

# Various Types of Negative Life Events Among Youth Predict Suicidal Ideation: A Cross-Sectional Study Based on Gender Perspective

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## Abstract

We sought to investigate potential gender differences in various types of negative life events and suicidal ideation among Chinese high school and university students, as well as to analyze the interrelations between different types of negative life events and suicidal ideation among these young students. Participants were 2,018 high school and university students from northwestern China, who completed a demographics questionnaire and self-report measures of negative life events and suicidal ideation. Significant gender differences emerged in the types of negative life events reported and in students' degree of suicidal ideation. Within each gender group, different types of negative life events were predictive of the intensity of suicidal ideation. The present study provides evidence of the role of negative life events in predicting adolescents' and young adults' suicidal ideation regardless of their gender. However, gender differences did emerge in the specific type of negative life events that were predictive of suicidal ideation. For males, greater reports of punishment and adaptation had a significant positive impact on the intensity of their suicidal ideation. For females, greater reports of academic stress, personal loss, interpersonal relationships, and adaptation were all significantly and positively predictive of their suicidal ideation. Parents' marital status emerged as a significant indicator of suicidal ideation across genders, while age was significant negative predictor of suicidal ideation among females only.

## Keywords

negative life events, suicidal ideation, suicidology, adolescents, young adults, gender differences

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## Introduction

Suicide is one of the leading causes of human disability or death worldwide, accounting for 800,000 annual deaths globally (Heintz et al., 2020); it is a conscious act of self-induced annihilation (Alpert et al., 1951). The prevalence and impacts of suicidal thoughts and behaviors among youth have been of growing concern after the Millennium (Halford et al., 2020). Accordingly, its related risk and protective factors have become an increasingly popular topic of research (Brezó et al., 2010; Heering et al., 2011).

Given the common emotional susceptibility and vulnerability of adolescence, the problem of adolescent suicide is equally serious and critical in China, compared with existing Western societies (Lian et al., 2015; X.

Yang & Feldman, 2018), suicide death in China accounts for approximately 15% of all suicide death toll globally

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(Cheng et al., 2021) and is the eighth most common cause of years of mortality and second most common external cause of death (G. Yang et al., 2013), specifically, for major cause of death among Chinese youth (the United Nations General Assembly defines "youth" as those between the ages of 15 and 24 years old) (Akpoko & Kudi, 2007), suicide ranked second in 15 to 19 years old group and first in 20 to 24 years old group (Pan et al., 2021). Yet studies examining its underlying mechanisms have been largely constrained to Western countries and regions (such as North America and Europe) where the majority of the population is White (X. Yang & Feldman, 2018). As a result, a substantial proportion of suicide research and its clinical implications have been based on data from Western populations, which largely ignores the nuances found in other cultural contexts.

Given the recent emphasis on principles of diversity and inclusion in research which have underscored the importance of extending research findings to be inclusive of, and relevant to, diverse contexts and cultures (Pengpid & Peltzer, 2020; Ran et al., 2015), a growing number of studies on suicidal behavior have emerged in non-Western contexts (Katsumata et al., 2010; Kim et al., 2006). These studies have provided novel insights into the phenomenon of suicide that are distinct from findings derived from Western contexts. For instance, relevant studies in China have reported that the suicidal related problem of adolescents between 14 and 28 years old is particularly prominent among high school students and university students, it's more prevalent among younger age groups (Zhang & Guo, 2003). International studies have noted that adolescents were more likely to engage in suicidal behavior relative to all other age groups (Halford et al., 2020). The World Health Organization has identified youth between 15 and 24 years old to be a high-risk group prone to suicidal ideation and subsequent suicidal behaviors and/or attempts (Glenn et al., 2020).

