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Patterns of Life Events Preceding the Suicide in Rural Young Chinese: A Case Control Study¹

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Abstract

Background—Previous studies on the Chinese suicide found some life events prior to the suicide different from those in the West, but there is a lack of summary of the Chinese life event patterns to better understand the effects of the social structure on Chinese suicide.

Aim—We tried to identify the life events that precede the Chinese rural youth suicides and compare them with what found in the West, so as to find the patterns that are particularly true in the Chinese culture contexts.

Methods—Suicide cases were investigated with a psychological autopsy study in rural China, and local community living controls were also interviewed with the same protocol.

Results—We collapsed 64 negative life events into six categories: (1) Marriage/Love, (2) Family/Home, (3) Work/Business, (4) Health/Hospital, (5) Law/Legal, (6) Friend/Relationship. About 92.3% of the suicides studied had experienced at least one type of negative life events. The three most common negative life events categories in the past one year were Family/Home (60.7%), Health/Hospital (53.8%) and Marriage/Love (51.3%) in the rural young suicide victims.

Conclusions—Among the negative life events, those related to family relations, love affairs, and marital issues were most likely to precede a suicide of rural suicides in China, and it is especially true of rural young women. Family is an important social institution in rural China for suicide prevention efforts.

Keywords

suicide; life events; family; marriage; psychological autopsy; culture; China

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Introduction

Suicide rates in China are among the highest in the world. In China, suicide is the fifth most important cause of death and the leading cause of death among 15–34 years old young adults (Wang, Li et al. 2008). The average death rate for suicide in China was 23 per 100,000 during 1990–2000, accounting for about 287,000 suicide deaths every year (Phillips, Li et al. 2002; Phillips, Yang et al. 2002). Although the overall suicide rates in China have been declining over the past 20 or so years (Zhang and Jing 2011), suicide is still an important challenge to the public health in Chinese societies.

Several unique findings on the pattern of suicide in China compared with other countries have been reported by empirical researchers in recent years. First, rural suicide rate is three to five fold than urban (Phillips, Li et al. 2002; Yang, Zhou et al. 2004; Yip, Liu et al. 2005). Second, women in China are more likely than men to commit suicide (Ji, Kleinman et al. 2001; Phillips, Li et al. 2002; Yip, Liu et al. 2005). Third, consistent with findings in the West the highest suicide rate is in older adults among all demographic categories, but another special small peak occurs in the 15–34 years old age group (Phillips, Li et al. 2002).

In the West, mental illness is a strong risk factor for suicide (Robins, Murphy et al. 1959; Conwell, Duberstein et al. 1996; Harris and Barraclough 1997; Zhang, Conwell et al. 2004), and over 90% of suicide cases in the West have died with a psychiatric diagnosis (Conwell, Duberstein et al. 1996; American Psychiatric Association 2003; Mann, Apter et al. 2005). However the percentage of psychiatric diagnoses among suicides in China is lower than the West -- about 40%–70% of the suicides in China have been found to have at least one such illness (Phillips, Li et al. 2002; Zhang, Xiao et al. 2010).

Previous research with Chinese data investigated non-clinical samples with a focus on social structural and individual psychological factors and identified psychological strains as risk factors for Chinese rural young suicide (Zhang 2010; Zhang, Wiczorek et al. 2010). It was also hypothesized that both psychopathology and suicide are preceded by psychological strains which might have been resulted from certain life events.

Suicide research in the West has identified work, family problems, and physical diseases as the major life events that precede most suicide cases (Heikkinen, Aro et al. 1992). Findings in Chinese suicides listed physical diseases, the family, love, and marital related problems as major life events before the victims killed themselves (Ma 2007). However, the studies on the Chinese suicides and their life events were limited by their sample sizes and localities and therefore lacked generalizability. Studies with comparatively larger samples, more sophisticated instruments, and more rigorous techniques are needed to identify the China type life events preceding the Chinese rural young suicide. This current study tries to fill the gap and aims to provide some theoretical basis for Chinese rural young suicide prevention.

Methods

Samples and Research Design

Sixteen rural counties were randomly selected from three provinces of China. The three provinces were Liaoning, Hunan, and Shandong which respectively present industrial province in the Northeast China (Liaoning), agriculture province in the Central South China (Hunan), and economic prosperity in both industry and agriculture in the mid-way between Liaoning and Hunan (Shandong). In each county, suicide victims 15–34 years of age were consecutively enrolled. A total of 392 suicide cases (214 males and 178 females) and 416 community living controls (202 males and 214 females) of the same age range and from the same counties were entered for study.

