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Factors associated with help-seeking behavior among medically serious attempters aged 15–54 years in rural China

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ABSTRACT

Increasing help-seeking behavior was one of the effective methods for suicide prevention. However, help-seeking behavior was less explored in rural China. In this study, we aimed to analyze the factors which were associated with help-seeking behavior among medically serious suicide attempters in rural China. Subjects were 791 medically serious suicide attempters aged 15–54 years in rural China. A face-to-face interview was conducted to evaluate the age, gender, education years, marital status, occupation, religious belief, living alone, physical disease, pesticide at home, family suicide history, negative life events, social support, impulsivity, mental disorder, prior suicide act, suicide intent and suicide method for the attempters. The results supported that there were 29.2% of attempters seek help before suicide behavior, and factors that male (OR = 1.45), experiencing negative life events (OR = 1.12), impulsivity (OR = 1.05), suicide intent (OR = 0.92) and suicide by pesticide (OR = 0.68) were associated with increased help-seeking behavior. It is helpful for us to understanding the features of suicide attempters who do not seek help before suicide behavior, and we also should pay more attention on people with these factors in Chinese suicide prevention.

1. Introduction

In 2012, an estimated 804,000 suicide deaths occurred worldwide, which implied that there was one person died by suicide in every 40 s (WHO, 2014). Although we cannot get the accurate rates about suicide attempt, the ratio of suicide attempters to suicide deaths was about 20 to 1 in the world (Maris et al., 2000). China was one of few countries which reported higher suicide rates (8.7 per 1,000,000) in the worldwide (Phillips et al., 2002; WHO, 2014), and there were many more people who attempted suicide each year. Previous studies also had identified that suicide attempt was a significant risk factor for suicide death (Beautrais, 2003; Yoshimasu et al., 2008). Thus, suicide attempt has been an important social and public health issue in China.

Compared with Western countries, previous study also found some characteristics for Chinese suicide rate. Firstly, the rural suicide rates in China were about doubled those in urban region (Qin and Mortensen, 2001). Secondly, there was an age peak in the curve of suicide rates for suicides aged 15–34 years (Phillips et al., 2002). Thirdly, the suicide rates in females were higher than males (Zhang et al., 2014). All of these meant that rural people aged 15–34 years in China were in higher risk of suicide which needed to be paid more attention.

In the last decades, there were many studies which had focused on rural suicide attempters. In the worldwide, we have found many risk factors which associated with suicide behaviors in rural region (Borges et al., 2010; Fekadu et al., 2016; Nock et al., 2008), such as mental disorder, lower education and income, and female. There were also some studies which assessed the risk of suicide behaviors in the world (Runeson et al., 2017; Simon et al., 2018; Tarlow et al., 2018). In China, most of the studies discussed the risk factors of suicide attempters among rural youths, and many factors had been identified in rural China, such as negative life events, suicide acceptability, life satisfaction, and so on (Liu and Zhang, 2018; Lyu et al., 2018; Sun and Zhang, 2018). Although many relative factors have been found, less of evidences were promoted into the practices of suicide prevention.

In the progress of suicide prevention, many strategies has been proved to be effective for suicide behavior, such as gatekeepers training (Arensman et al., 2016), means restriction (Yip et al., 2012), stigma reduction (Reynders et al., 2014). In these strategies, one of the most important strategies was to increase help-seeking behavior before

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suicide (Niederkrotenthaler et al., 2014). It negatively correlated with suicide rates (Reynders et al., 2016), and was also one of the aspirational research goals of the United State National Action Alliance for Suicide Prevention Research Prioritization Task Force (Force, 2014).

In the recent decades, many studies had found that there were several factors associated with increase help-seeking behavior before suicide. In those factors, stigma of mental illness and suicidal behavior were frequently identified in many countries (Kearns et al., 2015; Rasmussen et al., 2018). Besides, many other factors were also supported to be associated with increased help-seeking behavior before suicide in Western countries, such as male gender, diagnosis of mental illness and public service announcements (Klimes-Dougan et al., 2016; Leavey et al., 2016). However, we have little knowledge about it in China. As the special characteristics of Chinese suicides, we have enough reasons to explore the features of suicides who do not seek help before suicide.

In this study, we aim to analyze the factors which are associated with help-seeking behavior among medically serious suicide attempters in rural China. It can give us the information about the features of suicide attempters who did not seek help before suicide, and increase the detection rates in earlier. It is also very useful for suicide prevention and intervention in rural China.

