese middle school students was 16.3% [10]. Another meta-analysis involving 32 literatures showed that the related factors of suicide ideation in middle school students involved 3 dimensions (personal, family and social) and 62 factors (e.g., few/no friends, bullying, etc.) [11]. Among these related factors, hope is regarded as a protective factor [12]. According to hope theory [13], hope is a positive motivational state, representing an individual's perception ability to pursue goals successfully, and includes path thinking (be able to identify possible target paths and ways to bypass obstacles) and dynamic thinking (cognition of an individual's ability and motivation to achieve goals by means of paths). Compared with individuals with low level of hope, individuals with high level of hope are more confident in difficulties and setbacks, and can find multiple paths to achieve goals, and have more positive emotions and expectations for the future [14]. Furthermore, individuals

with a higher level of hope are physically and mentally healthier [15]. In addition, some studies have found that the hope score of subjects in the group without suicidal ideation is higher than that in the group with suicidal ideation [16]. Based on this, hypothesis 1 was proposed: hope would beof significant negative correlation with suicidal ideation in junior high school students.

In addition, in the study of the formation mechanism of suicidal ideation, researchers found that the development path of suicidal ideation is different among adolescents of different genders [17]. Shen et al. (2021) found that gender moderated the relationship between self-esteem and suicide ideation [18]. Self-esteem is not only an important protective factor of individual mental health, but also closely related to positive psychological qualities such as hope [19]. Moreover, due to the influence of gender roles, girls are more emotionally susceptible than boys [20], and may gain more power from hope. Based on that, this study proposed hypothesis 2: gender would mediate the relationship between hope and suicidal ideation, and the effect of hope on suicidal ideation would be greater in girls than in boys.

To sum up, this study intends to construct a moderating effect model, so as to deeply explore the relationship between hope and suicidal ideation in junior high school students, and provide suggestions and references for suicide intervention in junior high school students.

II. METHODS

1.1 Subjects

A total of 1,979 questionnaires were sent out to four middle schools in Ganzhou city, Jiangxi province, China, and 1,906 (96.31%) were valid. Among them, 914 were male and 974 were female (18 did not specify their gender). 650 students were grade one, 587 students were grade two and 664 students were grade three (5 students did not fill in grade). The mean age was 14.089 years ($SD=1.012$), and the age range ranged from 12 to 17 years.

1.2 Research tools

1.2.1 Children's Hope Scale

Children's Hope Scale was compiled by Snyder et al. (1997) [21] and translated and revised by Zhao and Sun (2011) [22]. The scale consists of 6 items, including path thinking and dynamic thinking. A six-point Likert scale was used, with 1 being "never" and 6 being "always". A higher score indicates a higher level of hope. In this study, the α coefficient of the scale was 0.886.

1.2.2 Suicide Ideation Self-rating Scale.

Suicide Ideation Self-rating Scale was compiled by Xia et al. (2002) [23]. There are 26 entries, including four dimensions of despair, optimism, sleep and cover-up. Score points by answering yes or no. The higher the score is, the stronger the suicidal ideation is. In this study, the α coefficient of the scale was 0.796.

1.3 Research procedures and data processing

Group test was carried out in class. The questionnaire was answered anonymously and students were required to complete it within a specified time under a unified guidance of teachers. The questionnaire was collected on the spot after completion. SPSS25.0 was used to analyze the data. JASP 0.16.1.0 was used to draw boxplots.

III. RESULTS

1.1 Descriptive statistics and correlation analysis of main variables

The results of correlation analysis (see Table 1) showed that gender was significantly positively correlated with dynamic thinking, path thinking and hope, and significantly negatively correlated with suicidal ideation. There was a significant negative correlation between suicidal ideation and dynamic thinking, path thinking and hope. It was found that the dynamic thinking, path thinking and hope of boys in junior high school were significantly higher than that of girls, while the suicidal ideation of boys in junior high school was significantly lower than that of girls (see Table 2 and Figure 1).

Table 1 Mean, standard deviation and correlation coefficient of main variables

variables	<i>M</i>	<i>SD</i>	1	2	3	4	5
1.gender	0.484	0.500	1				
2.age	14.089	1.012	0.028	1			
3.dynamic thinking	3.313	1.165	0.080***	-0.111***	1		
4.path thinking	3.524	1.176	0.106***	-0.104***	0.763***	1	
5.hope	3.418	1.099	0.099***	-0.114***	0.938***	0.939***	1
6.suicidal ideation	6.488	4.883	-0.098***	0.029	-0.417***	0.355***	-0.411***

Note: In gender, "1" is "boys" and "0" is "girls" ; *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$ (the same below)

Table 2 Gender differences of main variables

	Dynamic thinking	path thinking	hope	suicidal ideation
male ($M \pm SD$)	3.411 \pm 1.235	3.649 \pm 1.213	3.530 \pm 1.147	5.989 \pm 4.663
female ($M \pm SD$)	3.223 \pm 1.090	3.400 \pm 1.130	3.312 \pm 1.044	6.948 \pm 5.054
<i>t</i>	3.483**	4.605***	4.309***	-4.287***
Cohen's <i>d</i>	0.161	0.213	0.199	-0.197

