

Published in final edited form as:

Arch Suicide Res. 2011 April ; 15(2): 127–139. doi:10.1080/13811118.2011.565269.

Suicidal Intent Among Young Suicides in Rural China

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Abstract

To understand psychometric characteristics of Beck Suicide Intent Scale (SIS) and different characteristics of suicides between high and low intent in Chinese culture. Data of 386 suicides and 416 living controls aged 15–34 years were used to analyze psychometric characteristics of SIS with 6 items. SIS with 6 items had high reliability and validity. Different characteristics were found between suicides with high intent and low intent. Hopelessness, depression, impulsivity, and approach coping skill were common factors of suicide with high and low intent. Education years, marriage, social support, and mental disorders were specific factors of suicide with low intent. High intent suicides had different characteristics from low intent suicides. SIS with 6 items is suitable for use in young rural China.

Keywords

case-control study; China; risk factors; suicide; suicide intent

Suicide rates in China (approximately 23/100,000 per year) are among the highest in the world (Phillips, Li, & Zhang, 2002). China has special patterns in suicide rates. First, suicide is the most common cause of death among Chinese young adults aged 15–34 years. Second, rural suicide rates are three or four times higher than urban rates. Third, the ratio of men to women rates is very close to 1, which is different from almost all other societies in the world (He & Lester, 1997; Phillips, Li, & Zhang, 2002; Qin & Mortensen, 2001; Wang, Li, Chi et al., 2008). Another unique characteristic of Chinese suicide is its significantly low percentage of mental illness among suicides (Phillips, Yang, Zhang et al., 2002). Earlier studies have also found that impulsivity personality and easy access to insecticides are strongly related to rural Chinese suicide risks (Phillips, Yang, Zhang et al., 2002). Lack of medical care and facilities in most Chinese rural areas might also increase the chance of completed suicides by those who had weak or no intent of death (Zhang, Conwell, Zhou et al., 2004).

Suicide intent is one component of overall suicidal risk (or suicidal potential) which is assessed simply by the behavior of the individuals as reported by others and by self-reports (Beck, Schuyler, & Herman, 1974). Suicide Intent Scale (SIS) has high internal reliability in different cultures (Beck, Schuyler, & Herman, 1974; Conner, Phillips, & Meldrum, 2007; Diaz, Baca-Garcia, Diaz-Sastre et al., 2003; Gau, Chen, Lee et al., 2009; Spirito, Sterling,

Donaldson et al., 1996). The first 8 items of SIS are mainly dealing with factual aspects of the attempt and the events surrounding the individual (Beck, Schuyler, & Herman, 1974) which is regarded as a more reliable measure of suicidal intent. The Chinese version of the first 8 items of SIS is suggested to be a suitable measure in Chinese culture except for some items with low item-total correlations in small sample tests (Zhang & Jia, 2007).

Due to specific Chinese patterns in suicides and cultural differences from western countries in SIS, data from a large sample of 392 suicide cases and 416 living controls were used to further explore the psychometric characteristics of the Chinese version of first 8 items of SIS and assess its suitability in youth rural population. The data also were used to understand the characteristics of young rural suicides with different levels of suicide intent, and explore the risk factors related to young rural suicides with high or low intent.

METHOD

Study Population and Design

The established psychological autopsy (PA) method and case-control study design were employed to investigate the factors of rural young suicides in China. The pilot study of 66 suicides and 66 community living normal controls in Liaoning province, China, demonstrated that the PA method is feasible to study suicide in Chinese social and cultural environments (Zhang, Wiczorek, Jiang et al., 2002). Proxy respondents were generally good judges of most of the targets' information, which showed Western developed measurements were reliable and valid with the Chinese samples (Zhang, Conwell, Wiczorek et al., 2003).

Three provinces (Liaoning, Hunan, and Shandong) were selected in Mainland China. There were 16 rural counties randomly selected from those provinces (6 in Liaoning, 5 in Hunan, and 5 in Shandong). Suicides aged 15–34 years were consecutively sampled from October 2005 to June 2008. Community living controls also aged 15–34 years were recruited in the same counties for the same time periods as suicides. A total of 392 suicides (178 females, 214 males) and 416 living controls (214 females, 202 males) were obtained.