The emergence of suicidal behavior is not immediately triggered by the occurrence of stressful life events; rather, it is the result of a relatively slow process consisting of the accumulation and interplay of various psychological and environmental factors (e.g., neurobiological and genetic factors such as serum cholesterol and serotonin [5-HT] in cerebrospinal fluid; psychiatric factors such as depression, schizophrenia, persecution delusion, and posttraumatic stress disorder (PTSD); social psychological factors such as negative life events and social support) (Heeringa et al., 2011; Mann, 1999; Panesar et al., 2021; Rosenman, 2009). The National Institute of Health (NIH) of the United States has divided suicidal behavior into three successive stages: suicidal tendency/ideation, suicidal attempt/failure, and death by suicide. First among these is suicidal ideation, which is conceptualized as the desire and motivation to seek death in the absence of any practical action. Suicidal ideation is the early psychological

initialization of suicide attempts and death by suicide, appearing before the actual suicidal behavior as a precursor (Kessler et al., 1999). According to a study of Chinese middle school students, 5% of students who had experienced suicidal ideation subsequently engaged in actual suicidal behavior afterward (Sun et al., 2006), suggesting that suicidal ideation may be predictive of subsequent suicidal behavior among Chinese youth. An improved understanding of suicidal ideation and its mechanisms may be helpful for identifying youth at risk of engaging in suicidal behavior, thereby facilitating prevention efforts which may ultimately reduce complications and mortality from suicide.

As alluded to earlier, research has suggested that negative life events, defined as unpleasant events that have occurred in one's living environment and which bring about negative psychological, physiological, and behavioral consequences (e.g., failure in an exam, experiencing theft, losing a loved one, etc.) (Kendler et al., 2001), may be related to the occurrence of suicidal ideation and subsequent behaviors. Specifically, the psychological cumulative effect resulting from negative life events was found to be one of the frequently cited reasons identified by adolescents for engaging in suicidal behavior (J. Huang, 2011; Liang & Yang, 2021; B. Liu et al., 2019; Roberts & Chen, 2019). Relevant studies have demonstrated that the life stress brought about by negative life events plays a unique role throughout the stages of suicidal behavior; specifically, individuals who report higher levels of life stress tend to experience a greater degree of suicidal ideation (M. Zhao & Ji, 2000).

The above findings suggest that there may be a close relationship between suicidal ideation and negative life events. For instance, McAuliffe et al. (2003) identified that individuals who often experience great pressure or negative events in their daily life were more likely to report suicidal ideation. Studies on different vocational groups of people demonstrated that negative life events were closely related to individual suicidal ideation, and there would need to be a significant positive correlation existing (Tao & Zheng, 1999; Zhou et al., 2004; Zhu et al., 2013). Although we may infer from previous studies that negative life events would likely aggravate, to some extent, the potential for suicidal ideation among adolescents, the structure and source of negative life events should also be taken into consideration, given that different types of negative life events may differentially impact suicidal ideation among adolescents. In addition, potential gender differences in the impact of different types of negative life events and in suicidal ideation remain largely unexplored in non-Western contexts, especially under the context of related Chinese studies.

In addition, findings using gender analysis reported gender differences in suicidal ideation; in comparison

with female adolescents, the risk of suicidal ideation among males has increased in recent years (Norhayati et al., 2017). According to Freeman and colleagues (2017), suicidal ideations were rated significantly more frequently in males than females.

Recent research on these topics in China adolescents has not paid much attention on gender differences in the context of these variables discussed above. Since negative life events and suicidality have always been the forefront of related psychological, sociological, and demographic research (Franz et al., 2021; Kim, 2021; Roberts & Chen, 2019; Suzuki et al., 2020), which helps to explain gender bias, it is suggested that special attention should be paid to gender analysis under Chinese context.

Therefore, the study aims at testing whether different types of negative life events could become stress factors affecting young people's suicidal ideation and indicating whether there were gender differences in the process of impact of different types of negative life events on their suicidal ideation. The present study tries to indicate the significance of youth under the pressure of negative life events should indeed become the key intervention object of relevant health and psychological research, and also prove that the focus of follow-up health intervention and strategies for youth should be different due to gender differences.