We trained the village doctors in the research areas. The training included the study procedures and the way to determine and report suicidal deaths to the local Center for Disease Control and Prevention (CDC). The information of suicidal deaths gathered at the county CDCs were then forwarded on a monthly basis to the provincial CDC. For those suicidal deaths that were not recognized by any health agency, our mortality registry system allowed the village treasurers, who collect fees for each burial or cremation for all the deaths in the village, to notify the county CDC. Whenever necessary, an investigation helped by the village board and villagers was conducted to ensure that no cases of suicide were missed or erroneously reported.

Instruments and Measurements

Measures regarding to this study include socio-demographic information, life events, impulsivity, and the Structured Clinical Interview for DSM-IV (SCID). Each instrument above was validated in our previous studies (Zhang, Conwell et al. 2003; Zhang, Conwell et al. 2004).

Age was categorized into two groups: 15–24 years and 25–34 years. The family's annual income and the personal annual income in *Yuan* (Renminbi) were respectively categorized into three groups: (1) 10,000 *Yuan*, (2) 10,001–20,000 *Yuan*, and (3) 20,001 *Yuan*, and (1) 5,000 *Yuan*, (2) 5001–10,000 *Yuan*, and (3) 10,001 *Yuan* (During the study period, the exchange rate was approximately seven *Yuan* to one US dollar). The health condition was categorized into “poor,” “average” and “good,” and marital status into “not currently married” and “currently married.” Never married, divorced, separated, or widowed were categorized into the former, and the latter including those who were currently married or involved in a living relationship. Dickman Impulsivity Instrument (DII) was adopted to measure the impulsivity personality for Chinese rural youths. A total of 23 items of the DII were divided into two subscales: Functional Impulsivity (FI) and Dysfunctional Impulsivity (DI). The Functional Impulsivity consists of the 11 items that bear odd numbers in the Dickman Impulsivity Instrument (DII), and the Dysfunctional Impulsivity subscale includes the 12 items that are of even numbers. Functional Impulsivity results in rapid, inaccurate performance in situations where this is optimal and Dysfunctional Impulsivity results in rapid, inaccurate performance in situations where this is non-optimal. Table 1 illustrates descriptions of the samples under study.

The life event questionnaire was developed on the Paykel's Interview for Recent Life Events (Paykel, Prusoff et al. 1971) with some modifications and additions by the current research team in an earlier study with the data in Liaoning Province of China (Zhang, Conwell et al. 2003). There were 44 items in Paykel's Interview for Recent Life Events. We added 19 items in consideration of the physical, psychological characteristics of 15–34 years old people in rural China. The results of pilot study showed that the modified life event questionnaire had high reliability and validity scores. The occurrence of recent life events during the last one year preceding suicide was ascertained through a list of 64 structured questions on different aspects of adult life. We collapsed the 64 life events into six categories: (1) Marriage/Love, 14 items; (2) Family/Home, 18 items; (3) Work/Business, 10 items; (4) Health/Hospital, 13 items; (5) Law/Legal, 4 items; and (6) Friend/Relationship, 5 items. For the list of the 64 life events, please read Table 2.

Each of the 64 life event items was recorded for five questions regarding the past one year: (1) The date it happened; (2) The number of times it happened; (3) Whether it was positive or negative for the target person; (4) The impact to the target person's mental health, measured by a five point scale from no impact to very severe impact; (5) The duration of the event, measured by a four point scale from three months or less to one year or longer. The intensity of each life event is calculated by the impact multiplied by the duration and then by

the number of times it happened (Yang and Zhang 1993). Subjects with more than one life event in any category were counted only once for that category. The “date the event happened” was used to exclude those events that were claimed beyond the past 12 months prior to the death (for the suicides) or the interview (for the controls). The information on “Whether it was positive or negative for the target person” was used to exclude the life events that were regarded by the interviewee as a positive one, such as wedding, giving birth to a child, a child moving out, etc., as we are looking at the negative life events in this study.

Interview Procedure

We interviewed two informants for each suicide victim and each living control. Characteristics of the informants were noted in a standardized fashion (i.e., most recent contact, frequency of contacts in the last month and last year, number of years informant has known the target, the informant’s relationship with the target, and the informant’s impression of their familiarity with target persons). The first informant was always a parent, spouse, or another important family member, and the second informant was always a friend, coworker, or neighbor. Although target persons could be as young as 15 years of age, informants had to be 18 or older. And if marital infidelity and family oppression were possible causes of suicide, we tried to avoid recruiting informants associated with family disputes because interview of these people could result in biased reports.

