Social Support, Psychological Strain, and Suicidality: Evidence from Chinese Universities

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Abstract

This study aimed to apply psychological strain theory to explore the relationship between psychological strain and suicidality among Chinese young adults with a moderating effect of perceived social support. A questionnaire was administered with the Multidimensional Scale of Perceived Social Support (MSPSS), Suicidal Behaviors Questionnaire-Revised (SBQ-R), and Psychological Strain Scale (PSS) among 13,250 college students across China. The main determinants of suicidal behavior were examined with multiple linear regression. Two steps of multiple regression were employed to define the moderating effect of social support. A positive relationship between psychological strain and suicidality was reported in the study, and social support was confirmed as a moderating factor between psychological strain and suicidal behavior.

Keywords

social support; strain; suicide; moderator; China

Introduction

A newly released suicide worldwide report by World Health Organization (2021b) showed that suicide is still a severe public health issue across the world leading to 703,000 deaths every year. In the United States, suicide rates increased by 36% between 2000–2021 and were a leading cause of death in the United States (USA CDC, 2022). For school-aged children and youth, suicide has become an increasing public problem in recent years. Globally, among youth from 15–29 years old, suicide is the fourth leading cause of death for both sexes in 2019 (World Health Organization, 2021c). While in the U.S., young people aged 10–24 years occupy 14% of all suicide which makes it the second leading cause of death for young people (USA CDC, 2022). Suicides produce seriously negative consequences for individuals, families, and society.

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Conflict of Interest Disclosure Statement

We also confirmed that the disclosed information is correct and no other conflict of interest exists.

It has been reported that the suicide rates in China have decreased steadily from 14.30 per 100,000 to 8.1 per 100,000 from 2000 through 2021 (World Bank, 2022). However, suicide is the fifth leading cause of death in China and accounts for over one-quarter of suicides across the world. Given the large population, current suicide rates are estimated at 112,000 deaths, 2.8 million attempt suicide, and 1.5 million people are impacted by suicide in China (World Health Organization, 2021c). In contrast to the overall decline, suicide rates among young people in the age group 20–34 were reported to increase dramatically (Fei et al., 2019) and became the second death cause for this group (Zhao et al., 2015). The suicide behavior-related prevalence was documented at 17.0% among Chinese adolescents (Lew, Osman, et al., 2020). Moreover, a recent report (X. Fu et al., 2021) showed that young people aged 18–24 in China experienced the highest depression index which hit 10.84 compared to the lowest index of 5.43 among the 45 and above age group. The depression detection rate among the 18–24 age group reached 13.6% (Fu, Zhang, & Chen, 2021) which is 3.57 times the world average incidence (World Health Organization, 2021a). It is well-established by a body of research that depression is strongly predictive of suicidality and suicide attempts (Cui, 2021; Liu et al., 2022; Meng et al., 2013). That being said, Chinese university students are among the 18–24 age group and they have a high risk of suicide.

Furthermore, unlike college students in the Western, post-secondary students in China are mandatorily required to board in college. Leaving their home place to a bigger city, college students are expected to enlarge their social circle and build a broad social network. On one hand, they meet new friends from the same classroom, the whole grade, the senior or junior, fellow-townsman, and teachers, which facilitates college students building a large social contact. On the other hand, college students are in a transition stage of life which involves some changes including confronting a new environment and dealing with new interpersonal relations, and pedagogies different from that in high school. Moreover, when they are still accommodating to these changes, the students encounter challenges from the competitive labor market in their senior years. All these changes and challenges may cause college students to feel isolated and helpless which makes an urgent need of addressing and finding solutions to the problem. Given the high crisis young people might have met about mental depression in China and the rising prevalence of suicide, this paper showed great interest in these questions:1) whether they have mood disorders in this transition; 2) whether mood disorders are predictive of suicide; 3) how they perceive social support when they are in need; 4) whether social support is a protective factor against suicide.

Literature Review

Social support and suicide

The concept of social support first appeared in the 1970s (Armstrong, 1978; Caplan, 1974) which was associated with mental health followed by epidemiologists' interest in physical health (Cassel, 1976; Cobb, 1976). With substantiative evidence, these studies suggested that social relationships were protective of health by moderating potentially toxic health effects of health risk factors. House (1981) proposed a simple theoretical framework of "social support" indicating the causal association between social relationships and health.