2. Methods

2.1. Study sample and the design

All of the participants were collected from two provinces in China, Shandong and Hunan. Shandong locates in the north of China, and it is a province with economic prosperity in both industry and agriculture. Hunan locates in the south of China, and it is a province with economic prosperity in agriculture. In the two provinces, thirteen rural counties were randomly selected from them.

In each of the rural county, departments of hospital emergency were connected to notify the research teams in each province the suicide attempters on monthly basis from May 2012 through July 2013. In the current study, medically serious suicide attempters were limited only to those survivals whose injury and wounds were so serious as to require hospitalization or immediate medical care. Suicide attempters aged 15–54 years were consecutively recruited in rural region.

All of the interviewers were graduated students or teachers (major in psychiatry, psychology or public health) in Shandong University and Central South University in China. Before the face to face interview, all interviewers should receive a strict training about this study. The main aims were to ensure they had sufficiently understood this study and each question in the questionnaire. To ensure the data quality, there were also supervisors who checked the completed questionnaires in the evening.

2.2. Interviewing procedures

All the attempters were interviewed when they had leaved hospitals because of their weakness in the hospitals. To connect with the attempters, all of them were first approached by the local health agency or the village administration by a personal visit. Upon their agreement on the written informed consent, the interview time was scheduled about two months after suicide incident. Each attempter was interviewed separately by one trained interviewer in a private place of a village medical room or their home. For those participants who were too weak to talk, family members could assist in the interview by answering some of the questions on the protocol. The average time for each interview was 1.5 h.

2.3. Measures

2.3.1. Help-seeking

Help-seeking was evaluated by one question in Beck's Suicidal Intent Scale (SIS) (Beck et al., 1974). This question was about “acting to get help,” and the answers could be chosen from “notified potential helper regarding attempt,” “contacted but did not specifically notify potential helper regarding attempt,” and “did not contact or notify potential helper.” As there was less participants who chose the second answer, we recoded into help-seeking and no help-seeking, which the former one contained “notified potential helper regarding attempt” and “contacted but did not specifically notify potential helper regarding attempt.” In the current study, the help-seeking behavior contains calling an ambulance, taking themselves to the hospital, going to the hospital to receive care. However, the attempters who were found by another person who then called an ambulance or took them to hospital were not seen as a kind of help-seeking behavior.

2.3.2. Age

which ranged from 15 to 54 years was calculated to the time when the suicide occurred. *Gender* was measured by male or female. *Education years* were evaluated by the years which the attempters learned in school. *Married status* was dichotomized as “never married” and “ever married” with the latter including those who were divorced, separated, or widowed. *Occupation* was measured by farmer, businessman, public service staff, student, factory worker, rural doctor, teacher, housewife, unemployed and others. As most attempters were farmers, we recoded it into farmers and others. *Religious belief* was measured by what religion the attempters believed in, and the choices were Taoism, Muslim, Christianity, Buddhism, others, and no religion. As there were few people have a religious belief, the religious belief was recoded into “yes” or “no.”

2.3.3. Living alone

Living alone was estimated by a question that “Do you live with others?” The answer can be chosen from yes or no. Somebody who did not live with others was seen as living alone. The same evaluation method was also used in our previous suicide studies (Zhang and Sun, 2014).

2.3.4. Physical disease

Physical disease was estimated by one question that “Do you diagnose with a chronic disease now?” The answer could be chosen from “yes” or “no.”

2.3.5. Pesticide at home

Pesticide availability at home was assessed with a single item which asked the participants if any type of farming chemicals was stored at home. The answer also could be chosen from “yes” or “no.”

2.3.6. Family suicide history

Family suicide history was measured by a question that “Do your family members conduct suicide behavior before?” The answer also could be chosen from “yes” or “no.”

2.3.7. Negative life events

Negative life events were calculated by the revised version of Interview for Recent Life Events (IRLE) (Paykel et al., 1971). The IRLE is a 64-item scale which measures the life events happened in the past 12 months. We also asked another question that if there were other life events which were not mentioned in the 64 items. The attempters should also answer that if each event was perceived as positive or negative. In this study, we only used the number of negative life events (NLEs). The Chinese version of IRLE have been used in many previous suicide studies (Sun and Zhang, 2016).

Table 1
Social-demographic and psychological characteristics of help-seeking among medically serious attempters (n = 791).