Informants were integrating by the following two guidelines: (1) For demographic information (i.e. age, gender, education, marital status, family annual income, personal annual income), we basically relied on the answers by the informant who had the best access to the information. (2) With regard to mental disorders, we recorded a symptom as present if it was endorsed by either informant because the other informant may not have had an opportunity to observe the specific characteristic or behavior.

All interviewers were mental health or public health professionals and were intensively trained for two weeks on determination of means of death, psychological autopsy methods, and administration of the study instruments by U.S. and Chinese experts before beginning data collection. An additional one-week training of all investigators from the three research provinces was carried out at the mid-term of the data collection.

Quality Control and Ethics

Informants were first approached by the local health agency or the village administration by a personal visit. Upon their agreement on the written informed consent, interviews were scheduled between 2 and 6 months after the suicide incident to minimize recall bias and reduce the impact of acute grief on the interview. Each informant was interviewed separately by one interviewer in a private place of a hospital/clinic, the informant’s home or the village committee office.

This study was approved by the Institutional Review Boards (IRBs) of the university where the Principal Investigator is affiliated as well as the three universities and provincial CDC in China. The research nature of the interview and the background of the research project were explicitly explained and informed consent that details the rights of the interviewee was read and signed by both parties before each face-to-face interview. If distress was present during the interview and the participant wished to discontinued, the interview would be stopped, and another replacement informant was chosen.

Statistical Analyses

Descriptive analyses, Chi-square test and Mann-Whitney test were used to compare demographic variables with and without life events. Unconditional logistic regression

models was employed to describe the associations between choice for suicide means and those variables such as mental disorders, marital status, age, etc. All statistical analyses were carried out using SPSS, version 13.0.

Results

We collapsed the 64 items of negative life events into six categories according the different attributes: (1) Marriage/Love, (2) Family/Home, (3) Work/Business, (4) Health/Hospital, (5) Law/Legal, and (6) Friend/Relationship. The consistency test for each of the six sub-scale is presented in Table 2, respectively for the suicide and control samples.

Table 2 also compares the suicide sample and the community living control sample on their negative life event scores. Preliminary descriptive analyses showed that Family/Home (60.7%), Health/Hospital (53.8%) and Marriage/Love (51.3%) related life events were most commonly reported for both suicides and community living controls, especially for the suicides. The Cronbach's alpha coefficients range from 0.61 to 0.86, which showed Life Event scale has a good internal consistency among young rural Chinese samples.

The occurrence of recent life events during the last 1 year and their significance in the suicide process as subjectively perceived by the informants were studied among a subpopulation of suicide victims ($n=392$) who had a spouse or a family member as the informant. With a comparison with the data from the community living controls ($n=416$), the results showed that recent life events were more common for the suicides than for the community living controls on each of the six categories. Life events during the last 1 year were reported in 92.3% ($n=362$) of the suicides, and 63.5% ($n=264$) of the living controls for the same period. The suicides were more likely than the controls to have a negative life event.

The Life Events by Gender among the Suicides

We also looked at the life events between the male suicides and female suicides. The negative life events occurred in 91.0% (162/178) of the male suicides and in 93.5% (200/214) of female suicides in the past one year prior to the suicidal event. As can be seen in Table 3, the suicidal rural young men suffered more Work/Business, Law/Legal, and Friend/Relationship related life events than women ($P=0.000$, $P=0.019$, $P=0.047$).

The Frequency Distribution of the of Life Event Items

For the suicide victims, the most frequent item in each of the six categories separately were (1) quarrelling with partner (22.2%) in Marriage/Love, (2) family poverty (31.9%) in Family/Home, (3) decrease in income (12.8%) in Work/Business, (4) being diagnosed of terminal illness (26.3%) in Health/Hospital, (5) Being a victim of crime (1.8%) and serving jail time (1.8%) in Law/Legal, (6) and face-loss (16.6%) in Friends/Relationship group.

The top three most frequent life event items in the male suicides were family poverty (40.2%), being diagnosed of terminal illness (26.2%) and face-loss (22.4%), while the top three most frequent items in the female suicides were quarrelling with partner (26.4%), being diagnosed of terminal illness (26.4%), and family poverty (21.9%). Table 4 illustrates the significance of the gender differences.