The following long-term and experimental research both showed similar patterns of the protective role played by social relationships in health outcomes (House, Landis, et al., 1988). However, it is not until the 1980s that House, Landis and Umberson (1988) aimed to address the causal interpretation of the association between social relationships and health. They reviewed the literature on social support and health and constructed the framework of social relationship that affects human health and well-being. They ascertained two elements of the theoretical framework of social relationship and health: social integration and social network structure. The social network referred to the existence or quantity and frequency of contact; social network structure meant the content and characteristics of social support such as reciprocity, multiplexity, or durability. According to this framework, social support is one of the important elements that represented the quantity and quality of social relationships, which has been proved to have acted as main effects, mediating effects, or both, through biological, socioeconomic, or behavioral processes, on health outcomes (House, Umberson, et al., 1988).

A body of research has been centered on social support and suicide which are supportive of the predictability of the social relationship of suicide. As stated by House, Umberson and Landis (1988) previous research put more emphasis on how social support directly or indirectly affected health outcomes, recent research showed a similar trend addressing the moderating or buffering effect of social support on suicide. Yaqoob et al. (2023) investigated a group of self-harm patients and found those who had no suicidal intent had perceived more social support. Sparks et al. (2023) examined the mediating effect of social support on suicide ideation among psychiatric inpatients and suggested that thwarted belongingness and perceived burdensomeness were significantly related to suicide ideation. Otsuka et al. (2022) examined the effect of modification of social support on the association between psychological distress and risk of suicide death and they affirmed that social support had a relation with lower suicide death among participants with moderate or low risk of suicide. A systematic review (Hu et al., 2023) researched studies on the moderating effect of social support on suicide risk among patients with mental illness and concluded that both quantitative and qualitative studies supported the negative effect of social support on suicide risk. A bunch of studies documented similar evidence supporting the protective effect of social support as a moderator on suicidal attempts (Agyemang et al., 2022; Datta & Nakhaie, 2022; Demir & Sümer, 2022; Mitchell et al., 2021; Pickover et al., 2021; Shah et al., 2021; Shin et al., 2021; Su et al., 2022).

Psychological strain and suicide

The psychological strain theory of suicide was proposed by Zhang (2019) who argued that psychological strain was not equivalent to simple pressure or stress. A strain consisted of at least two forces that push the individual in different directions, making the person feel such immense pain that he would either commit crimes toward others or kill himself (Zhang, 2019). The strain theory comprised four sources of strain: (1) value strain occurs when two social values conflict with each other, (2) aspiration strain brought by the discrepancy between aspiration and reality when an individual could not achieve his goals, (3) deprivation strain generated by relative deprivation when an individual finds other people with similar background has a better life or achieves greater success; (4) coping strain

occurred when an individual is unable to cope with the frustration or crisis. When two conflicting forces form a strain, it would push or pull the person in different directions which might lead to frustration, anger, depression, hopelessness, psychache, or even suicidality (Zhang, 2019).

Since the inception of the strain theory, much has been done to test the association between psychological strain and suicidality (Huen et al., 2021; Wang, Zhang, et al., 2021; Zhang et al., 2022; Zhang et al., 2020). Existing studies indicate that psychological strains precede suicide among those who have high scores in value strain, aspiration strain, deprivation strain, and coping strain (Lyu et al., 2020). However, little evidence is known on how perceived social support affects the association between psychological strain and suicide except for the one by Lew, Chistopolskaya, et al. (2020) who addressed this problem with a small sample of employees in Beijing. The moderating effect of social support between psychological strain and suicide has never been examined among young Chinese adults. Mental health problems and suicide risks have been very severe social issues among young adults in China. Especially for undergraduates who are in a transitional stage of life, do they have psychological strain and suicidal ideation? How do they perceive social support during this time? In this study, we aimed to address the research questions: 1) whether social support is protective against suicide and psychological strain; 2) whether social support acts as a moderator between psychological strain and suicide.

Based on these questions, two hypotheses were developed: (1) social support is negatively correlated with suicidal behaviors and psychological strains among Chinese young adults, (2) psychological strain is positively associated with suicide, and (3) social support moderates the strength of the relationship between strain and suicidality. Accordingly, this paper aimed to (1) evaluate the relationship between social support and suicide among young adults in China, (2) examine the correlation between psychological strains and suicide, and (3) test whether social support buffers the influence of strain on suicidality.

