



Interpersonal stress, not depression or hopelessness, predicts suicidality in university students in Macao

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Abstract

Objectives: Joiner's Interpersonal Theory of Suicide, which states that an individual will desire death when they perceive themselves to be a burden to others, and experience social isolation, has received much support, but has not been directly assessed in non-Eurocentric individuals.

Methods: Joiner's Interpersonal Needs Questionnaire (measuring both perceived burdensomeness and thwarted belongingness) and measures of depression, hopelessness, gender, relationship status and region of residence were evaluated as risk factors for suicidality after controlling for response biases. Participants were 273 undergraduate university students of Chinese ethnicity between the ages of 17 and 23 years in Macao.

Results: The predictors in sum distinguished between the presence and absence of suicidality ($\chi^2 = 62.759, p < .01$). Perceived burdensomeness ($p < .01$) and relationship status ($p < .01$) made significant contributions to the presence of suicidality. Low internal consistency prevented thwarted belongingness from being assessed as a risk factor.

Conclusions: Interpersonal variables may account for the seemingly disparate risk factors for suicide.

Keywords: suicide, suicidality, perceived burdensomeness, interpersonal, China

Suicide is a major cause of global mortality¹ and has become the leading cause of death among young people in Asian societies such as Hong Kong² and globally.¹ Worldwide, nearly 10% of adolescents attempt suicide.³ Depression,⁴ hopelessness⁵ and substance abuse⁴ are risk factors for suicide cross-culturally. However, in Asian societies, risk factors may be unique. In earlier reports from China, rates of suicide were either equivalent across gender or far higher in women than men,⁶ and higher in rural relative to urban regions;⁷ the converse is usually found in western societies.⁸ While recent reports point to a lessening of such trends,⁹ these findings nonetheless emphasize how Asian societies may possess risk factors for suicide that differ from those in western societies. Of great importance is the fact that suicide is not necessarily indicative of premorbid depression in China,¹⁰ because interpersonal factors and one's role in society may be more important.⁶ One theory concerning interpersonal relations and suicide was proposed by Joiner,¹¹ who posited that the belief that one is burdening others, combined with the experience of social alienation, will create a desire for death. Support

for this theory has been found in both community samples and in high-risk groups.¹² Joiner's theory has not yet been directly measured in individuals of Chinese descent residing in Asia. However, the implications of the theory may be particularly relevant in Asian societies. Individuals from Asia tend to view themselves as inseparable from the overall society.¹³ Thus, the belief that one is a burden to others, or the experience of being alienated from others, might be likely to predispose one to suicidality more so than would other commonly discussed risk factors for suicidality such as depression. The juxtaposition of a changing family unit against strong familial duty has been found to increase stress in adolescents,¹⁴ and suicide may still be viewed as the only alternative in situations of extraordinarily oppressive or abusive spousal or familial relations.¹⁵ However,

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Table 1. Sample characteristics

| <i>Characteristic</i> | <i>N (%)</i> |
|--|---|
| Age, in years | M = 18.85 (SD = 1.05); range = 17–23 |
| Gender | |
| Male | 103 (38%) |
| Female | 170 (62%) |
| Residence prior to university attendance | |
| Macao SAR | 138 (51%) |
| People's Republic of China | 120 (44%) |
| Other | 15 (5%) |
| Relationship status | |
| Single | 199 (73%) |
| In a relationship | 74 (27%) |
| Employment | |
| Employed at least part-time | 97 (36%) |
| Not employed | 176 (64%) |
| Reported history of mental illness | |
| Yes | 1 (<1%) |
| No | 272 (99%) |

SD: standard deviation

M: Mean

perceived familial duty has also been found to serve as a protective barrier against suicide.¹⁶