Procedures

After getting their agreement by written informed consent, two informants of each suicide or each control were interviewed by our trained interviewers. The interview schedule was arranged between 2 and 6 months after the suicide incident. The average interview time was 2.5 hours.

Instruments

Demographic variables include age, gender (male =1, female =0), education years, marriage status (never married =0 [single and not dating], ever married =1 [married, widowed, divorced, remarried, and single but dating]), personal annual income (RMB, 1US \$ ≈ 7.00 RMB), religion (No =0 [Atheist], Yes =1 [Taoism, Islam, Protestantism, Catholicism, Buddhism, other]), Party/League membership (No = 0, Yes =1), suicide in the family (No =0, Yes =1), pesticide stored in home (No = 0, Yes =1).

Health status factors include physical illness and mental disorder. Physical illness status was assessed by the question “Do you know whether s/he has ever had chronic physical illness?” Mental disorders for suicides and living controls were assessed with the Chinese version of Structured Clinical Interview for the DSM-III-R (SCID) (Gu & Chen, 1993; Spitzer, Williams, Gibbon et al., 1988) by the psychiatrists on each interview team in a consensus meeting at which all responses from each informant were presented by the interviewers. All

interviewers had been intensively trained in how to use the SCID in the PA proxy data collection. The Chinese version of SCID has been shown to be an adequate instrument for Chinese populations (Zhang, Conwell, Wieczorek et al., 2003). In four categories of mental disorders including alcohol disorder, eating disorder, depression disorder, and organic mood disorder, the agreement rates are 100%; the agreement rate for anxiety disorder is 98%. In this study with 392 suicides, 188 (47.96%) had any mental disorder at time of death, 138 (35.20%) had mood disorders, 44 (11.22%) had schizophrenia and other psychotic disorders, 25 (6.38%) had substance use disorders, 8 (2.04%) had anxiety disorders, and 2 (0.5%) had other Axis I disorder. Among the 416 living controls, 16 (3.85%) had any mental disorder at time of interview, 10 (2.40%) had mood disorders, 2 (0.48%) had schizophrenia and other psychotic disorders, 4 (0.10%) had substance use disorders, 2 (0.48%) had anxiety disorders and other Axis I disorders, none had other Axis I disorders.

Suicidal intent was measured by SIS with first 8 items (Beck, Schuyler, & Herman, 1974; Zhang & Jia, 2007). The first four items indicate a subject's precautions for being found by others, and the second four items describe the extent to which a subject plans for the suicidal attempt. Each item is graded on a scale with three categories: 0, 1, and 2. The highest score of each item was decided to be the target's score by comparing the two responses and the total score of SIS was obtained by the recalculated sum of the eight items. The total score of SIS with 8 items should range from 0 to 16. Hopelessness was measured by the Beck Hopelessness Scale (BHS) (Beck, Weissman, Lester et al., 1974) which has 20 5-point Likert responses from 1 (*extremely low*) to 5 (*extremely high*) with total scores ranging from 20 to 100 in this study. Depression was measured by the 24-item Hamilton Depression Rating Scale (HAMD) (Williams, 1988). The total score of HAMD can range 0–77. Impulsivity was measured by 12-item scale (Dickman, 1990) with response to each item being true (1) or false (0) in this study. The total score can range 0–12. Social support for pressure or stress in daily life was measured by a self-made scale with 7 answers to the question of “When the subject had stresses, problems, or difficulties in daily life, from whom did s/he usually get help?” The 7 answers are: (1) family members; (2) friends; (3) psychiatrists; (4) supervisors at work (or teacher); (5) religion; (6) colleagues (or classmates); (7) neighbors. Each answer's response was “yes” (1) or “no” (0). The total score of social support for pressure or stress is the summary of each response to these 7 answers, so it can range 0–7. Approach and avoidance coping skills were measured by the 48-item Coping Response Inventory (CRI) (Moos, 1988; Moos, Brennan, Fondacaro et al., 1990). Each item has 4 responses from 0 (*never*) to 3 (*often*). The total score of approach or avoidance coping skills can range 0–72. Anxiety was measured by 20-item of Spielberger State-Trait Anxiety Inventory (STAI) (Spielberger, 1983). Each item has 4 response from 1 (*never*) to 4 (*almost always*). The total score of anxiety can range 20–80. Most of these scales have shown good inter-rater reliabilities and validity in Chinese culture (Zhang, Conwell, Wieczorek et al., 2003).