Methodology

Sample

The current study was part of a study that involved college students from universities across 6 provinces and one municipality in China. A random cluster sampling method was used to recruit participants. First, 10 to 30 classes were selected according to the size of each university. Then, students of each of these classes were included in the study. Most of the participants were between 18 and 25 years old according to the norms of the education system in China. Because undergraduate medical students take a 5-year study, year 5 as a measurement was included. Some graduate students were contained too. We finally included 13,250 valid questionnaires. The study was approved by the Institutional Review Boards and by the Ethics Committee of the seven universities and detailed information was shown in the previous publication (Wang, Zhang, & Lew, 2021)

Measurement

Other than generic demographic variables, we included academic performance, student organization, household registration, only-child, political affiliation, and religion which were believed important within the Chinese context. China is the rare nation that has a household registration that divided Chinese people into two distinct groups including rural residents and city residents. The two groups enjoy different rights legally which creates distinct outcomes ranging from education to health. The one-child policy created more than 100 million only children (Feng et al., 2016) during its 37-year enforcement. Although communism is the dominant ideology in China which produced the most Communist Party members in the world, religion has boomed since the reform in 1978 which negatively affected Chinese mental health (Wang, Zhang, & Lew, 2021). To obtain a valid measurement, it is necessary to include these variables.

Social support was measured with the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet et al., 1988) which is a widely accepted psychometric instrument with good internal and test-retest reliability as well as moderate construct validity. This MSPSS instrument covers three important resources of social support which is negatively related to depressive disorder and suicide ideation (Eze et al., 2021; Moller et al., 2021). The MSPSS was adapted with Chinese samples in several studies (Lew, Chistopolskaya, Liu et al., 2020; Yang & Han, 2021) and showed good reliability and validity in the Chinese context. In this study, we conducted a confirmatory factor analysis to reexamine this instrument and found $\chi^2 = 158.518$, $p<0.001$, CFI = .904, SRMR = .058, RMSEA = .146 [.120~ .171], and all the loading coefficients are higher than 0.656, indicating that the model has a good fit. The Cronbach alpha coefficient for MSPSS was 0.942 in this study.

The MSPSS measures perceived social support with three subscales each including four items: (1) family support, for instance, "my family really tries to help me"; (2) friends support, e.g. "I have friends with whom I can share my joys and sorrows"; (3) special others support, e.g. "There is a special person in my life who cares about my feelings." Each item is scored in seven levels ranging from 1 (totally disagree) to 7 (totally agree), and the higher the score, the more support the respondents perceive.

Psychological strain was examined with the Psychological Strains Scale (PSS) (Zhang, Wang, Huen et al., 2020) which has been tested with high reliability (Cronbach's alpha=0.96) and validity (factor loading values>0.50) using the same sample. PSS consists of four 10-item subscales including value strain, aspiration strain, deprivation strain, and coping strain. For each statement in the scale, response options include 1=never, it's not me at all; 2=rarely, it's not me; 3=maybe, I'm not sure, 4=often, it's like me; and 5=yes, strongly agree and it's exactly me. Higher scores denote higher psychological strains.

Suicide was examined with the Suicidal Behaviors Questionnaire-Revised (SBQ-R) (Osman et al., 2001). SBQ-R has acceptable internal consistency reliability and good validity among adolescent and adult samples. It was tested with high reliability (Cronbach's alpha=0.73) with the same sample studied in this paper. It is a unidimensional scale comprising 4 items that reveal suicidal ideation and behaviors. The total score of the four items ranges from 3 to 18 with higher scores indicating higher levels of suicidality (Lew et al., 2018). According to

Osman, the SBQ-R cut-off score for non-clinical undergraduate college samples is 7 (i.e., a score of 7 or above will be classified as having suicide risk).

Statistical Analyses

Descriptive statistics display basic demographic information and mean scores of the MSPSS, PSS, and SBQ-R. Both univariate analyses and multivariate regression models were employed to identify the main determinants of young adults' suicidality.

The moderation effect of social support was measured through a series of multivariate regression models processed in SPSS software. Specifically, two equations were listed to represent the influence of independent variables on the dependent variable, $y=a+bx+cm+e,$ and $y=a+bx+cm+c'mx+e$. The first equation demonstrated the effect of the independent variables on the dependent variable after controlling the covariate. The second equation indicated the interactional effect of independent variables and the moderator variable. If the R^2 change between the two equations is significantly different, it can conclude that the moderating variable accounts for the variance in the dependent variable. In this case, y referred to suicide, x meant psychological strain, and m represented the moderating variable of social support.