The Life Events Intensity by Gender

Life events intensity was calculated for each case by the impact multiplied by the duration and then by the number of times it happened. The highest score of intensity of life events in the 392 suicidal rural young people was 691 and the lowest was 0. The median is 25

($Q_L=10$, $Q_U=48$). About 56.1% suicidal victims had the intensity score above 20. The highest score of intensity of life events in the 416 community living controls was 320. Mann-Whitney Test showed that rural young men suffered more life events intensity than women. See Table 5.

Comparing the Impulsivity between the Suicides and Community Living Controls

In suicide cases, the mean of total score for the DI scale was 6.78 ± 3.67 , and it was 6.74 ± 3.73 and 6.84 ± 3.60 respectively for males and females. The mean of total score for the FI scale was 7.11 ± 2.86 , and it was 6.98 ± 2.87 and 7.29 ± 2.83 respectively for males and females. In control group, the mean of total score for the DI scale was 3.70 ± 2.73 , and it was 7.63 ± 2.32 for the FI scale. The suicides were more impulsive than the controls ($P=0.000$).

Logistic Multiple Regressions to Estimate the Effects of Life Events on Suicide

To estimate the effect of each of the six life event categories on rural young suicides, logistic multiple regressions analyses were performed. The covariates under study were age, marital status, personal annual income, family's annual income, health condition, life events, impulsivity and mental disorders. With mental disorders in the analyses as a covariate, four life event categories showed significant predicting power on the suicide risk (see Table 6).

Discussion

In this sample of Chinese rural young suicides, we found that negative life events played an essential role in predicting suicidal behavior. About 92.3% of the suicides studied had experienced at least one type of negative life events. The similar prevalence rates have also been found in the West. Researcher in Finland interviewed 400 suicide victims' partners (a spouse or a cohabitant) and found that in 85% of the cases had occurred life events during the previous three months, with a mean of 2.6 events (Heikkinen, Aro et al. 1992). Nearly all suicides have experienced at least one (usually more) adverse life event within one year of death in Foster's study (Foster 2011). A study conducted in China showed that about 98.6% suicide victims had experienced negative life events during the past one year (Li, Philips et al. 2008). Negative life events within one year were much more frequent among suicides than among the community individuals. Yang and colleagues (1993) found that the intensity score of life events for 95% of the community normal individuals was less than 20, and for 99% of the community normal people the score was below 32 (Yang and Zhang 1993). However, in this study about 56.1% suicidal victims had the intensity score above 20. It is obvious that suicide victims suffer more negative life events than normal people. The intensity score resulting from negative life events appear to influence suicidal behavior via independent mechanisms. Negative life events experience is an important factor in predicting suicidal behavior. Causing stress and damaging the stability of human inner peace, it may trigger suicidal intent.

This study also revealed that the male young suicides in rural China suffered more life events and stronger intensity of life events than their female counterparts. Among the top ten most frequent life events from this sample of suicides, seven were more for men than for women. The most frequent item from each of the six categories was quarrelling with partner, family poverty, decrease in income, diagnosis of terminal illness, victim of crime and serve jail time, and face-loss respectively. The top three most frequent items in male suicides were family poverty, diagnosis of terminal illness and face-loss, and in female suicides they were quarrelling with partner, diagnosis of terminal illness and family poverty. Among the suicides in the West, it was also more men than women having experienced life events (Heikkinen, Aro et al. 1992). While more male than female suicides experienced Work/Business, Law/Legal, and Friend/Relationship related life events in rural China, financial

trouble, job problems, unemployment and family discord were more commonly reported among male suicides in Western societies. Also in the West separation due to work was more common among female suicides (Heikkinen, Aro et al. 1992; Foster 2011).

It was found through multivariate logistic regression that mental disorders, dysfunctional impulsivity and life events especially for Marriage/Love, Family/Home and Friend/Relationship were significant risk factors of rural young male suicides in China. On the other hand, family's annual income, good health condition, currently married status and functional impulsivity were significant protective factors for rural young men. In traditional China, wealth of a man plays an important part in family life. Financial problems occurred more often among rural males, because they are more concerned and afraid of financial difficulties and face-loss problem. Family poverty is a stressor, especially for the rural young men. A rural young man with family poverty is hard to get a woman to marry. It could affect a person's whole life. Further, young men in poverty are generally looked down upon. Therefore, poverty and face-loss together make Chinese rural young men feel frustrated, and as the frustration intensifies, lethal and violent responses may come into being. The strain theory of suicide argues that psychological strains caused by relative deprivation and the discrepancy between a person's aspiration and reality may precede a suicidal behavior (Zhang, Wieczorek et al. 2011). In the situation in which an extremely economically poor individual realizes some other people of the same or similar background are leading a much better life, the person experiences deprivation strain.