Variables	Total	Help-seeking		t/χ^2	p
		Yes	No		
All, n (%)	791 (100%)	231 (29.2)	560 (70.8)	–	–
Age, mean ± SD	31.63 ± 8.00	30.62 ± 8.17	32.05 ± 7.90	2.289	0.022
Gender, n (%)				5.462	0.019
Male	293 (37.0)	100 (43.3)	193 (34.5)		
Female	498 (63.0)	131 (56.7)	367 (65.5)		
Education years, mean ± SD	6.90 ± 3.26	7.36 ± 3.00	6.71 ± 3.35	2.550	0.011
Marital status, n (%)				3.929	0.047
Never married	132 (16.7)	48 (20.8)	84 (15.0)		
Ever married	659 (83.3)	183 (79.2)	476 (85.0)		
Occupation, n (%)				1.668	0.197
Farmers	422 (53.4)	115 (49.8)	307 (54.8)		
Others	369 (46.6)	116 (50.2)	253 (45.2)		
Religion belief, n (%)				0.918	0.338
Yes	148 (18.7)	48 (20.8)	100 (17.9)		
No	643 (81.3)	183 (79.2)	460 (82.1)		
Living alone, n (%)				0.088	0.767
Yes	35 (4.4)	11 (4.8)	24 (4.3)		
No	756 (95.6)	220 (95.2)	536 (95.7)		
Physical disease, n (%)				0.436	0.509
Yes	133 (16.8)	42 (18.2)	91 (16.3)		
No	658 (83.2)	189 (81.8)	469 (83.8)		
Pesticide at home, n (%)				5.446	0.020
Yes	478 (60.4)	125 (54.1)	353 (63.0)		
No	313 (39.6)	106 (45.9)	207 (37.0)		
FSH, n (%)				0.170	0.680
Yes	56 (7.1)	15 (6.5)	41 (7.3)		
No	735 (92.9)	216 (93.5)	519 (92.7)		
NLE, mean ± SD	1.83 ± 1.77	2.02 ± 1.94	1.75 ± 1.69	−1.938	0.053
Social support	7.68 ± 2.17	7.68 ± 2.22	7.67 ± 3.15	−0.063	0.949
Impulsivity, mean ± SD	9.89 ± 4.08	10.61 ± 4.15	9.60 ± 4.01	−3.212	0.001
Mental disorder, n (%)				0.603	0.437
Yes	151 (19.1)	48 (20.8)	103 (18.4)		
No	640 (80.9)	183 (79.2)	457 (81.6)		

Note: FSH = family suicide history; NLE = negative life events; SD = standard deviation.

2.3.8. Perceived social support

The Chinese version of Duke Social Support Index (DSSI) was used to assess social support in the current study (Koenig et al., 1993). It is a 23-item scale which contains three sub scales: social interaction (4 items), perceived social support (7 items) and instrumental social support (12 items). The second sub-scale (perceived social support) was analyzed in this study. The higher score means that the individuals perceived more social support. The Chinese version of DSSI had been evaluated with good validity and reliability in Chinese suicide studies (Jia and Zhang, 2012).

2.3.9. Impulsivity

Dickman Impulsivity Inventory (DII) was used to evaluate the level of impulsivity. It is a 23-item scale developed and validated in English by Dickman (1990). Each item is weight by yes (1) or no (0). The sum score for all items was used in the data analysis, and the higher score means higher level of impulsivity. The Chinese version of DII had be tested with sound reliability and validity (Gao et al., 2011).

2.3.10. Mental disorder

We used the Chinese version of the Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders (SCID) (Spitzer et al., 1988) to generate diagnoses for attempters. Diagnoses were made by the psychiatrists with the written information obtained by the trained interviewers for each suicide attempt. The Chinese version of the SCID was provided by the Department of Psychiatry of Kaohsiung Medical College in Taiwan (Gu and Chen, 1993), and permission to use the work had been obtained. It also had been used in Chinese populations in many areas including Taiwan, Hong Kong, Macau, as well as mainland China for the past few decades (Lyu and Zhang, 2014). A total of 27 Axis I mental diseases were detected by the SCID, and we used the dichotomous diagnosis for each of them with yes and no.

2.3.11. Prior suicide act

Prior suicide act was evaluated by one question about the number of suicide attempts before. Any non-zero response was counted as yes, and others were recoded into no.

2.3.12. Suicide intent

Beck's Suicidal Intent Scale (SIS) was used to measure the degree of suicide intent for the attempters (Beck et al., 1974). It mainly evaluates the attempters' precautions, planning, communication and expectations about the suicide behavior. There are 15 items in this scale, and each item is weighted on 0–2. The English version of SIS had been evaluated by Beck and David among completed suicides and attempted suicides (Beck and Lester, 1976). The Chinese version of SIS also has sound reliability and validity which has been testified in a previous study (Zhang and Jia, 2011).