The first objective of the present study was thus to assess potential group differences in (a) suicidal ideation, (b) overall reports of negative life events, and reports of specific types of negative life events (i.e., punishment, learning pressures, loss, interpersonal relationships, adaptation) among Chinese middle-high school and university students by conducting a series of one-way analyses of variance (ANOVAs), across genders. The second objective of this study was to determine the potential role of specific types of negative life events in predicting suicidal ideation by conducting two stepwise linear regressions to determine whether negative life events and other demographic variables were predictive of suicidal ideation, across genders.

Three research questions associated with two objectives above were listed as follows:

**Research Question 1A:** Would there be gender differences in suicidal ideation among youth?

**Research Question 1B:** Would there be gender differences in overall reports and reports of specific types of negative life events?

**Research Question 2:** Would the potential role of specific types of negative life events catalyze greater suicidal ideation intensity among youth across genders indicating they were risk factors?

## Materials and Methods

### Participants

Participants were a sample of 2,018 high school and university students (803 males, 1,215 females;  $M_{\text{age}} = 17.8$  years; age range: 14–25 years) recruited from six high schools and three universities in Western China. Written ethics approval was obtained from the Ethics Committee from School of Psychology, Shaanxi Normal University (Protocol Number: 18245; approved on July 12th, 2021; exempt protocol approval expiry–July 12th, 2023). Participant Information Sheets and Consent forms were approved by the Ethics Committee and in line with the standardized documents for the University. All methods were carried out in accordance with relevant guidelines and regulations. All participants were approached as healthy volunteers participating in different groups. All were deemed to have capacity to consent to participation and due to the fact that the study included young students below 18, the parents and legal guardians of all participants provided written informed consent for all aspects of the study.

### Measures

**Suicidal Ideation.** The Scale of Suicidal Ideation (SSI) developed by Beck et al. (1979) was used to assess suicidal ideation. This measure consists of 14 items (e.g., *I think suicide can end the current pain; I have taken some strange or dangerous drugs to suicide on purpose*) rated on a 5-point Likert-type scale, ranging from 1 (*completely disagree*) to 5 (*completely agree*). Higher scores indicate stronger suicidal ideation intensity. The SSI demonstrated good reliability in the present study ( $\alpha = 0.81$ ).

**Negative Life Events.** The Adolescent Self-Rating Negative Life Events Checklist (ASNLEC) was used to examine negative life events (X. Liu et al., 1997). This scale consists of 27 items, each categorized within one of six types of negative life events: interpersonal relationships (e.g., *was misunderstood or wronged; was discriminated against or treated coldly*), learning pressures (e.g., *failure in an exam*), punishment (e.g., *was criticized or punished at school*), loss (e.g., *sudden death of relative or friend; experienced theft or lost items*), adaptation (e.g., *transfer or suspension, major changes in daily routines*), and other (e.g., *family financial problems*). The scale asks respondents to rate each item on a 5-point Likert-type scale based on the extent to which each event impacted their life, from 1 (*no impact*) to 5 (*extremely severe impact*).

The scale was adapted for the purposes of the present study to accommodate participants' age and better distinguish the relative impacts of negative life events. In this study, participants were asked to rate each life event on a 3-point Likert-type scale: 1 (*never happened*), 2 (*happened*)

**Table 1.** Specific Information of Related Models and Steps.

Dependent variables	Models	Independent variables
Suicidal ideation intensity	Model 1M (Step 1)	Negative life events (5 types)
	Model 2M (Step 2)	Negative life events (5 types) + Demographic variables (Gender, age, only child or not, parents' marital status)
	Model 1F-2F	Same procedure as above

with little effect), or 3 (happened with mass effect). Higher scores indicate a greater impact of a specific life event. In addition, relevant factors were extracted by means of a principal component analysis and then rotated using the maximum variance method. A total of five factors were extracted; this five-factor model met the numerical requirements of the fitting index test without changing the original six-factor connotation of the original scale, and the fitting index result was more ideal than the six-factor model. The correlation coefficient of the five-factor model was 0.694 ~ 0.788 ( $p < .01$ ) and the structure validity was improved. In terms of structure and content, compared with the original six-factor model, the five-factor model omits the "other types" factor. Therefore, in the present study, this scale assessed five types of negative life events among adolescents and young adults: punishment, learning pressures, loss, interpersonal relationships, and adaptation. In the current study, the modified ASNLEC demonstrated good reliability ( $\alpha = 0.87$ ).