The most common life events in China for rural young suicides were family poverty, terminal illness and fighting with a partner. Similar findings were reported in another controlled psychological autopsy study in China, in which financial problems (40%), serious physical problems (38%), and marital discord (35%) were the top three life events for the suicides (Yang, Philips et al. 2005). Suicide research in the West has identified interpersonal loss/conflict, financial trouble, and physical diseases as the major life events that precede most suicide cases (Foster 2011). Obviously, the major difference between China and the West is that Chinese have more family and marriage problems than people in the West. Comparing with Westerners, Chinese value harmonious family and male responsibility for the family. For most of Chinese rural young men nowadays, they leave hometown and move to big cities to find jobs and make money there because they want to make a better life for their family members. High aspiration for future can also become frustration and strain if the reality does not allow the individual to move to or to reach the goal the individual aspired. In another suicide research, it was found that male suicides are more likely than female suicides to experience aspiration and deprivation strains, and younger suicides are more likely to experience coping strain (Zhang, Dong et al. 2009). Only those who do not have a good coping ability become extremely frustrated and seek death as a solution to solve the problems inflicted by the crisis. Lack of opportunities might be more salient or better perceived by them than their female counterparts. For most of Chinese rural young women, they still stay at home and have low status in family. Family dispute (argue with partner) is a major event prior to many cases of Chinese rural suicide, especially of the rural females. In an in-depth investigation of the Chinese family collectivism in comparison with the American society collectivism (Zhang, Conwell et al. 2004), it was found that Chinese are relatively "collectivistic" within the family relationship and family clans, while they are more "individualistic" than Americans at the community and society levels. So when there was something wrong with marriage of traditional rural young women, they prefer solving problems at home as keeping a secret than asking helps from other family members, friends, neighborhood or agencies. Lacking of social support system and coping mechanism makes rural young women at a higher risk of impulsive suicide than men.

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References

- American Psychiatric Association. Practice guideline for the assessment and treatment of patients with suicidal behaviors. American Psychiatric Association; 2003.
- Conwell Y, Duberstein P, et al. Relationships of age and axis I diagnoses in victims of completed suicide: a psychological autopsy study. *American Journal of Psychiatry*. 1996; 153(8):1001–1008. [PubMed: 8678167]
- Foster T. Adverse life events proximal to adult suicide: a synthesis of findings from psychological autopsy studies. *Archives of Suicide Research*. 2011; 15(1):1–15. [PubMed: 21293996]
- Harris E, Barraclough B. Suicide as an outcome for mental disorders. A meta-analysis. *The British Journal of Psychiatry*. 1997; 170(3):205–228. [PubMed: 9229027]
- Heikkinen M, Aro H, et al. Recent life events and their role in suicide as seen by the spouses. *Acta Psychiatrica Scandinavica*. 1992; 86:489–494. [PubMed: 1471544]
- Ji J, Kleinman A, et al. Suicide in contemporary China: a review of China's distinctive suicide demographics in their sociocultural context. *Harvard Review of Psychiatry*. 2001; 9(1):1–12. [PubMed: 11159928]
- Li XY, Philips M, et al. The Study on the Validity of a suicide-specific life event scale and suicidal behavior. *Chinese Journal of Nervous and Mental Diseases*. 2008; 34(3):156–160.
- Ma, ZY. Graduates' dissertation. 2007. Analysis of 58 completed suicides aged 15 to 35 by psychological autopsy method.
- Mann JJ, Apter A, et al. Suicide prevention strategies: a systematic review. *The journal of the American medical association*. 2005; 294(16):2064–2074.
- Paykel ES, Prusoff BA, et al. Scaling of life events. *Archives of General Psychiatry*. 1971; 25:340–347. [PubMed: 5116988]
- Phillips MR, Li X, et al. Suicide rates in China, 1995–99. *Lancet*. 2002; 359(9309):835–840. [PubMed: 11897283]
- Phillips MR, Yang G, et al. Risk factors for suicide in China: a national case-control psychological autopsy study. *Lancet*. 2002; 360(9347):1728–1736. [PubMed: 12480425]
- Robins E, Murphy GE, et al. Some clinical considerations in the prevention of suicide based on a study of 134 successful suicides. *American Journal of Public Health and the Nation's Health*. 1959; 49(7):888–899. [PubMed: 13661481]
- Wang SY, Li YH, et al. Injury-related fatalities in China: an under-recognised public-health problem. *Lancet*. 2008; 372(9651):1765–1773. [PubMed: 18930527]
- Yang, DS.; Zhang, YL., editors. *Chinese Mental Health Journal*. 1993. Life Event Scale.
- Yang GH, Philips M, et al. Understanding the unique characteristics of suicide in China: national psychological autopsy study. *Biomedical and Environmental Sciences*. 2005; 18(6):379–389. [PubMed: 16544520]
- Yang GH, Zhou LN, et al. The trend and geographic distribution of suicide in Chinese population. *Chinese Journal of Epidemiology*. 2004; 25(4):280–284. [PubMed: 15231191]
- Yip PS, Liu KY, et al. Suicide rates in China during a decade of rapid social changes. *Social Psychiatry and Psychiatric Epidemiology*. 2005; 40(10):792–798. [PubMed: 16205852]
- Zhang J. Marriage and Suicide among Chinese Rural Young Women. *Social Forces*. 2010; 89(1):311–326.
- Zhang J, Conwell Y, et al. Studying Chinese suicide with proxy-based data: Reliability and validity of the methodology and instruments in China. *The Journal of Nervous and Mental Disease*. 2003; 191(9):450–457. [PubMed: 12891092]
- Zhang J, Conwell Y, et al. Cultural, Risk Factors and Suicide in Rural China: A Psychological Autopsy Case Control Study. *Acta Psychiatrica Scandinavica*. 2004; 110(6):430–437. [PubMed: 15521827]