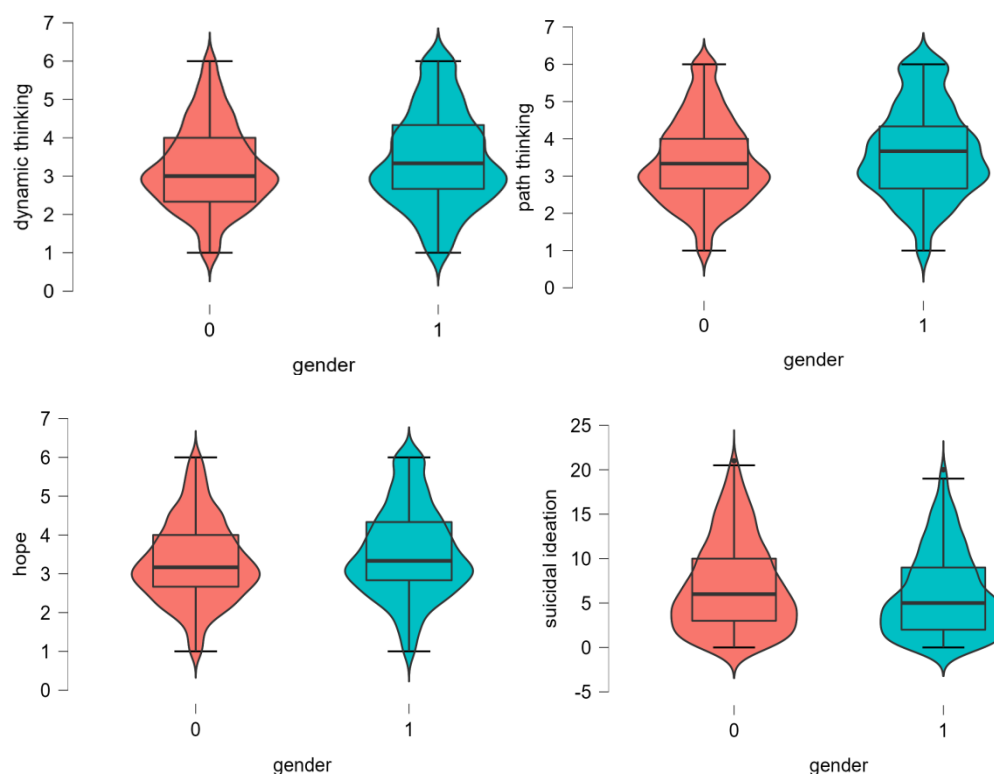


Figure 1 Boxplots of major variables

1.2 Test of moderating effect

Model 1 in the PROCESS macro program was used to test the moderating effect of gender on the relationship between hope and suicidal ideation. In the first step, age was taken as the covariable, hope and gender were the independent variables, and suicidal ideation was the dependent variable to form equation 1. In the second step, on the basis of equation 1, the interaction terms composed of hope and gender were added into the independent variables to form equation 2. As shown in Table 3, hope significantly negatively predicts suicidal ideation in Equation 1, $p < 0.001$ and the interaction term between hope and gender had a significant predictive effect on suicidal ideation ($p < 0.01$) in Equation 2, which suggested that gender plays a moderating role in the relationship between hope and suicidal ideation.

Table 3 Test of moderating effect

	Equation 1			Equation 2		
	(Dependent variable: suicidal ideation)			(Dependent variable: suicidal ideation)		
	<i>B</i>	<i>t</i>	95%CI	<i>B</i>	<i>t</i>	95% CI
age	-0.078	-0.760	[-0.283, 0.123]	-0.078	-0.760	[-0.282, 0.133]
gender	-0.571**	-2.755	[-0.971, -0.174]	-0.569***	-3.869	[-0.980, -1.168]
hope	-1.805***	-19.033	[-1.991, -1.619]	-2.123***	-15.420	[-2.400, -1.850]
hope×gender				0.598**	3.176	[0.223, 0.975]
R^2	0.171					0.176
<i>F</i>	128.920***					99.681***

In order to explain the moderating effect of gender on hope and suicidal ideation more intuitively and effectively, according to the score of hope level, the study divided the subjects into low hope group ($M-SD$) and high hope group ($M+SD$). A simple slope graph was drawn (see Figure 2). As can be seen from the slope plot, suicidal ideation decreased with the increase of hope level in both girls and boys. However, the effect of hope on suicidal ideation was greater in girls than in boys (girls: $B = -2.123$, $SE = 0.138$, $p < 0.001$; boys: $B = -1.525$, $SE = 0.129$, $p < 0.001$).