In the current report, it was posited that interpersonal variables, including perceived burdensomeness, thwarted belongingness and relationship status, would be stronger risk factors for suicidality than the commonly measured risk factors of depression¹⁷ and hopelessness. Depression and hopelessness were chosen as a means of testing Joiner's theory of suicidal behavior against Beck's cognitive model of depression. According to Beck, a negative view of one's self, of present functioning and the future lead to depression. Beck's cognitive theory was chosen because, according to this theory, a negative view of the future corresponds with hopelessness, which has been found to possess particularly strong connections to suicidality.¹⁸ Hypotheses were that after controlling for response biases (i.e. attempts to portray oneself as socially desirable), perceived burdensomeness, thwarted belongingness and the lack of a relationship with a significant other would significantly predict suicidality, and that the relationship would be stronger than the relationship between depression and hopelessness, and suicidality. Due either to the lack of data or inconsistencies in the extant literature, the relationship between gender and area of residency prior to university attendance (Macao versus China), and suicidality were examined in an exploratory fashion.

Methods

Participant details

A convenience sample of 284 first-year undergraduate students enrolled in the University of Macau participated in this study, of whom 273 completed all measures adequately to allow for data analysis. Demographic information and other potential contributory variables are listed in Table 1.

Procedure

All data was collected using self-report measures. Participants completed all self-report measures on the campus of the University of Macau between October 2012 and November 2012, after signing a consent form. Parental consent was also obtained for individuals under the age of 18 years. Ethical Committee approval was sought and received where necessary. Participants received credit towards a research requirement in introductory-level psychology courses. On the self-report forms completed, no identifying information was collected. Self-report forms contained a numeric code, and the data sheet linking the participant codes with their names and student numbers (needed to determine the students with whom to provide research credit) was kept in a locked file cabinet accessible only by the first author. Immediately following study completion, participants received a debriefing form providing them with various steps to take should they have experienced stress in any way due to study participation. These included the location, phone number and email address of the university counseling center, the contact information of the first author, a licensed clinical psychologist in the United States and the phone number for emergency services in Macao. None of the participants availed themselves of these services.

All self-report questionnaires were either: licensed by the original publisher to a vendor who created Chinese character versions (Beck Depression Inventory – II, Beck Hopelessness Scale, Beck Scale of Suicidal Ideation); translated by researchers into Chinese characters with permission of the original authors, with resulting adequate psychometric properties (Marlowe–Crowne Social Desirability Scale internal consistency = 0.58); or underwent translation using back-translation procedures by the translation department at the University of Macau (Interpersonal Needs Questionnaire).

Predictor variables. The Beck Depression Inventory – II (BDI-II)¹⁹ is a 21-item scale assessing the severity of depression. Higher scores reflect more and greater symptoms of depression severity. In the current report, internal consistency was 0.90. The Beck Hopelessness Scale (BHS)²⁰ is a 20-item scale measuring negative attitudes about the future, specifically hopelessness. Higher scores indicate a greater degree of hopelessness. Internal consistency in the current report was acceptable ($\alpha = 0.83$).

Table 2. Self-report data based on suicidality

| Suicidality? | Total sample | BDI-II | | BHS | | INQ |
|---------------------|---------------------|---------------|--------------|------------|-------------|----------------------|
| Yes | 75 | 15.49 | <i>10.30</i> | 6.93 | <i>4.25</i> | 21.01 <i>7.18</i> |
| No | 198 | 9.24 | <i>7.88</i> | 4.19 | <i>3.51</i> | 15.06 <i>4.69</i> |
| Summary | 273 | 10.96 | <i>9.03</i> | 4.94 | <i>3.92</i> | 16.69 <i>6.09</i> |

| | In a relationship | | Gender | | Residence | | |
|---------|--------------------------|-----------|---------------|---------------|------------------|--------------|--------------|
| | Yes | No | Male | Female | Macao | China | Other |
| Yes | 10 | 65 | 27 | 48 | 39 | 30 | 6 |
| No | 64 | 134 | 76 | 122 | 99 | 90 | 9 |
| Summary | 74 | 199 | 103 | 170 | 138 | 120 | 15 |

Mean scores are provided for screening measures; standard deviations are italicized.

BDI-II: Beck Depression Inventory – II (second edition); BHS: Beck Hopelessness Scale; INQ: Interpersonal Needs Questionnaire, Perceived Burdensomeness items.