Results

Descriptive analyses

Demographic characteristics of the participants with mean PSS scores, MSPSS scores, and SBQ-R scores of different groups were displayed in Table 1. From year-4 students to postgraduate students made up a smaller portion of the whole sample. Female participants accounted for the majority of the sample (61.1%). Han-Chinese participants were the largest proportion (74.2%), followed by the Uighur (14.2%). There were more rural students (53.7%) than urban students (46.3%). Most participants achieved average academic performance (71.3%). There were 65.0% of the participants reported having a normal economic status. Youth League Members formed the majority (89.4%) of the sample. Most students (70.7%) were enrolled in school associations. Compared to non-believers (74.6%), only 25.4% of the sample claimed to believe in God.

The results of one-way ANOVA demonstrated the comparison of scores of PSS, MSPSS, and SBQ-R (see Table 1). Based on the Post Hoc Test results (results were not presented here), the higher the grades were, the higher the PSS and SBQ-R scores were, the lowest MSPSS score was among graduates; females had lower PSS and MSPSS scores, and a higher SBQ-R score compared to males; Hui-Chinese had the highest PSS and MSPSS cores, and the lowest SBQ-R score; rural and urban students showed differences in PSS and MSPSS scores and the same SBQ-R score; no differences in the three scores were reported between only- and none-only children; students who performed bad rated higher in PSS and SBQ-R, and lower in MSPSS; the same trend happened to those students who had bad SES; the CPC member had higher MSPSS and lower SBQ-R scores compared to non-members; they showed the similar pattern among students who were enrolled in school associations; believers who had higher MSPSS were reported to have higher PSS and SBQ-R scores. As

of note, all the SBQ-R scores were lower than 7, which indicated that none of the young adults were categorized as suicidal.

The multi-linear regression analyses

Multiple linear regression analyses were conducted to define the major risk factors for the participants' psychological strain and suicidality separately. The results were shown in Table 2. Compared to minorities, the psychological strain and suicidality scores of non-Han Chinese decreased by 1.404 and 0.174 separately. In contrast to non-believers, those who had a religion tended to have higher psychological strain and higher risk of suicidal behavior with an increase of 5.934 and 0.226 respectively. For every one-unit increase in psychological strain, the suicidality score rose by 0.015. Social support was negatively related to both psychological strain and suicidal behavior resulting in a decrease of 0.569 and 0.014 separately. Compared to males, the suicidality score increased by 0.288 for females. Non-CPC members had a higher suicidality score compared to CPC members.

The analyses of the moderating effect

Before examining the moderating effect of social support, standardizing the scores of strain and social support was performed in order to reduce bias produced by multicollinearity between the interaction of the two variables and the main effect (Frazier et al., 2004). Two steps of multiple linear regression procedures were conducted to examine the moderating effect of social support on the relationship between psychological strain and suicidality (Baron & Kenny, 1986). At step 1, the predictor variable (psychological strain) and the moderate variable (social support) were entered into the regression equation. Both presented significant influences on suicidality, and 8.9% (R^2, $p<0.001$) of the variation in suicidality was explained by these two variables. Strain ($\beta = 0.372$, $p < 0.01$) significantly predicted suicide in a positive way, while the social support factor ($\beta = -0.180$, $p < 0.01$) showed a significantly negative relationship with suicide in the first step. In step 2, the standardized independent variable (psychological strain), moderator variable (social support), and the interaction of psychological strain and social support were entered into the regression equation. All three predictors demonstrated significant impacts on suicidality and 9.9% (R^2, $p<0.001$) in the variance of suicide could be accounted for by the three forces. The added interaction of strain and social support showed a significant increment to the model where the interaction term ($\beta = -0.141$, $p < 0.01$) was inversely related to suicide after controlling other variables as predicted. What's more, the change in $R^2 =0.010$, $p<0.001$ in the second model indicated a significant moderator effect of social support. That is to say, the suicidal risk of the participants who had psychological strain decreased by 0.141 when they had perceived social support. Approximately 1% of the overall decrease could be explained by social support. Compared to the effect of low social support, high social support resulted in a decrease of 10 and 17 units in suicidality at the low and high levels of psychological strain respectively. The protective effect of high social support was more prominent at the high level of psychological strain. The results of these analyses were presented in Table 3 and Figure 1 suggesting that social support buffered the impact of psychological strain on suicide.