- Zhang J, Conwell Y, et al. Culture, risk factors and suicide in rural China: a psychological autopsy case control study. *Acta Psychiatrica Scandinavica*. 2004; 110(6):430–437. [PubMed: 15521827]
- Zhang J, Dong NN, et al. Psychological Strains Found From In-Depth Interviews With 105 Chinese Rural. *Archives of Suicide Research*. 2009; 13:185–194. [PubMed: 19363755]
- Zhang J, Jing J. A Sociological Analysis of the Decline in the Suicide Rate in China. *Social Sciences in China*. 2011; 5:97–113.
- Zhang J, Wieczorek WF, et al. Psychological strains and youth suicide in rural China. *Social Sciences & Medicine*. 2011; 72:2003–2010.
- Zhang J, Wieczorek WF, et al. Characteristics of young rural Chinese suicides: a psychological autopsy study. *Psychological Medicine*. 2010; 40(4):581–589. [PubMed: 19656428]
- Zhang J, Xiao S, et al. Mental disorders and suicide among young rural Chinese: a case-control psychological autopsy study. *American Journal of Psychiatry*. 2010; 167(7):773–781. [PubMed: 20395398]

Table 1
Description and Comparison of the Variables between the Suicides (n=392) and Controls (n=416)

Variable	Suicides (n=392)		Controls (n=416)		<i>t</i> / χ^2	<i>P</i>
	n	%	n	%		
Gender						
Male	214	54.6	202	48.6	2.924	0.086
Female	178	45.4	214	51.4		
Age						
15–24	141	36.0	174	41.8	2.911	0.088
25–34	251	64.0	242	58.2		
Family Annual Income (<i>Yuan</i>)						
10,000	242	61.7	201	48.3	27.786	0.000
10,001–20,000	99	25.3	100	24.0		
20,001	51	13.0	115	27.6		
Personal Annual Income (<i>Yuan</i>)					20.024	0.000
Poor	265	67.6	249	59.9		
Average	93	23.7	85	20.4		
Good	34	8.7	82	19.7		
Marital Status						
Currently not married	187	47.7	149	35.8	11.739	0.001
Currently married	205	52.3	267	64.2		
Impulsivity						
Functional	7.11±2.86		7.63±2.32		2.786	0.005
dysfunctional	6.78±3.67		3.70±2.73		–13.493	0.000
Mental Disorder	188	48.0	16	3.8	208.093	0.000
Negative Life Events	362	92.3	264	63.5	96.494	0.000