2.3.13. Suicide method

Suicide method was evaluated by one question about the method which the suicide attempters used in this time. The answers were pesticide, other toxicant, hanging, drowning, jumping, overdose, wrist cutting, gas chamber, suffocation, electrocution, train rails and others. As most of the attempters used pesticide to conduct suicide behavior, we recoded into pesticide and others.

2.4. Statistical methods

IBM SPSS Statistics 24.0 (Web Edition) was used for the data analysis. T-tests or chi-square tests were used to compare the differences

between attempters with or without help-seeking behavior. Backward logistic regression was performed to examine the factors related to help-seeking behavior. Mean imputation and regression imputation were used to fill the missing data. All of the tests were two-tailed and a p value of <0.05 was considered statistically significant.

2.5. Ethical considerations

The study protocol was approval by IRB from both the Chinese institutions and the US based university where the principal investigator is affiliated ensured the human subjects protection and the ethical methodology regulated by the NIMH which funded the project. Informed consent was obtained from all participants in this study.

3. Results

The social-demographic and psychological characteristics of the sample were listed in the second column in Table 1. As we can see, there were more females (63.0%) and farmers (53.4%) among the suicide attempters. The average age was 31.63 years, and the average years of education were 6.90. In the last columns, we also compared the social-demographic and psychological characteristics between attempters with or without help-seeking behavior, and the results showed that age ($t = 2.289$, $p = 0.022$), gender ($\chi^2 = 5.462$, $p = 0.019$), education years ($t = 2.550$, $p = 0.011$), marital status ($\chi^2 = 3.929$, $p = 0.047$), pesticide at home ($\chi^2 = 5.446$, $p = 0.020$) and impulsivity ($t = -3.212$, $p = 0.001$) were associated with increased help-seeking behavior among medically serious suicide attempters.

In Table 2, we further compared the critical conditions between attempters with or without help-seeking behavior among attempters. The results showed that suicide intent ($t = 4.459$, $p < 0.001$) and suicide method ($\chi^2 = 5.342$, $t = 0.021$) were associated with increased help-seeking behavior among medically serious suicide attempters. In the second column, we also can see that there were 70 (8.8%) ones had attempted suicide before, and more participants (75.2%) attempted suicide by pesticide. The mean of suicide intent was 9.68.

Finally, we conducted backward logistic regression to identify the factors associated increased help-seeking behavior in Table 3. The results supported that male (OR = 1.45, $p = 0.026$), negative life events (OR = 1.12, $p = 0.014$), impulsivity (OR = 1.05, $p = 0.014$), suicide intent (OR = 0.92, $p < 0.001$) and suicide by pesticide (OR = 0.68, $p = 0.047$) were associated with increased help-seeking behavior among medically serious suicide attempters.

4. Discussion

In this study, we analyzed the factors associated with help-seeking behavior among medically serious suicide attempters in rural China. The main aim of this study was to identify the characteristics of suicide attempters who did not seek help before suicide behavior. The results showed that there were about 29.2% of attempters seek help before suicide behavior, and factors that male, experiencing more negative life events, higher impulsivity, lower suicide intent, suicide by other methods were tend to seek help among the participants.

In this study, there were about 30% of suicide attempters who sought help from others. In China, a study reported there were 39% of migrants who sought help when they need it, compared with 67% of urban dwellers and 86% of rural residents (Li et al., 2007). Another study among Australia adults showed that 36.5% of participants who were likely to seek help from nobody for suicidal ideation (Calear et al., 2014). There were also some other studies which reported higher percentage of seeking help (Cotter et al., 2015; De Leo et al., 2005). The main reason may be caused by the stigma on suicide behavior (Kucukalic and Kucukalic, 2017). In China, because of the Confucian culture, the stigma of suicide is more serious than other countries (Zhang and Liu, 2012), and people are shame on the suicide. As a result, less people in China would seek help before suicide behavior.

We also found that there were more male attempters who would seek help before suicide behavior. Comparing with Western countries, more females tend to attempt suicide than males (Li et al., 2005). Also, because of the Chinese Confucian culture, females have less social connection than males, and they are not absolutely freedom to talk or seek help with others (Zhang et al., 2005). All of these reasons make the Chinese females do not seek help before suicide behavior.