Integrating Information from Different Sources

Each suicide or control had two proxy interviewees with the majority of the responses being the same or similar. For the different responses, data were integrated according to the variables based on previous experiences (Kraemer, Measelle, Ablow et al., 2003). For demographic information, the responses by the informant who should better know were relied on. For example, a family member should know the target person's age and birth date more accurately than does a friend. To determine a diagnosis with the SCID, the response representing a positive symptom was selected, because the other informant might not have had an opportunity to observe the specific behavior or characteristics of the target. These guidelines were applied in integrating responses of both cases and controls.

Statistical Analysis

The Cronbach's alpha coefficients were calculated for internal consistency. Principal component analysis by variance matrix was used to extract factors of SIS. Pearson correlation was conducted for calculating correlations between item and total scores of SIS, between SIS score and continuous variables. *t*-tests were used to compare whether there were significant difference in SIS scores in category variables. Related factors to suicide with high intent or low intent were analyzed by multiple logistic regression models. All statistical analyses were carried out with SPSS, version 16.0. All significant level was $\alpha = .05$ in this study.

RESULTS

In this study, 98.5% of 392 suicides without missing values in the first 8 items of SIS scale were used. The total scores of SIS with first 8 items ranged from 0 to 16 (Mean =8.29, SD =3.29). The Cronbach's alpha coefficient was .651. If each item was deleted from the scale one by one, the Cronbach's alpha coefficients varied from .568 to .691. If items "Getting help" and "Communication" were deleted from the scale, the Cronbach's alpha coefficients were high (.691 for item "Getting help" and .665 for "Communication"). Corrected item-total correlation analysis showed that items "Getting help" and "Communication" had very low values. Table 1 illustrated the statistics with and without these two items, and the results were similar to what had been found earlier among rural suicide attempters in China (Conner, Phillips, & Meldrum, 2007). So, SIS with 6 items (excluding items "Getting help" and "Communication") was finally used for measuring suicide intent of suicides.

The Reliability and Validity of SIS with Six Items

The scores of SIS with 6 items ranged from 0 to 12 with their mean being 5.95 (SD =2.91). The internal consistency of the scale was high (Cronbach's alpha coefficient = .700). If each item was deleted in the scale, the Cronbach's alpha coefficients were high and stable (from .637 to .694). Corrected item-total correlations were also high (from .575 to .698) (p all < .001). Principal component analysis by variance matrix rotation showed that two factors (eigenvalue over unit) were extracted which could explain 60.034% of total variance. Factor 1 including "Isolation," "Timing," and "Precautions" named as "precautions" explained 30.860% of total variance. Factor 2 including "Final acts," "Preparation," and "Suicide note" named as "planning" explained 29.173% of total variance. The loadings of items in their factors were as high as over .640. The results on Factors of SIS with 8 items and 6 items were similar to the previous report on factors of SIS with 8 items in 66 suicides in China (Zhang & Jia, 2007). See Table 2. Hopelessness has been demonstrated to be an important predictor of suicidality (McMillan, Gilbody, Beresford et al., 2007; Neufeld & O'Rourke, 2009; Pompili, Lester, Grispi et al., 2009; Zeyrek, Gencoz, Bergman et al., 2009) with a high internal consistency in Chinese culture (Kong, Zhang, Jia et al., 2007; Qian, Liu, Huang et al., 2008), it was used as a criterion against SIS for measuring SIS criterion validity in this study. Correlation analysis showed that correlation coefficient between BHS and SIS scores was .300 ($p < .001$).

The Correlates to Suicide Intent by Gender

Although male suicides had a higher SIS score (mean =6.12, SD =2.96) than did the female suicides (mean =5.74, SD =2.84), the difference was not significant ($t(384) = 1.299, p = .195$). However, as Table 3 indicated, among female suicides, high SIS was correlated with more education years, religion, suicide in family, no pesticides in home, hopelessness, depression, and anxiety. Male suicides with higher intent were significantly more likely to be older, physically ill, and have mental disorders, high score on hopelessness, depression, and anxiety, but a low score on impulsivity.