Table 2

The Negative Life Events Sub-Scale Consistency Tests and Their Comparison between the Suicides and Controls (N=808)

Variable	Suicides			Controls			P
	N=392	N=416	X ²	N=392	N=416	X ²	
	n	%	n	%	n	%	
Marriage/Love	0.60	201	51.3	90	21.6	76.974	0.000
1. wedding	3	0.8	1	0.2	0.315	0.575	
2. in love/engaged	54	13.8	38	9.1	4.308	0.038	
3. disappointed in love affair	57	14.5	12	2.9	35.108	0.000	
4. separated due to discord	34	8.7	4	1.0	25.089	0.000	
5. living apart from spouse	32	8.2	8	1.9	16.702	0.000	
6. legally divorced	15	3.8	3	0.7	7.567	0.006	
7. spouse unfaithful	22	5.6	0	0.0	--	0.000	
8. self being unfaithful	16	4.1	0	0.0	--	0.000	
9. marriage life interfered by others	29	7.4	9	2.2	12.339	0.000	
10. breakup of romantic relationship	7	1.8	0	0.0	--	0.006	
11. quarrelling with partner	87	22.2	14	3.4	65.416	0.000	
12. fighting with partner	37	9.4	10	2.4	18.232	0.000	
13. physically abused	17	4.3	3	0.7	9.483	0.001	
14. dissatisfaction with sexual life	14	3.6	1	0.2	10.531	0.000	
Family/Home	0.86	238	60.7	145	34.9	54.127	0.000
15. children having left home	6	1.5	1	0.2	2.554	0.110	
16. children having got married/parents remarried	6	1.5	2	0.5	1.325	0.250	
17. parents/child separate/divorce	9	2.3	0	0.0	--	0.001	
18. quarrelling with family	76	19.4	7	1.7	68.639	0.000	
19. fighting with family members	20	5.1	2	0.5	14.575	0.000	
20. major loss in home/property	44	11.2	24	5.8	7.793	0.005	
21. Family poverty	125	31.9	54	13.0	41.834	0.000	
22. disputing over dowry/gifts	3	0.8	1	0.2	0.315	0.575	
23. in discord with spouse's mother	19	4.8	8	1.9	5.342	0.021	
24. having a baby	11	2.8	0	0.0	--	0.000	
25. being pregnant (wife)	9	2.3	1	0.2	5.396	0.020	

Variable	α	Suicides				Controls				χ^2	P
		N=392	n	%		N=416	n	%			
26. abortion (wife)		17	4.3	8	1.9	3.921	0.048				
27. children having had a baby/parents had a baby		1	0.3	1	0.2	0.000	1.000				
28. being barren (husband or wife)		5	1.3	0	0.0	--	0.027				
29. breaching the one child policy		1	0.3	0	0.0	--	0.485				
30. sterilization (husband or wife)		4	1.0	1	0.2	0.930	0.335				
31. menopause		0	0.0	0	0.0	--	--				
32. problems in disciplining children		5	1.3	15	3.6	4.540	0.033				
Work/Business	0.79	109	27.8	89	21.4	4.485	0.034				
33. business failed		13	3.3	12	2.9	0.125	0.723				
34. fired from job		9	2.3	1	0.2	5.396	0.020				
35. laid off/unemployed		21	5.4	4	1.0	11.581	0.001				
36. being promoted		8	2.0	5	1.2	0.897	0.344				
37. quarrelling with boss		6	1.5	3	0.7	0.578	0.273				
38. leaving the job		20	5.1	15	3.6	1.090	0.296				
39. spouse leaving the job		2	0.5	1	0.2	0.003	0.959				
40. decrease in income		50	12.8	49	11.8	0.179	0.672				
41. quitting school		17	4.3	12	2.9	1.230	0.267				
42. being frustrated in school/work		11	2.8	6	1.4	1.823	0.177				
Health/Hospital	0.82	211	53.8	120	28.8	52.077	0.000				
43. being diagnosed of terminal illness		103	26.3	12	2.9	90.459	0.000				
44. hospitalization		62	15.8	16	3.8	33.157	0.000				
45. spouse hospitalized		14	3.6	7	1.7	2.844	0.092				
46. in-home assistance		16	4.1	3	0.7	8.516	0.004				
47. life threatening illness parents/spouse/children		69	17.6	58	13.9	2.041	0.153				
48. being injured from accident		11	2.8	7	1.7	1.169	0.280				
49. close friend terminally illness		0	0.0	2	0.5		0.500				
50. death of child		1	0.3	2	0.5	0.000	1.000				
51. death of a parent		27	6.9	16	3.8	3.706	0.054				
52. death of spouse		3	0.8	0	0.0	--	0.114				