Discussion

This study focused on the relationship between psychological strain and suicidality among young adults in China with a moderating effect of social support. Since the inception of the psychological strain theory, a body of empirical studies has provided evidence that indicates psychological strain precedes suicidality (Liu et al., 2019; Lyu, Zhang, & Sun, 2020; Wang, Zhang, & Lew, 2021; Zhang et al., 2018; Zhao & Zhang, 2018b). Health outcomes including suicidal behavior or ideation are caused by a large amount of biological, psychological, cultural, or other socioeconomic risk factors. The social relationships provide an essential network within which an individual perceives as integrated or isolated leading to different health outcomes (Christoforou & Ferreira, 2022; Durkheim, 1951[1897]; Gibbs & Martin, 1958; Stafford & Gibbs, 1988). The quantity and quality of social support as one of the dimensions of social relations have been documented as consequential determinants of health (House, Landis, & Umberson, 1988; House, Umberson, & Landis, 1988; Zimet, Dahlem, Zimet et al., 1988). However, little evidence is known for social support influencing college students' suicide behavior and moderating the impact of psychological strain on suicide among young adults in China. This paper was intended to fix this study gap and contribute to the literature on this area.

The findings of this research verified all three hypotheses about the relationship among social support, psychological strain, and suicidality. First, social support was negatively associated with suicidal behaviors and psychological strain as well. After controlling all the other demographic variables, the analyses suggested that perceived social support was protective against psychological strain and suicidal behavior. The finding confirming the protective role of social support was corresponding with previous research by Wang et al. (2022). Quality social support could provide undergraduates with effective means to relieve psychological strain (Ditzen & Heinrichs, 2014). The majority of Chinese college students are required to board on campus and live a collective life that may have offered adequate social support from roommates and classmates around. Some research suggested that friends and peers are the most important relationships that provide quality social support (Mahon & Yarcheski, 2017). In accordance with previous studies (Otsuka, Sugawara, Matsuyama et al., 2022; Zhao et al., 2022), the multiple regression analysis revealed that social support was engaged in lower suicidal behavior. Second, the current study suggested that psychological strain was predictive of suicidal behavior among university students as existing studies (Zhang et al., 2017; Zhao & Zhang, 2018a) indicated. The higher psychological strain, the more risk the participants were engaged in suicidal behavior.

Regarding the moderating effect of social support, the two steps of multiple regression analysis revealed social support as a moderator between psychological strain and suicidality. When including the interaction term, 1% of the explanatory power of the equation was attributed to the interaction effect of social support which verified our third hypothesis. That is to say, social support was able to buffer the effect of psychological strain on suicidal behavior.

Although it was a very small amount of variation, several reasons could explain the significance of social support. First, the chance of R^2 being small is related to a large sample

(Paternoster & Bachman, 2017). The current study employed a large sample with more than 10,000 participants which could have led to a small percentage of variation resulting from social support. Second, it is not uncommon that in the sociological field, there are usually multiple factors contributing to a social phenomenon. Concerning health outcomes, WHO constructed a comprehensive framework of social determinants of health including macro-, meso-, and micro-level factors. Taking all these risk factors into account, it is fair to say a variation of 0.01in suicidal behavior can be attributed to the protective role played by social support. Third, the moderating effect of social support was documented in previous studies that either examined the moderation effect between psychological stress and suicidality (Otsuka, Sugawara, Matsuyama et al., 2022) or between opioid misuse and suicide attempts (Agyemang, 2023).

Specifically, the perceived social support contributed to reducing the influence of psychological strain on suicidal behavior. The stronger the social support was, the weaker the psychological strain impacted suicidal behavior. The relationship between psychological strains and suicide has been thoroughly researched among young adults in China from different perspectives, such as religion, mental health problems, or gender differences (Wang, Zhang, & Lew, 2021; Zhang, Liu, & Sun, 2017; Zhang & Zhao, 2013; Zhao & Zhang, 2018a). However, it has not been documented how social support moderates the impact of psychological strain on suicidal behavior among young Chinese adults. The current study fixed this study gap by addressing the moderating effect of social support on psychological strain's impact on suicide and contributed to the existing literature on suicidal research. What's more, policymakers ought to be inspired by the findings to make policies of massive intervention on campus to provide undergraduates with more social support for the purpose of reducing psychological strain and the decline of suicidal attempts.

Demographic characteristics are the fundamental causes of health problems that are reported to lead to various outcomes in psychological strain and suicide behavior in this paper. For instance, senior undergraduates and graduates suffer more psychological strain. The expansion of high education in China has put youth employment under great pressure even before Covid. When entering the third or fourth year, the senior undergraduates are confronted by a competitive labor market entailing them with conflicting psychological forces. Concerning the suicide rate by gender, China is currently the only country in the world that has a higher female suicide rate than males (Li, 2020). The female undergraduates in this study were not regarded as suicidal, nonetheless, they showed a significantly higher risk of suicidal behavior compared to their counterparts which is consistent with the widely-accepted analysis that Chinese women of age15–24 group have as many as two times suicide rates of men (Li, 2020).