Different Characteristics of Suicide between Those with Low and High Intent

As no criterion of SIS for distinguishing which individuals were low intent or high intent, terciles were used on total scores of SIS with 6 items to divide three subgroups according to low intent (SIS <5, $n=127$, 32.9%), intermediate intent (SIS 5–7, $n=140$, 36.3%), and high intent (SIS >7, $n=119$, 30.8%). Table 4 indicated that suicides with high intent were more likely to be male, with more years of education, higher percent of suicide in family, physical illness, mental disorders, higher level of hopelessness, depression, anxiety, lower level of impulsivity, and less percent of pesticide stored in home.

Living controls were also brought to the study to analyze the risk factors of suicide with high intent and low intent. All variables in Table 4 were also used by multiple logistic regression model analysis, backward method (LR) was used and the probability for entry was .05 while the probability for removal was .10. As Table 5 revealed, both suicides with high intent and low intent were significantly associated with hopelessness, impulsivity, depression, and approach coping skill. Besides the above factors, suicide with low intent was also significantly associated with education years, marriage, social support, and mental disorders. Anxiety score was negatively associated with low intent suicides with $\alpha = .057$ which suggested that a certain level of anxiety can protect individuals from suicide with low intent.

DISCUSSION

Through psychometric investigation of the Beck's SIS, six items were selected out of the eight for studying Chinese suicide intent. We made the selection based on the following reasons. First, the item-total correlations of the items "Getting help" and "Communication" were lowest as also found in previous studies (Conner, Phillips, & Meldrum, 2007; Zhang & Jia, 2007), which suggests that these two items are not easily understood by Chinese population, especially in rural areas. Second, SIS with 6 items had higher internal consistency (Cronbach's alpha coefficient value = .700) than that of SIS with 8 items (Cronbach's alpha coefficient value = .651); the Cronbach's alpha coefficient values of the items "Getting help" (.691) and "Communication" (.665) have increased above the total scale alpha value (.651). Third, SIS with 6 items had higher stable Cronbach's alpha coefficient values, item-total correlations than those of SIS with 8 items. Fourth, SIS with 6 items also yielded the same two factors explaining most of the total variance (60%), and a strong correlation with hopelessness. Items "Getting help" and "Communication" are often together in a factor "communication with others" (Zhang & Jia, 2007). The information of "communication with others" can be more accurately assessed from the target persons than from informants.

Some different characteristics were found between female suicides and male suicides in suicide intent. In male suicides, high suicide intent was specifically related to older age, mental disorders, physical illness, and low level of impulsivity. In female suicides, however, high suicide intent was specifically related to religion, suicide in family, pesticide in home, and more education years. These differences indicated that female suicides with high intent were more affected by socioeconomic and environmental factors while male suicides with high intent were more affected by their health status. In rural China, suicide rates among young females is higher than that of young males (Phillips, Li, & Zhang, 2002). Easy access to farming pesticides and lack of medical care and facilities may be important factors related to the death of impulsive attempters in the female population (Phillips, Yang, Zhang et al., 2002). Cultural-socioeconomic disadvantages of Chinese rural females and cultural attitudes toward suicide might be more reasonable to explain the unique patterns of suicide in China (Law & Liu, 2008; Zhang, Conwell, Zhou et al., 2004).

Compared to suicides with high suicide intent, suicides with low intent were more likely to be female, with less education years, lower level of hopelessness, depression, anxiety, higher level of impulsivity, high percent of pesticide stored in home, low suicide history in family, physical illness, and mental disorders. The results indicated that suicides with low intent were more related to pesticide stored in home, impulsivity, and psychopathology status. Acts of suicide with low intent are a grave public health concern in China (Conner, Phillips, & Meldrum, 2007). Ingesting pesticide is used by 58% of suicides, and the percent of receiving unsuccessful medical resuscitation before death is very high (62%), only 9% of suicide have ever visited a mental health professional (Phillips & Yang, 2004). In China, interpersonal conflict is an important predictor of suicide (Phillips, Yang, Zhang et al., 2002; Zhang, Conwell, Zhou et al., 2004), loss of face, as expressed as *diu mianzi* in Chinese language often happened during conflict. *Mianzi* is very important in daily life to some Chinese people which is specific to Chinese culture (Zhang, Conwell, Zhou et al., 2004). When the event of *diu mianzi* happened in their life, suicides with low intent would exhibit impulsive behavior, like ingesting pesticide. Controlling access to potent poisons, particularly pesticides, developing social support networks, and changing norms (Phillips, Yang, Zhang et al., 2002; United Nations, 1996) might be effective in suicide prevention in China, especially to suicide with low intent.