### Data Collection

This cross-sectional study employed a combination of convenience sampling to recruit teachers within six high schools and three universities who expressed interest in having their students participate. Within the schools, stratified sampling was used to recruit participants, in order to ensure the equal representation of different genders and grade levels within middle school (from Grade 8 to Grade 12 in middle school, from Grade 1 to Grade 4 in university). The survey started after getting all participants' approval. For participants under the age of 18, they must have the informed consent of their parents or legal guardians before filling in the questionnaire. Each participant were asked to complete a self-applicable questionnaire. All questionnaires were physical and anonymous. Participants were allowed to quit at any time when answering the questionnaire. A total of 2,400 questionnaires were distributed and 2,018 valid questionnaires were recovered; the participation rate in the present study was therefore 87.83%.

### Data Analysis Strategy

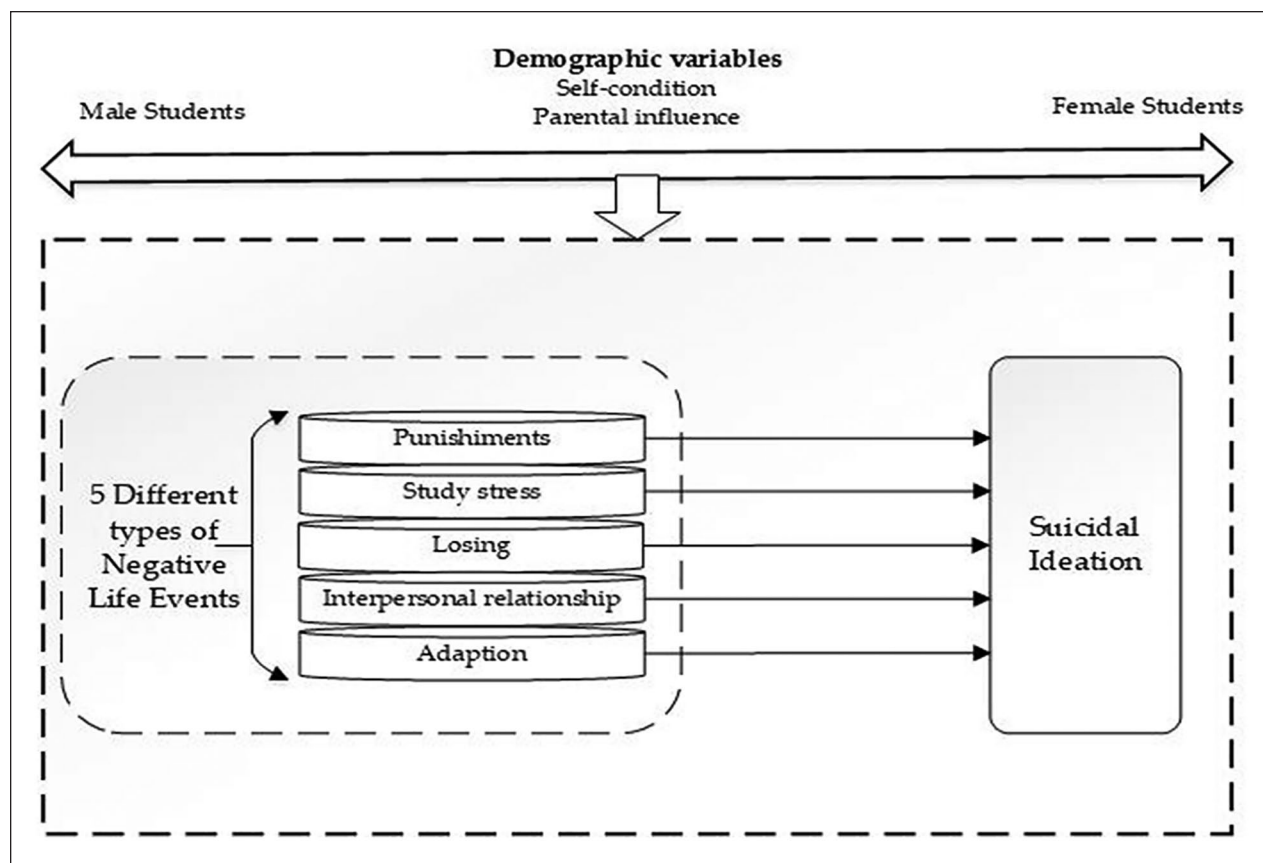
A series of one-way ANOVAs were conducted to analyze potential gender differences in negative life events and suicidal ideation intensity among adolescents.