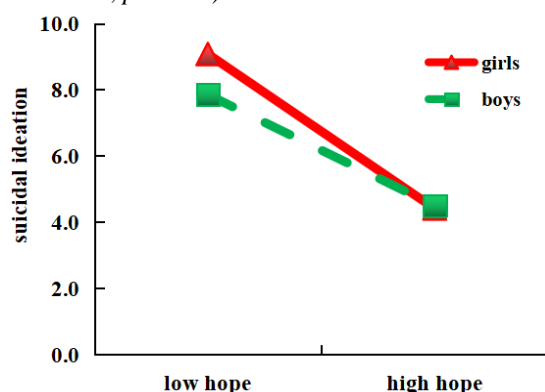


Figure 2 Simple slope diagram

IV. DISCUSSION

This study found that hope had significantly negatively predicted suicidal ideation among junior high school students. The higher level of hope of the individual, the less likely he or she is to have suicidal ideation.

This result is consistent with previous research findings [24]-[25], and reaffirms the protective effect of hope on suicidal ideation.

Hope helps produce better results in a variety of negative situations [26]. Studies have shown that individuals with high level of hope have higher academic achievements and higher life satisfaction [27]. Promising teenagers are goal-oriented and pursue progress by achieving personal goals [28]. A hopeful attitude can help adolescents overcome crises and adversities by planning a future full of choices and possibilities [29]. In addition, according to the cognitive model of suicidal behavior, suicide schema includes intolerability and trait despair, which influence the occurrence and development of suicidetogether. Some studies have pointed out that hope is a key factor for individuals to choose to persevere in confront of adversity [30]. Therefore, it is necessary to actively guide junior high school students who are in their rebellious period of youth to feel hope in study and life, in order to prevent or reduce the generation of suicide ideation. For junior high school students, school and family are their main places to studying and living. Teachers and parents play a very important role in the education of junior high school students. Therefore, according to the characteristics of physical and mental development of junior high school students, combined with their problems in curriculum learning, interpersonal relationship and emotional management, specific path thinking training should be carried out for them, so that they can get rich positive experience and improve their level of hope. By organizing students to carry out educational activities with the theme of hope (class meeting, speech contest, debate contest, etc.), make students experience and feel the beauty of learning and life, and guide them to enjoy and be enthusiasm for them. As for parents, they should show more respect, care and support to their children. They should be more tolerant and have more understanding to their adolescent children, and make friends with them so that they can feel that life is full of hope and tomorrow is especially beautiful.

In addition, this study also confirmed hypothesis 2, which not only found that girls' hope level was lower and suicide ideation was higher than boys', but girls' suicide ideation was also more significantly affected by hope than boys'. In other words, for girls, hope plays a more prominent protective role in the development of suicidal ideation. Studies have also pointed out that there are gender differences in adolescents' adaptation to their environment and pressure [31]. Compared with boys in junior high school, girls have more abundant inner feelings, are more sensitive to external stimuli, and are able to draw more energy from hope, thus influencing suicidal ideation more prominently and reducing the generation of suicidal ideation. For boys, the effect of hope on suicidal ideation was weaker. Junior high school students are in adolescence, and there are some differences between boys and girls in physical and psychological development. Compared with boys, girls have more delicate emotions and are more sensitive to some negative events and stressful events in life, and are more prone to negative emotions [32]. Therefore, it is necessary to pay attention to the gender differences between boys and girls in the intervention of suicide in junior high school students. For girls, we should pay more attention to the changes in their inner states, provide them emotional support, and guide them to understand themselves correctly and to feel hope. For boys, respect them more, communicate with them on an equal basis, listen to their worries and thoughts, help them analyze the factors behind suicidal ideation, and guide them to come up with effective solutions of the problem. Life is precious. Once lost, it can't be retrieved. Setting up a correct view of life and death can reduce the rate of the occurrence of suicidal ideation and suicidal behavior. Therefore, attention should be paid to mental health education. We should understand the physical and mental changes of junior high school students, pay attention to their inner needs and respect their ideas. Meanwhile, we should strengthen communication with their parents, actively guide them to accompany their children more and listen to their voices, so as to help junior high school students in adolescence gain more sense of security and trust [33]. We should pay attention to the construction of school mental health education curriculum, popularize mental health knowledge to students, and guide students to pay attention to their own mental health. Through individual psychological counseling, group psychological counseling and other activities, guide students to face life optimistically, improve their ability to deal with setbacks. In addition, life education should be strengthened to guide junior high school students to treat life and death correctly and understand the meaning of life. We should fully explore traditional cultural resources and guide junior high school students to comprehend life and life through the combination of online and offline forms. Moreover, teachers and parents should also be strict

with themselves, use their own words and deeds to influence students, and lead students to feel the beauty of life and precious life.

In conclusion, this study further discussed the relationship between hope and suicidal ideation on the basis of previous studies, which enriched the research on suicidal ideation and implicated for the prevention of adolescent suicide. Of course, there were some limitations to this study. First of all, this study was cross-sectional, so it was difficult to clarify the causal relationship between hope and suicide ideation. Secondly, the data collected in this study were from questionnaires, so various ways should be used in future researches to collect data. In addition, there may be other factors influencing the relationship between hope and suicidal ideation, which can be explored in further studies.

V. CONCLUSION

There is a close negative relationship between hope and suicidal ideation in junior high school students. Gender moderated the relationship between hope and suicidal ideation in junior high school students. Specifically, compared with boys, hope has a greater influence on suicide ideation in junior high school girls.

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