In this study, common factors (hopelessness, impulsivity, depression and approach coping skill) were found in both high intent and low intent suicides. Hopelessness (Beck, Steer, Kovacs et al., 1985; Haw, Hawton, Houston et al., 2003), depression (Astruc, 2004; Phillips, Yang, Zhang et al., 2002; Schaffer, Flint, Smith et al., 2008; Zhang, Conwell, Zhou et al., 2004), impulsivity (Anestis, Selby, & Joiner, 2007; Conner, Meldrum, Wieczorek et al., 2004; Maser, Akiskal, Schettler et al., 2002; Pfeffer, Jiang, & Kakuma, 2000; Phillips, Yang, Zhang et al., 2002; Zhang, Wieczorek, Conwell et al., 2010), and maladaptive coping (Cukrowicz, Ekblad, Cheavens et al., 2008; Marusic & Goodwin, 2006) have been demonstrated to be associated with suicide. In suicide prevention, especially for the young rural population, individuals with high levels of hopelessness, impulsivity, and depression should be considered a high risk group.

Education years, marriage, and social support were protective factors while variable of mental disorders was a risk factor of low intent suicide. Previous studies have demonstrated that marriage is a protective factor of suicide (Corcoran & Nagar, 2010; Griffiths, Ladva, Brock et al., 2008; Masocco, Pompili, Vichi et al., 2008). Poor educational level is also associated with suicide or suicide risk (Sauvaget, Ramadas, Fayette et al., 2009; Scoliers, Portzky, van Heeringen et al., 2009; Suokas, Suominen, Heila et al., 2010). In this study, marriage and education years were protective factors of suicide, however, just of low intent, not high intent. Several studies have found that low levels of social support are linked to suicidal ideation and suicidal behavior (Compton, Thompson, & Kaslow, 2005; McLaren & Challis, 2009; Turvey, Stromquist, Kelly et al., 2002). Social support for pressure or problems in daily life was found to be a protective factor for suicide with low intent in this study. Individuals with more social support resource will have little risk for low intent suicide. More studies have revealed that farmers would resort to their family, other farmers, and their friends when they have a crisis (Judd, Jackson, Fraser et al., 2006; Peck, Grant, McArthur, & Godden, 2002). Individuals with partners reduce their risk of suicide (Stack, 2004; Yip & Thorburn, 2004). These results have some significance in preventing suicide in the population. Enhancing social support resource, especially in the family, might reduce the risk of suicide with low intent.

Cross-national analysis of the associations among mental disorders and suicidal behavior has found that anxiety is significantly associated with suicide attempt or suicide ideation (Nock, Hwang, Sampson et al., 2009). Suicide is also attributable to anxiety in Chinese populations

(Chan, Chiu, Chen et al., 2009; Zhang, Conwell, Zhou et al., 2004). In this study, anxiety score was negatively related to suicide with low intent ($p = .057$) which suggests that a certain level of anxiety might protect individuals from suicide with low intent. However, there was no significant association between anxiety score and suicide with low intent at the $\alpha = .05$, and anxiety score was not entered in the final model of risk factors of suicide with high intent (Table 5), which indicate that our study doesn't support the association between anxiety score and young rural suicide. Different samples and measurement might be important causes leading to our findings were different from the above results (Chan, Chiu, Chen et al., 2009; Nock, Hwang, Sampson et al., 2009; Zhang, Conwell, Zhou et al., 2004).

Some limitations should be mentioned in this study. First, "Communication" and "Getting help" were originally designed to specify the level of suicide's intent. A suicide intent scale with those two items misses the chance of comparing with studies without the two items. Second, in this psychological autopsy study with data collected through proxy informants of suicides and controls, response biases or systematic errors might have happened. Therefore, future studies of this kind may use suicide serious attempters, from whom information can be directly obtained.