Unlike what has been perceived the minorities in China have been suppressed, this study found that Han Chinese suffered a higher possibility of suicide compared to the minorities. This is in line with the situation in the U.S. where white people who accounted for the majority of the population tended to have a higher rate of suicide than black people (Castle et al., 2004; Garlow et al., 2005). Robertson et al. (2022) suggested that lower education, poverty rates, and house vacancy rates were predictive of white people's suicide rates. While the lower suicide rates among black people may be a byproduct of house vacancy which

often occurred in metropolitan areas where black people were concentrated (Kegler et al., 2017) and lived with family (Denney et al., 2015). This may provide evidence for the protective effect of social support on suicidal attempts. Similar to the disparity in suicide between the minority and majority in the U.S., it has not been decided what the determinants of the difference in suicide attempts between Han-Chinese and the minorities which could be addressed in future research.

Limitations and Future Directions

It is worth noting that there are some limitations to this study. This survey was conducted right before the outbreak of Covid-19 which has had profound influences across the world, especially on college student's mental health (Buizza et al., 2022). Especially, for Chinese college students, the majority of them have been locked down on campus for almost three years which led to an even higher of mood disorders (41.1%) (W. Fu et al., 2021). The dataset of this study may have been outdated due to the possibility that the long-term massive lockdown may have produced influential adverse impacts on Chinese undergraduates' mental health. A new study on the current theme containing the risk factors brought about by the lockdown due to Covid-19 is in urgent need to be conducted. Social support is expected to show even more significant protective forces in reducing the risk factors of suicidal behavior or mental disorder during this hard time of lockdown and pandemic (Wang, Huang, et al., 2021).

The other possible limitation is the current study was cross-sectional that was unable to document a longitudinal trend of the moderating effect of social support on the link of strain to suicidal behavior. Furthermore, a prospective longitudinal study may provide clues about the mechanisms of social support buffering the adverse impacts of strain on suicidality.

Conclusions

The analyses of the current study verified the hypotheses that social support acted as a moderating force between psychological strain and suicidal behavior: The stronger the social support, the weaker the association between strain and suicidality. Perceived social support from family, friends, community, or other special agents may be consequential protective resources to reduce the impulsivity of suicidal behavior for an individual in an emergency.

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Highlights

- Psychological strain is positively associated with suicidal behavior among Chinese young adults.

- Social support is negatively related to both psychological strain and suicidal behavior among Chinese young adults.