Furthermore, two stepwise linear regressions were run to determine whether negative life events (Step 1) and demographic variables (Step 2) were predictive of suicidal ideation (Models 1 and 2) for both genders. Specifically, Models 1 and 2 (M = male; F = female) regarded suicidal ideation intensity as the dependent variable. Model 1 included negative life events as independent variables, while Model 2 included additional demographic variables such as age, only child status, and parents' marital status. Please refer to Table 1 and Figure 1 for details.

### Results

Results from one-way ANOVAs revealed significant gender differences in suicidal ideation intensity ( $F = 2.12$ ,  $p < .0001$ ) and overall reports of negative life events ( $F = 9.198$ ,  $p < .001$ ), whereby males reported higher levels of both relative to females (see Table 2 for means and standard deviations). Moreover, analyses of gender differences across the five types of negative life events revealed that males reported a significantly higher degree of negative life events related to punishment ( $F = 6.083$ ,  $p < .001$ ), learning pressures ( $F = 2.777$ ,  $p < .1$ ), loss ( $F = 5.277$ ,  $p < .05$ ), and interpersonal relationships ( $F = 9.924$ ,  $p < .01$ ). No significant gender differences emerged in reports of negative life events related to adaptation ( $F = 1.135$ ,  $p = 1.651$ ). Refer to Table 2 for detailed information regarding all descriptive analyses.

Table 3 demonstrates the impacts of specific types of negative life events on suicidal ideation among adolescents and young adults, across genders. As for male students, the results of Models 1M and 2M revealed that two types of negative life events had significant positive impacts on their suicidal ideation: punishment ( $\beta = .173$ ,  $p < .001$ ) and adaption ( $\beta = .175$ ,  $p < .001$ ). This suggests that increased reports of negative life events related to punishment and adaption are predictive of increased suicidal ideation intensity among males. With the addition of demographic variables, the impact of punishment on male students' suicidal ideation did not change significantly, but the impact of adaption on suicidal ideation significantly decreased ( $\beta = 0.130$ ,  $p < .05$ ). Of the demographic variables analyzed, parents' remarriage ( $\beta = .061$ ,  $p < .1$ ) and divorce ( $\beta = .084$ ,  $p < .05$ ) had