CONCLUSION

The current study has reanalyzed psychometric characteristics of the SIS with first 8 items and 6 items respectively in a relatively large sample in Chinese. It has also compared characteristic differences between suicides with high intent and low intent. Furthermore we have analyzed demographic, health status, and social psychopathology factors related to suicide intent. These results will be helpful to understand the applicability of SIS in Chinese culture and distinguish high risk populations of suicide by using SIS in suicide prevention and intervention. Finally we hope our research will provide some instruction on suicide research and prevention practice in China, especially on suicide with low intent.

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TABLE 1
Consistency Tests of SIS with First Eight Items and SIS with Six Items for 386 Suicides

	Mean (SD)	Item-total correlation if item deleted		Alpha if item deleted		Item-total score correlation	
		SIS-8	SIS-6	SIS-8	SIS-6	SIS-8	SIS-6
Isolation	1.72 (.56)	.409	.423	.611	.668	.546	.575
Timing	1.29 (.75)	.427	.416	.598	.665	.604	.617
Precautions	.99 (.79)	.430	.442	.596	.656	.614	.647
Getting help	1.72 (.67)	.009	–	.691	–	.213	–
Final acts	.51 (.76)	.534	.501	.568	.637	.689	.684
Preparation	.93 (.84)	.499	.496	.574	.637	.678	.698
Suicide note	.51 (.87)	.314	.338	.629	.694	.541	.588
Communication	.62 (.84)	.180	–	.665	–	.420	–
SIS-8 total	8.28 (3.30)					1.000	.964
SIS-6 total	5.95 (2.91)	–				.964	1.000

TABLE 2

Factor Loadings of SIS with First Eight Items (Precautions, Planning, and Communication) and SIS with Six Items (Precautions and Planning) by Principal Component Analyses

	Precautions		Planning		Communication	
	SIS-8	SIS-6	SIS-8	SIS-6	SIS-8	SIS-6
Isolation	.634	.641				
Timing	.806	.812				
Precautions	.764	.764				
Getting help					-.545	
Final acts			.673	.748		
Preparation			.550	.654		
Suicide note			.912	.842		
Communication						.892

TABLE 3

Demographic Characteristics, Health Status, and Social Psychopathology in Relation to the Scores of SIS with Six Items by Gender for the 386 Suicide Cases

Variable	Female (N =175)			Male (N =211)		
	N (%)	Mean (SD)	p	N (%)	Mean (SD)	p
Marriage						
Never married	48 (27.4)	5.56 (2.57)	.618	111 (52.6)	5.88 (2.84)	.215
Ever married	127 (72.6)	5.80 (2.94)		100 (47.4)	6.39 (3.08)	
Religion						
No	112 (65.1)	5.48 (2.77)	.041	157 (75.1)	6.12 (2.98)	.991
Yes	60 (34.9)	6.40 (2.81)		52 (24.9)	6.12 (2.99)	
Party=League member						
Yes	33 (19.1)	5.24 (2.44)	.286	56 (26.9)	6.07 (2.63)	.889
No	140 (80.9)	5.83 (2.92)		152 (72.1)	6.13 (3.08)	
Suicide in family						
Yes	38 (21.7)	6.71 (2.98)	.016	48 (22.8)	6.27 (3.05)	.725
No	137 (78.3)	5.47 (2.75)		162 (78.2)	6.10 (2.94)	
Pesticide in home						
Yes	130 (74.3)	5.45 (2.82)	.024	162 (76.8)	5.98 (2.98)	.207
No	45 (25.7)	6.56 (2.74)		49 (23.2)	6.59 (2.89)	
Physical illness						
Yes	62 (35.6)	6.15 (2.86)	.186	76 (36.2)	6.67 (2.82)	.048
No	112 (64.4)	5.55 (2.79)		134 (63.8)	5.83 (3.02)	
Mental disorders						
Yes	69 (39.4)	5.99 (2.72)	.351	117 (55.4)	6.64 (2.97)	.004
No	106 (60.6)	5.58 (2.91)		94 (44.6)	5.48 (2.84)	
Variable	N (%)	r	p	N (%)	r	p
Age	175 (45.3)	.026	.737	211 (54.7)	.213	.002
Education years	172 (45.3)	.156	.041	211 (54.7)	.129	.062
Personal annual income	171 (45.3)	.058	.450	204 (54.7)	-.020	.778
Hopelessness	170 (45.2)	.232	.002	206 (55.8)	.340	.000