As we know, experiencing negative life event is an important risk factor for suicide behavior both in China and other countries in the world (Kinyanda et al., 2005; Sun and Zhang, 2015b). In the current study, the results support that it is also associated with increased help-seeking behavior before suicide. As we know, although people may be shamed with suicide behavior, there is no stigma with negative life events. They may seek help from others for the negative life events without stigma. In the progress of seeking help for negative life events, they may also talk about their suicide ideation, and this may make negative life events are associated with increased help-seeking before suicide behavior.

Impulsivity is another factor which is associated with increased help-seeking behavior in this study. In rural China, previous studies have found that some suicides do not really intent to die by suicide, and impulsivity is one of important factors which promotes them to conduct suicide behavior (Sun and Zhang, 2015a). In this situation, many of them conducted suicide behavior facing with others which can be seen as a kind of help-seeking in the current study. These suicide attempters with higher level of impulsivity tend to associate with increased help-seeking behavior. Besides, in China, there are more than 50% of suicide attempters who can be seen as impulsive attempted suicide (Li et al., 2003). Because of the lower suicide intent, they may seek help from others.

Our results also support that lower suicide intent was associated with increased help-seeking behavior. Suicide intent was defined as the

Table 2
Critical conditions of help-seeking among medically serious attempters ($n = 791$).

Variables	Total	Help-seeking		t/χ^2	p
		Yes	No		
Prior suicide act, n (%)				0.158	0.691
Yes	70 (8.8)	19 (8.2)	51 (9.1)		
No	721 (91.2)	212 (91.8)	509 (90.9)		
Suicide intent, mean ± SD	9.68 ± 4.89	8.48 ± 5.50	10.17 ± 4.53	4.459	<0.001
Suicide method, n (%)				5.342	0.021
Pesticide	595 (75.2)	161 (69.7)	434 (77.5)		
Others	196 (24.8)	70 (30.3)	126 (22.5)		

Note: SD = standard deviation.

Table 3
Logistic regression of help-seeking among medically serious attempters ($n = 791$).

Variables	OR	95% CI	p
Male	1.45	1.04, 2.00	0.026
Pesticide at home	0.72	0.51, 1.01	0.054
NLE	1.12	1.02, 1.22	0.014
Impulsivity	1.05	1.01, 1.09	0.014
Suicide intent	0.92	0.89, 0.96	<0.001
Suicide by pesticide	0.68	0.47, 0.99	0.047
Constant	0.61	–	0.123
$R^2 = 0.09$			

Note: Backward logistic regression was used for this regression.
NLE = negative life events; OR = odd ratio; CI = confidence interval.

degree which the individual with to die by suicide (Scocco et al., 2000). This implies that somebody do not really want to die by suicide, and they would seek help from others. It is easy to be understood, and that is the reason why item about increased help-seeking behavior is included in the scale of SIS (Beck et al., 1974).

Many previous studies have identified that pesticide is the most common method to conduct suicide in rural China (Sun et al., 2011). Actually, in the progress of suicide behavior, the time from experiencing suicide ideation to conducting suicide behavior is very short, and many suicide attempters do not have time to seriously consider the suicide behavior. This makes them also do not have time to seek help. The other reason may be that attempters used pesticide have higher intent to die, and they do not want to seek help from others. Thus, attempters carried out suicide by pesticide do not seek help from others.

Some limitations should be considered when we interpret the findings in the current study. Firstly, the design for this study is a cross-sectional survey, and we cannot get any causal relationship with increased help-seeking behavior for the factors found in this study. Secondly, all of the attempters were interviewed after they had leaved hospitals, and recall basis cannot be avoided. Thirdly, stigma of mental disease and suicide behavior, which is an important factor associated with increased help-seeking behavior, was not analyzed in this study. Besides, because of the stigma of suicide behaviors, the participants may also conceal their real answers when they conducted suicide. Fourthly, as help-seeking behavior was evaluated by an item in SIS, we cannot get the detailed information about the people who the attempters seek help from. Fifthly, the participants in this study are all medically serious suicide attempters, and the results may be different from other suicide attempters.

Keeping these limitations in mind, we also can conclude that few proportions of suicide attempters would seek help from others in rural China, and attempters who do not seek help before suicide behavior are females, experiencing fewer negative life events, lower level of impulsivity, higher level of suicide intent, conducting suicide by pesticide. It implies us that we should pay more attention on the people who have these characteristics, and promote them to seek help from others.

Conflicts of interest

Both of the authors declare that they have no conflicts of interest.

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