Variable	Suicides		Controls		χ^2	P
	N=392	N=416	n	%		
53. death of a sibling	2	0	0.0	--	0.235	
54. death of a close relative	28	41	9.9	1.902	0.168	
55. death of a close friend	3	3	0.7	0.000	1.000	
Law/legal	0.63	4.3	1.0	9.082	0.003	
56. being victimized of a crime	7	0	0.0	--	0.006	
57. serving jail time	7	1	0.2	3.466	0.063	
58. legal trouble	6	2	0.5	1.325	0.250	
59. being sued/suing someone	5	1	0.2	1.698	0.193	
Friend/Relationship	0.86	28.6	9.6	47.483	0.000	
60. tensions with friends or neighbors	15	7	1.7	3.502	0.061	
61. face-loss	65	24	5.8	24.072	0.000	
62. being threatened	28	1	0.2	27.788	0.000	
63. being sexually abused	3	1	0.2	0.315	0.575	
64. daily life out of routine	35	12	2.9	13.457	0.000	

Table 3
Comparing the Life Events in the Past One Year among the Suicides by Gender (N=392)

Life Event Category	Males (n=214)		Females (n=178)		χ^2	P
	n	%	N	%		
Marriage/Love	109	50.9	92	51.7	0.022	0.882
Family/Home	139	65.0	99	55.6	3.550	0.060
Work/Business	82	38.3	27	15.2	25.941	0.000
Health/Hospital	113	52.8	98	55.1	0.198	0.656
Law/Legal	14	6.5	3.0	1.7	5.525	0.019
Friend/Relationship	70	32.7	42	23.6	0.047	0.047

Table 4

Comparing Top 10 Life Events in the Past One Year between Male and Female Suicides (N=392)

Items	Total		Male (n=214)		Females (n=178)		P
	N (%)	rank	N (%)	rank	N (%)	rank	
Family poverty	125 (31.9)	1	86 (40.2)	1	39 (31.9)	2	0.000
Being diagnosed of terminal illness	103 (26.3)	2	56 (26.2)	2	47 (26.4)	1	0.958
Quarrelling with partner	87 (22.2)	3	40 (18.7)	5	47 (26.2)	1	0.067
Argument with family	76 (19.4)	4	42 (19.6)	4	34 (19.1)	4	0.896
Life threatening illness in Family	69 (17.6)	5	37 (17.3)	7	32 (18.0)	5	0.859
Face-loss	65 (16.6)	6	48 (22.4)	3	17 (9.6)	9	0.001
Hospitalization	62 (15.8)	7	30 (14.0)	9	32 (18.0)	5	0.782
Disappointed in love affair	57 (14.5)	8	32 (15.0)	8	25 (14.0)	7	0.260
In love/engaged	54 (13.8)	9	30 (14.0)	9	24 (13.5)	8	0.142
Decrease in income	50 (12.8)	10	38 (17.8)	6	12 (6.7)	10	0.001

Table 5

Comparing the Life Events Intensity among the 392 Suicides by Gender

	Male (n=214)		Female (n=178)		Z	P
	M	Q _L ~Q _U	M	Q _L ~Q _U		
Life Events Intensity	28.0	12.0~56.0	20.0	8.0~39.0	-2.884	0.004

Table 6

Logistic Multiple Regressions Predicting the Suicide Risk from Life Events with Mental Disorders Controlled (N=808)

Variable	Male (n=214)		Female (n=178)	
	Exp(B)	Sig.	Exp(B)	Sig.
Marriage/Love	1.867	0.001	2.296	0.000
Family/Home	1.646	0.010	--	--
Work/Business	--	--	--	--
Health/Hospital	--	--	1.889	0.001
Law/Legal	5.226	0.101	--	--
Friend/Relationship	--	--	3.748	0.001
Mental Disorders	20.564	0.000	11.615	0.000
Dysfunctional Impulsivity	1.352	0.000	1.463	0.000
Functional Impulsivity	0.796	0.001	0.839	0.007
Family's annual income	0.491	0.001	--	--
Good Health condition	0.572	0.025	--	--
Currently Married	0.409	0.009	--	--
Constant	13.305	0.009	0.092	0.000
R ²	0.682		0.596	