**Figure 1.** Impacting Model of Five Types of Negative Life Events on Suicidal Ideation Among Youth.

**Table 2.** Descriptive Analysis Results.

Variables	Male (N = 803)		Female (N = 1,215)	
	Minimum/Maximum	M (SD)	Minimum/Maximum	M (SD)
Suicidal ideation intensity	1/5	1.53 (0.88)	1/5	1.41 (0.68)
		$F = 2.12^{***}$		
Negative life events (Overall)	1/5	1.79 (0.65)	1/5	1.67 (0.57)
		$F = 9.198^{***}$		
Punishments	1/5	1.60 (0.71)	1/5	1.36 (0.51)
		$F = 6.803^{***}$		
Study stress	1/5	2.24 (0.77)	1/5	2.18 (0.69)
		$F = 2.777^{\dagger}$		
Losing	1/5	1.63 (0.62)	1/5	1.58 (0.54)
		$F = 5.277^{*}$		
Interpersonal relationship	1/5	2.18 (0.74)	1/5	2.08 (0.65)
		$F = 9.924^{**}$		
Adaption	1/5	1.85 (0.71)	1/5	1.82 (0.59)
		$F = 1.135$		

$^{\dagger}p < .1$ .  $^{*}p < .05$ .  $^{**}p < .01$ .  $^{***}p < .001$ .

**Table 3.** Impacts of Different Types of Negative Life Events on Suicidal Ideation.

Dependent variables Independent variables	Suicidal ideation for males (N = 803)		Suicidal ideation for females (N = 1215)	
	Model 1M	Model 2M	Model 1F	Model 2F
Punishments	0.173***	0.197***	0.057	0.030
Study stress	0.009	0.014	0.138***	0.107***
Losing	0.055	0.021	0.061*	0.078*
Interpersonal relationship	-0.006	0.014	0.162***	0.143***
Adaption	0.175**	0.130*	0.045*	0.116**
Control variables				
Age		0.031		-0.149**
Studying period: University (High school)		0.059		0.013
Only child or not: no (yes)		0.016		-0.004
Parents' marital status: Remarriage (First marriage)		0.061 <sup>†</sup>		0.013*
Divorced (First marriage)		0.084*		0.022**
Widowed (First marriage)		0.042		0.028
df	5	11	5	11
Adjusted R <sup>2</sup>	.133	.236	.136	.148
F	25.671***	46.494***	39.267***	48.675***
Observations	802	802	1214	1214

Note. All regression coefficients reported are standard. M = male; F = female.

<sup>†</sup> $p < .1$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

significant positive impacts on males' suicidal ideation. In addition, adjusted  $R^2$  and  $F$  values increased significantly, suggesting that with the addition of demographic variables, the explanatory power of the model was improved.

As for female students, the Models 1F and 2F revealed a different pattern of results relative to males. Specifically, learning pressures ( $\beta = .138, p < .001$ ), loss ( $\beta = .061, p < .05$ ), interpersonal relationships ( $\beta = .162, p < .001$ ), and adaptation ( $\beta = .045, p < .05$ ) all emerged as significant positive predictors of females' suicidal ideation intensity. This suggests that increased reports of negative life events related to learning pressures, loss, interpersonal relationships, and adaption are predictive of increased suicidal ideation intensity among females. With the addition of demographic variables, the impact of adaption on female students' suicidal ideation increased ( $\beta = 0.116, p < .01$ ) while the impact of other negative life events on their suicidal ideation did not change significantly. Of the demographic variables analyzed, only age, parental remarriage, and parental divorce had significant impacts on females' suicidal ideation. In addition, adjusted  $R^2$  and  $F$  values significantly increased, suggesting that with the addition of demographic variables, the explanatory power of this model improved as well.

## Discussion

The present study sought to assess potential group differences in suicidal ideation and reports of specific types of

negative life events among youth across genders, and then sought to determine the potential role of specific types of negative life events in predicting suicidal ideation. Consistent with previous research, our results revealed that negative life events may act as risk factors for adolescents' suicidal ideation, for both males and females. Specifically, previous studies have demonstrated that individuals who often encounter negative life events, especially adolescents, were more likely to report suicidal ideation (Copeland, 2012).