Variable	Female (N =175)			Male (N =211)		
	N (%)	Mean (SD)	p	N (%)	Mean (SD)	p
Impulsivity	169 (45.6)	-.081	.293	202 (55.4)	-.258	.000
Social support	168 (45.0)	.138	.075	205 (55.0)	-.062	.377
Approach cope	155 (45.6)	.017	.838	185 (54.4)	-.022	.765
Avoidance cope	151 (45.1)	-.025	.761	184 (54.9)	.070	.345
Depression (HAM-D)	172 (45.7)	.214	.005	204 (54.3)	.361	.000
Anxiety	174 (45.7)	.180	.018	207 (54.3)	.205	.003

Note. The numbers are variance due to variables with missing data.

TABLE 4

Comparing Demographic Characteristics, Health Status, and Social Psychopathology between Suicides with Low Intent (SIS <5) and Suicides with High Intent (SIS >7)

	Suicides with low intent (SIS <5) (N = 127)	Suicides with high intent (SIS >7) (N = 119)	Statistical test	p
Male gender, %	51.2	60.5	$\chi^2 = 2.520$	.012
Age years, mean (SD)	26.17 (6.25)	28.18 (6.21)	$t = .130$	.898
Marriage ever married, %	59.8	64.7	$\chi^2 = .618$	.432
Education years, mean (SD)	6.77 (2.58)	7.61 (2.80)	$t = 2.443$	.015
Personal annual income, mean (SD)	5,589 (14,421)	5,706 (6,837)	$t = .079$	.937
Religion, %	25.0	33.0	$\chi^2 = 1.906$	.167
Party=League member, %	20.6	17.9	$\chi^2 = .281$	.596
Suicide in family, %	18.2	29.4	$\chi^2 = 4.217$	.040
Pesticide in home, %	83.5	68.9	$\chi^2 = 7.225$	.007
Physical illness, %	31.2	43.7	$\chi^2 = 4.072$	.044
Mental disorders, %	39.4	53.8	$\chi^2 = 5.131$	.023
Hopelessness, mean (SD)	64.79 (13.20)	73.91 (12.76)	$t = 5.442$	.000
Impulsivity, mean (SD)	7.71 (3.26)	6.10 (3.73)	$t = -3.561$	.000
Social support, mean (SD)	2.77 (1.24)	2.76 (1.27)	$t = -.018$	.985
Approach cope, mean (SD)	20.84 (13.20)	20.23 (12.82)	$t = -.344$	.731
Avoidance cope, mean (SD)	37.40 (8.58)	38.49 (9.57)	$t = .881$	.379
Depression (HAMD), mean (SD)	10.33 (11.96)	20.26 (16.97)	$t = 5.511$	.000
Anxiety, mean (SD)	50.77 (10.13)	55.80 (11.09)	$t = 3.702$	.000

TABLE 5

Factors Related to High Intent Suicides (SIS >7) and Low Intent Suicides (SIS <5): Multiple Logistic Regression Models with the Case-Control (Suicide vs. Living) Status as Dependent Variables

Variable	High intent suicides ^a (N = 119)		Low intent suicides ^b (N = 127)	
	OR (95%CI)	p	OR (95%CI)	p
Educations years			.727 (.602–.879)	.001
Marriage (Being married)			.350 (.140–.874)	.025
Social support			.434 (.292–.645)	.000
Hopelessness	1.157 (1.088–1.230)	.000	1.072 (1.021–1.125)	.005
Impulsivity	1.209 (1.017–1.438)	.031	1.186 (1.022–1.377)	.025
Depression (HAMD)	1.415 (1.228–1.631)	.000	1.499 (1.256–1.789)	.000
Anxiety			.937 (.877–1.002)	.057
Mental disorders			3.888 (1.075–14.064)	.038
Approach cope	.923 (.866–.983)	.013	.948 (.908–.990)	.015
Constant	.000	.000	31.499	.129

Note.

^aCox & Snell $R^2 = 0.554$, Nagelkerke $R^2 = 0.862$, Chi-square = 357.359, $p < .001$.

^bCox & Snell $R^2 = 0.497$, Nagelkerke $R^2 = 0.771$, Chi-square = 304.859, $p < .001$.