- Social support acts as a moderator of the adverse effect of psychological strain on suicidal behavior.
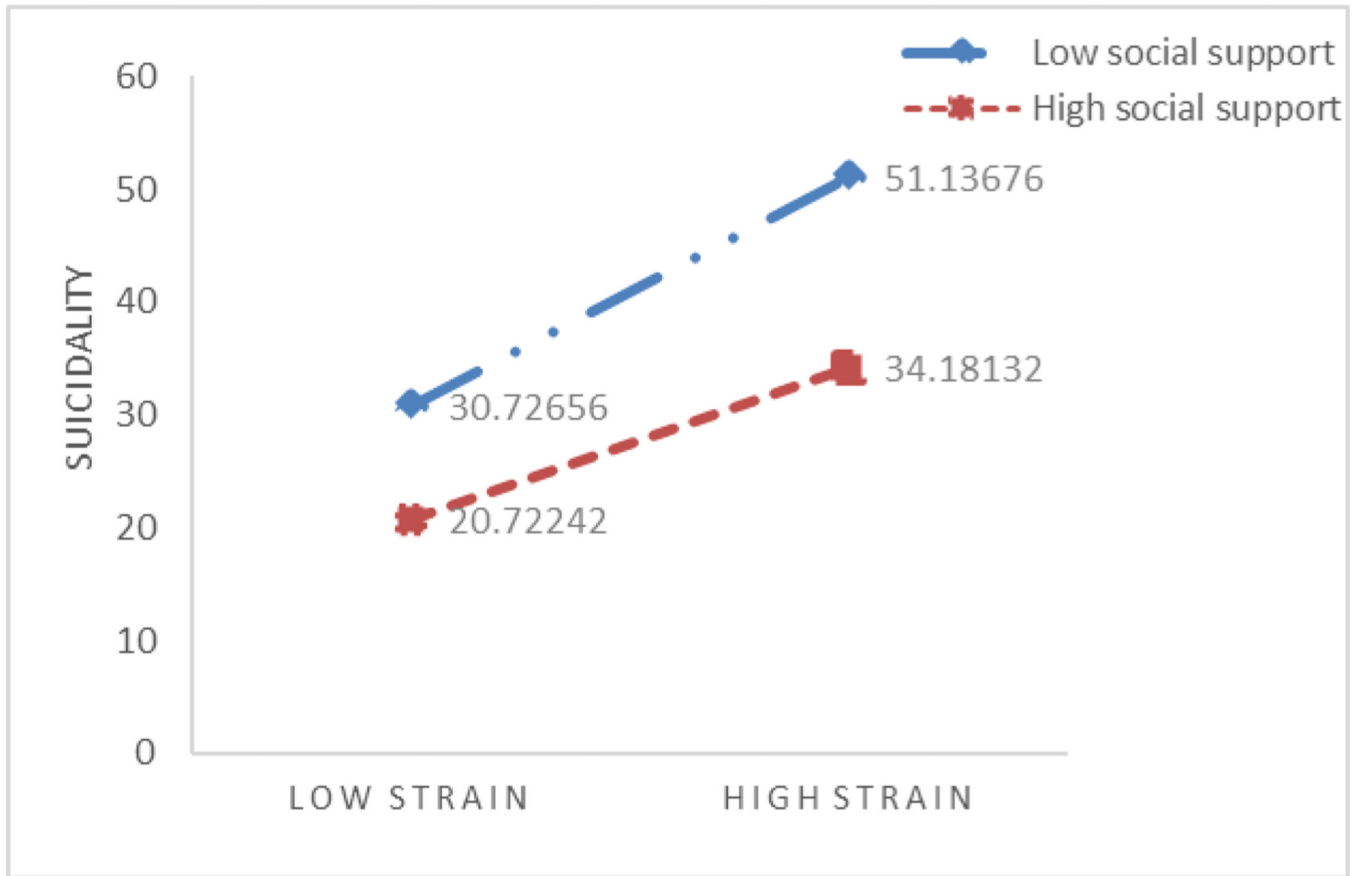
Figure 1.
The moderating effect of social support on the relationship between strain and suicidality

Table 1

Demographic characteristics of the participants and comparison of strain, social support, and suicidality (N=13,250)

Demographic variable	Frequency (f, %)	PSS (M±SD)	P	MSPSS (M±SD)	p	SBQ-R (M±SD)	P
Year in School			$p<0.001$		$p<0.001$		$P=0.146$
Year 1	4,253 (32.1)	91.8 (23.6)		63.4 (11.8)		1.8 (1.4)	
Year 2	4,161 (31.4)	96.7 (24.5)		61.4 (12.9)		1.9 (1.5)	
Year 3	3,074 (23.2)	95.9 (24.7)		61.6 (12.4)		1.9 (1.6)	
Year 4	1,060 (8.0)	90.2 (25.8)		63.3 (12.6)		1.9 (1.6)	
Year 5	199 (1.5)	90.5 (31.6)		66.3 (12.8)		1.7 (1.3)	
Post-graduate	504 (3.8)	91.5 (25.4)		64.3 (10.9)		1.0 (2.1)	
Gender			$P<0.001$		$P<0.001$		$P<0.001$
Male	5,154 (38.9)	95.4 (26.0)		61.2 (12.5)		1.7 (1.4)	
Female	8,096 (61.1)	93.5 (23.7)		63.2 (12.3)		1.9 (1.5)	
Race			$P<0.001$		$P<0.001$		$P=0.007$
Han	9,832 (74.2)	94.2 (24.5)		62.2 (12.3)		1.9 (1.5)	
Uighur	1882 (14.2)	92.2 (24.6)		63.0 (12.7)		1.8 (1.4)	
Kazakh	1391 (10.5)	98.0 (25.0)		62.5 (12.5)		1.6 (1.3)	
Hui	93 (0.7)	81.2 (29.9)		67.3 (13.0)		1.5 (1.1)	
Other minorities	53 (0.4)	83.5 (22.1)		64.8 (10.8)		1.6 (1.3)	
Household registration			$P<0.001$		$P<0.001$		$P=0.619$
Urban	6,135 (46.3)	92.6 (25.5)		63.4 (12.5)		1.8 (1.5)	
Rural	7,115 (53.7)	95.6 (23.8)		61.6 (12.2)		1.9 (1.5)	
Only-child			$P=0.0015$		$P<0.001$		$P=0.599$
Yes	5,340 (40.3)	93.1 (25.9)		62.9 (12.9)		1.9 (1.6)	
No	7,910 (59.7)	94.2 (23.7)		62.2 (12.2)		1.8 (1.5)	
Academic performance			$P<0.001$		$P<0.001$		$P<0.001$
Bad	994 (7.5)	102.9 (26.4)		58.8 (13.7)		2.4 (1.9)	
Average	9,447 (71.3)	94.7 (23.5)		62.4 (11.8)		1.9 (1.5)	
Good	2,796 (21.1)	89.3 (26.6)		63.8 (13.4)		1.7 (1.3)	
Economic status			$P<0.001$		$P<0.001$		$P<0.001$
Very bad	464 (3.5)	104.1 (29.2)		55.4 (17.1)		2.1 (2.0)	