However, in contrast to previous studies, the present study indicated that negative life events related only to punishment and adaptation were predictive of male students' suicidal ideation, while other types of negative life events had no significant impact on their suicidal ideation. A first possible explanation for these findings may be related to the personality characteristics of different genders. Male students usually act lively, rebellious and difficult to discipline, while female students usually behave more obedient than the former. In the school environment that emphasizes collective discipline and order, and within family environments that place a high value on education, male students may therefore be punished more frequently than females. As such, males may be more vulnerable to the impact of negative life events resulting from punishment, and thus be more prone to suicidal ideation resulting from this type of negative life event than females. These findings may also be related to the "gender stereotype" that is commonplace in Chinese social culture (Ma, 2000). This stereotype regards males

as exhibiting stronger psychological endurance and aggressiveness than females, who are generally considered to be gentle and mild. This kind of gender stereotype has led to biased perceptions of, and behavior toward, female students. The instruction of male students in China is therefore likely to include more frequent exposure to incidents of punishment relative to females, placing males at risk for experiencing suicidal ideation as a result. In addition, negative life events related to adaptation also had a significant positive impact on male students' suicidal ideation; this finding is in line with previous research. For instance, a study by Zhao reported that among adolescents who experienced a long-term separation from family members, males were more likely to report mental health difficulties than females, a finding which was partly explained by their relatively higher levels of introversion and neuroticism (H. Zhao et al., 2007). These male students demonstrated less progress relative to females in terms of intellectual development and environmental adaptability over time, and were more likely to become withdrawn, self-abased, and report more negative self-evaluations. The above psychological factors are all risk factors that may lead adolescents to engage in risky behaviors and/or suicidal ideation. However, no gender difference was found in suicidal ideation among adolescents who spent more time living with their families (Hang et al., 2011).

The types of negative life events that significantly impacted Chinese female students' suicidal ideation varied considerably from males. Among female students, negative life events related to interpersonal relationships, learning pressures, loss, and adaptation all had significant positive impacts on their suicidal ideation. A possible explanation for this finding may be that, compared with male students, females' psychological sensitivity and obedience were reported to be higher. Male students might simplify the problem solving and would not have a greater impact on their own psychological condition after the conflict occurred, but female students' weakening and absorbing ability of interpersonal conflict is worse because of their higher psychological sensitivity. Their psychological state is more likely to be significantly affected by negative life events such as interpersonal relationship, which could lead to suicidal ideation afterward (Q. Huang et al., 2007). Second, female students were reported to be more obedient to school system management than males as mentioned above. In the face of negative life events such as learning pressures, male students might also took resistance and other ways to deal with them, while female adolescents would be more obedient. More female students have chosen to accept the impact of negative life events from school, whether the impact could be harmful or not, so they would bear the impact of greater study stress on their psychological state. If their

own psychological adjustment was not appropriate, they were more likely to engage suicidal ideation (M. Liu, 2010). Third, in the face of negative life events such as the death of relatives or the loss of items, females were more vulnerable to negative psychological impacts because of their higher psychological sensitivity and weak psychological endurance, thus enhancing the possibility and risk of emerging suicidal ideation (Hong & Huang, 2015). Finally, notwithstanding relevant studies which have identified that male students who reported having been impacted by negative life events related to adaptation were also more likely to report suicidal ideation, studies have also reported that female students who were negatively affected by adaptive negative life events could engage health risk behaviors and even suicidal ideation, only lower risky level and significance comparing with male students. This suggests that negative life events related to adaptation may a risk factor for female students' suicidal ideation (Shi, 2012).

Specific parental marital statuses (i.e., divorced or remarried) exerted a significant impact on students' suicidal ideation, across both genders. Specifically, reporting that one's parents were either divorced or remarried was significantly and positively predictive of higher levels of suicidal ideation among students. This result is consistent with relevant studies which have demonstrated that the growth and development of children's psychological status may be affected by their parents' marital status. For instance, children from non-original families are likely to express high levels of anxiety, hostility, loneliness, impulsivity, and communication difficulties relative to kids from original families, as they are more likely to exhibit potentially problematic personality traits such as neuroticism or concealment. In terms of personality traits, they might also show too introverted or extroverted, which could easily lead to polarization of personality traits. The above psychological factors may cause adolescents to engage in unhealthy coping behaviors, which may lead to suicidal ideation (Gai et al., 2007; Zill et al., 1993). These results indicate that particular attention should be paid to the mental health status of adolescents in remarried or single-parent families.

