

The association between depression and suicide when hopelessness is controlled for

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Abstract

Objective: We retested the relationship between major depression and suicide with hopelessness as a control variable, with the hypothesis that the strong relationship between depression and suicide will decrease or disappear when hopelessness is controlled for. Also, hopelessness can be accounted for by psychological strains that resulted from social structure coupled with individual characteristics.

Method: This was a case–control psychological autopsy study, in which face-to-face interviews were conducted to collect information from proxy informants for suicide victims and living subjects in rural Chinese 15–34 years of age who died of suicide ($n = 392$) and who served as community living controls ($n = 416$). Major depression was assessed by the Chinese version of the Structured Clinical Interview for DSM-IV (SCID). Hopelessness was measured by Beck Hopelessness Scale.

Results: A strong association between major depression and suicide was observed after adjustment for socio-demographic characteristics. When hopelessness was added to the analysis, the depression–suicide relationship was significantly decreased in all the six regression models.

Conclusions: Although depression, as well as other mental illness, is a strong risk factor for suicide, depression and suicide are both likely to be related to hopelessness, which in turn could be a consequence of psychological strains that resulted from social structure and life events. Future studies may examine the causal relations between psychological strains and hopelessness.

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1. Introduction

Suicide studies in the world focused on the mental disorder as over 90% of the suicide in the West could be diagnosed with a mental illness [1]. However, researchers with Chinese suicide data found much lower percentage of mental illness among suicides in that country [2,3]. Other factors beyond mental disorder may play a role equally important in predicting suicide in China, as well as in the rest part of the world.

Earlier studies found that hopelessness, a non-clinical psychological state, was important in predicting suicidal

behaviors. For example, in a sample of 87 hospitalized suicide attempters, a hopelessness scale was found to be significantly better than a depression inventory as an indicator of suicidal risk. Hopelessness also correlated better than depression with self-ratings of the attenuation of the desire to go on living [4]. In another study of 120 hospital-referred para-suicides, the authors confirmed previous findings that, while both depression and hopelessness correlated with the degree of suicidal intent as measured on a Suicide Intent Scale, the relationship between depression and suicidal intent was dependent on that between hopelessness and suicidal intent [5]. Minkoff and colleagues (1973) identified a component of the syndrome of depression – the cognitive element of negative expectations – as a stronger indicator of suicidal intent than depression itself. This not only suggested a solution to the puzzling question of why there is a relationship between depression and suicide, but also indicated that approaches specifically designated to alleviate hopelessness may be successful in preventing suicide [6].

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In this study we use established psychological autopsy methods and a case–control design to [1] retest the effects of hopelessness on the relationship between depression and suicide, [2] explore the explanations for the hopelessness effects and suggest hypothesis for future research.

2. Methods

2.1. Study design and sampling

Because the suicide rates in China peaked in the age group of 15–34 years and the rural suicide rate was about three times higher than the urban rate [2,7,8], we focused on the sample of rural youths for study. A case–control psychological autopsy (PA) design was used in the data collection.

Psychological autopsy is a research method developed earlier by a group of suicidologists in the United States as the means for obtaining comprehensive retrospective information about victims of completed suicide [9–11]. A variety of sources of information are used in PA studies, including evidence presented at inquest, medical records, and information from general practitioners, and hospital clinicians. The most important source, however, is interview of relatives and other key informants [12]. One of the first applications of the PA method in China was conducted by the research team led by the first author of this current study in rural China among the young populations and yielded excellent reliability and validity of the instruments as well as the data collection methods [13,14]. However, the PA methods do not go without methodological limitations. One major concern of the PA method is its proximity of the data source, which may not be the exact measure of the target's facts [12]. Nonetheless, PA may be the only cost-effective way to study completed suicide [15]. PA is particularly critical in studying Chinese completed suicide because of two other culture-specific reasons: [1] there is not yet in today's China a sophisticated medical examination system that could help find the causes of a non-criminal death, and [2] there is no established mental health or hospital system, especially in the rural areas, that could let us know the victims' health problems recorded prior to the completed suicide.

In this study we explored the effect of hopelessness on the relationship between depression and suicide. We examined suicides and controls 15–34 years of age in rural China. The community living controls were selected at the same location (villages and communities) as the suicides.

Sixteen rural counties from three provinces in China were involved in this study: Liaoning, an industrial province in the Northeast China; Hunan, an agriculture province in the Central South China; Shandong, an economic prosperity in both industry and agriculture in the mid-way between Liaoning and Hunan. From October 2005 through June 2008, and a total of 392 suicide cases and 416 controls were entered for study.

2.2. Instruments and measurements

Measures regarding this study include socio-demographic information, Dickman Impulsivity Inventory (DII) [16], Beck Hopelessness Scale (BHS) [17], Coping Response Inventory (CRI) [18] and the Chinese version of the Structured Clinical Interview for DSM-IV (SCID) [19].

Socio-demographic information includes gender (male = 1, female = 0), age, education, status in the family (low = 1, average = 2, high = 3), and physical health condition (poor = 1, OK = 2, good = 3). The personal annual income in *yuan* (renminbi) was categorized into three groups: ≤ 5000 *yuan*, 5001–10,000 *yuan*, $\geq 10,001$ *yuan* (During the study period, the exchange rate was approximately seven *yuan* to one US dollar). Religion was categorized to “yes” (Muslim, Christian, Catholic Buddhism, Daoism) and “no” (atheist). Marital status was categorized into “currently married” (married, remarried, cohabitation) and “not currently married” (single and not dating, divorced, widowed).

The 23-item DII was designed to assess the personality trait of impulsiveness which includes two sub-scales: Dysfunctional Impulsivity Scales and Functional Impulsivity Scales. The former is the tendency to act with relatively little forethought when this causes problems and the latter is the tendency to act with relatively little forethought when this is optimal.

The 48-item scale Coping Response Inventory (CRI) [18] was used to measure the coping skill of the suicides or the controls which includes two sub-scales: Approach Coping Scales and Avoidance Coping Scales.

We used DSM-IV axis I to diagnose the prevalence the major depressive disorder of suicides and controls. The Beck hopelessness scale is a 20-item self-report inventory and includes three major aspects of hopelessness: feelings about the future, loss of motivation, and expectations.

2.3. Interviewers training and interviewing procedures

All interviewers were mental health or public health professionals. All interviewers received training for at least two weeks on psychological autopsy methods and administration of the study instruments before beginning of the data collection.

We also trained the village doctors and the village treasurers who collect fees for each burial or cremation. The training included the study procedure, judging cause of death, and reporting suicidal deaths to local Centers for Disease Control and Prevention (CDCs). Whenever necessary, an investigation was conducted to ensure that no cases of suicide were missed or erroneously reported with the help from the village board or villagers. All suicide information gathered at the county CDCs were forwarded to the provincial CDC monthly.

After a personal visit by the local health agency staff or the village administration, the agreement on the written informed consent was signed by the informants, and the interview was scheduled between two and six months after

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