Demographic variable	Frequency (f, %)	PSS (M±SD)	P	MSPSS (M±SD)	p	SBQ-R (M±SD)	P
Bad	2,398 (18.1)	100.5 (23.6)		59.2 (12.7)		2.1 (1.6)	
Normal	8,679 (65.5)	93.3 (23.8)		63.1 (11.5)		1.8 (1.4)	
Good	1,444 (10.9)	88.1 (24.6)		65.2 (12.6)		1.8 (1.5)	
Very good	265 (2.0)	82.9 (31.8)		65.4 (16.6)		1.4 (1.3)	
Political affiliation			P=0.005		P<0.001		P<0.001
CPC	742 (5.6)	92.4 (27.1)		63.1 (13.4)		1.5 (1.0)	
Youth League	11,846 (89.4)	94.1 (24.5)		62.5 (12.2)		1.8 (1.5)	
Others	663 (5.0)	96.6 (24.4)		59.2 (13.6)		2.3 (1.7)	
School association participation			P<0.001		P<0.001		P=0.310
Yes	9,368 (70.7)	93.5 (24.4)		63.2 (11.9)		1.8 (1.5)	
No	3,882 (29.3)	96.0 (25.1)		60.6 (13.4)		1.9 (1.5)	
Believe in God			P<0.001		P<0.001		P<0.001
Yes	3,061 (22.9)	93.5 (24.4)		61.2 (13.1)		2.1 (1.7)	
No	10,189 (76.8)	92.6 (24.1)		62.8 (12.2)		1.7 (1.5)	

PSS: Psychological Strains Scale;

MSPSS: Multidimensional Scale of Perceived Social Support;

SBQ-R: Suicidal Behaviors Questionnaire-Revised;

CPC: Communist Party of China

P=0.05

Table 2

Multiple regression of major risk factors for young adults' psychological strain and suicidality (SBQ-R)

variables	Psychological Strain				Suicidality			
	B	Std. error	R	R²	Beta	Std. error	R	R²
(Constant)	114.397[**]	1.945			1.614	0.290		
Grade	0.191	0.172			0.023	0.020		
Gender	−0.407	0.421			0.288[**]	0.049		
Race	−1.404[**]	0.486			−0.174[**]	0.049		
Household registration	0.460	0.459			−0.040	0.050		
Only child	0.336	0.482			−0.110	0.063		
Political affiliation	1.370	0.918			0.349[**]	0.128		
Religion	−5.934[**]	0.488			−0.226[**]	0.062		
School association	0.679	0.454			0.017	0.050		
Academic results	3.844[**]	0.407			−0.075	0.048		
Economic status	3.520	0.309			−0.067	0.038		
Psychological strain	-	-			0.015[**]	0.001		
Social support	−0.569[**]	0.017	0.367	0.134	−0.014[**]	0.002	0.315	0.097

Note:

[*] $p<0.05$,

[**] $p<0.001$

Table 3

Social support moderating the force of strain on suicidality

Model	variables	B	Std. error	Beta	R	R^2	R^2
1	Constant	1.970	0.023				
	Strain	0.372	0.025	0.245[**]			
	Social support	−0.180	0.027	−0.107[**]	0.298	0.089[**]	
2	Constant	1.937	0.024				
	Strain	0.414	0.025	0.273[**]			
	Social support	−0.199	0.027	−0.119[**]			
	Strain × social support	−0.141	0.021	−0.107[**]	0.315	0.099[**]	0.010

Note:

[*] $p<0.05$,

[**] $p<0.001$