Finally, the impact of age on suicidal ideation was found to be different across genders. As for males, age did not exert a significant impact on their suicidal ideation. Contrarily, older female students were less likely to report suicidal ideation than younger ones. This conclusion is in line with previous research and may be attributed, at least in part, to the more developed problem-solving capabilities of older students, who are likely to resolve problems in a more rational and less impulsive and/or destructive manner relative to younger students (O'Hara, 2006).

## Conclusion

To conclude, gender differences in suicidal ideation among youth were found throughout the study. Negative life events and their specific types all reported significant gender difference.

The specific types of negative life events that exerted a significant influence on adolescents' suicidal ideation differed across genders: First, for male students, the impact of punishment- and adaption-related negative life events on their suicidal ideation was positive and significant; the higher the reported impacts of negative life events related to punishment and adaptation were, the more severe their reports of suicidal ideation. Therefore, these two types of negative life events were found to be key predictors and risk factors of male adolescents' suicidal ideation.

Second, for female students, negative life events related to interpersonal relationships, learning pressure, loss, and adaptation all emerged as significant positive predictors of suicidal ideation, while negative life events related to punishment did not have a significant impact on their suicidal ideation. The latter four types of life events may thus be key predictors and risk factors for female adolescents' suicidal ideation.

Third, parents' marital status of remarriage and divorce were found to be significant positive predictors of adolescents' suicidal ideation. In addition, age was found to be negatively correlated with suicidal ideation among female adolescents.

## Implications and Contributions

This is the first study to identify gender differences in the relationship between different types of negative life events and suicidal ideation among adolescents and young adults in Western China. The results revealed gender differences in suicidal ideation and in reports of different types of negative life events, as well as a gender-specific pattern in the relationship between negative life events and suicidal ideation. These findings will inform existing literature on negative life events and risky behaviors, particularly suicidal behaviors among Chinese youth, and emphasize the need for continued efforts to explore life-threatening behaviors across various cultures and societies. Results also emphasize the need for gender-specific suicide prevention and intervention efforts for Chinese youth.

## Limitations

The data used in the empirical part of the paper are from adolescents' health risk survey carried out by the research

team in Shaanxi Province, China. Therefore, the sample in the present study can be considered representative of the population within the western cities in China; however, this might differ from students' engagement in suicidal ideation within eastern cities. Further studies are needed to examine suicidal ideation within this group. In addition, the sample consists of students attending middle high schools and universities in provincial capital and prefecture-level cities, samples from county-level and township-level may not be represented within the present study.

In addition, this study relied only on self-report questionnaires and cross-sectional study to examine suicidal ideation. Further longitudinal investigations are needed to understand the contributors to the patterns of adolescents' engagement in suicidal ideation.

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## Availability of Data and Materials

The data that support the findings of this study are available from School of Psychology, Shaanxi Normal University, but ethical restrictions of Shaanxi Normal University apply to the availability of these data, which contains privacy variables that might affect the growth of adolescents' mental health and were used under license for the current study, and so are not publicly available. Data are however available from the corresponding author upon reasonable request.

## Ethics Approval and Consent to Participate

Written ethics approval was obtained from the Ethics Committee from School of Psychology, Shaanxi Normal University (Protocol Number: 18245; approved on July 12, 2021; exempt protocol approval expiry—July 12, 2023). Participant Information Sheets and Consent forms were approved by the Ethics Committee and in line with the standardized documents for the University. All methods were carried out in accordance with relevant guidelines and regulations. All participants were approached as healthy volunteers participating in different groups. All were deemed to have capacity to consent to participation and due to the fact that the study included young students below 18, the parents of all participants provided written informed consent for all aspects of the study.

## Declaration of Conflicting Interests

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