The Interpersonal Needs Questionnaire (INQ)²¹ is divided into items reflecting perceived burdensomeness and items reflecting thwarted belongingness. Items are rationally derived from the Interpersonal Theory of Joiner.¹¹ The scale used in the current study contained a subset of 12 items that has been used in other studies with adequate internal consistency ($\alpha = 0.85$ to 0.89).²¹ In the current study, the internal consistency of perceived burdensomeness items was acceptable ($\alpha = 0.75$). The internal consistency of the thwarted belongingness items was below acceptable values ($\alpha = 0.43$), and was therefore not included in subsequent analyses. Due either to the lack of data, or inconsistencies in the extant literature, the relationship between gender, relationship status and area of residency prior to university attendance (Macao versus China), and suicidality were examined in an exploratory fashion. The Marlowe-Crowne Social Desirability Scale (MCSDS)²² measures attempts to portray oneself as socially acceptable. The version used in the current study was created by Tao and colleagues,²³ consisting of 14 items administered to 197 medical students in China. In the current report, internal consistency was somewhat low ($\alpha = 0.58$). Participant data was essentially anonymous, a further factor presumed to motivate students to complete self-report measures free of response bias.

Criterion measure. The Beck Scale of Suicidal Ideation (BSSI)²⁴ measures specific attitudes and behaviors about suicide and plans to commit suicide, and was developed for a psychiatric population. A Chinese version has internal consistency of 0.85²⁵ and in the current study internal consistency was 0.84. Suicidality in the

current study was operationalized as a raw score ≥ 1 . Table 2 contains means and standard deviations of each scale, information on each predictor for the total sample and for those who did and did not endorse suicidality.

Results

Using logistic regression, a test of the full model against a constant only model was statistically significant, indicating that the predictors as a set reliably distinguished between the presence and absence of suicidality after covarying for social desirability ($\chi^2 = 62.759$, $p < .01$ with $df = 6$) (Table 3). Prediction success overall was 78.4% (40% for those with suicidality and 92.9% for those without suicidality). The Wald criterion demonstrated that perceived burdensomeness (odds ratio (OR) = 1.15, 95% confidence interval (CI): 1.08–1.22) and relationship status (OR = 0.313, 95% CI: 0.13–0.71) significantly predicted suicidality. Neither depression nor hopelessness predicted suicidality, nor did gender nor region of residence prior to university attendance.

Discussion

In a sample of undergraduate university students in Macao, perceived burdensomeness and relationship status, but not depression or hopelessness, predicted suicidality. Thus, the results provide support for Joiner's Interpersonal Theory of Suicide but not for more cognitive theories of depression and subsequent suicidality.

Table 3. Logistic regression analyses of suicidality

| Predictor | Wald's | | | | | e^{β} (odds ratio) | 95% CI |
|--------------------------|---------|------------|----------|--------|------|--------------------------|-----------|
| | β | SE β | χ^2 | df | p | | |
| Constant | -3.193 | 0.753 | 17.962 | 1 | .000 | NA | |
| Social desirability | -0.062 | 0.075 | 0.693 | 1 | .405 | 0.94 | 0.81-1.08 |
| Depression | 0.013 | 0.022 | 0.388 | 1 | .533 | 1.014 | 0.97-1.05 |
| Hopelessness | 0.065 | 0.046 | 2.005 | 1 | .157 | 1.067 | 0.97-1.16 |
| Perceived burdensomeness | 0.140 | 0.032 | 19.291 | 1 | .000 | 1.15 | 1.08-1.22 |
| Gender | -0.279 | 0.329 | 0.718 | 1 | .397 | 0.757 | 0.39-1.44 |
| Relationship status | -1.16 | 0.421 | 7.637 | 1 | .006 | 0.313 | 0.13-0.71 |
| Region of residence | -0.024 | 0.266 | 0.008 | 1 | .927 | 0.976 | 0.57-1.64 |
| Test | | | | | | | |
| Overall model evaluation | | | | | | | |
| χ^2 | | | | 62.759 | 6 | <.01 | |
| Goodness-of-fit test | | | | | | | |
| Hosmer-Lemeshow | | | | 7.751 | 8 | .458 | |

Cox and Snell $R^2 = 0.214$; Nagelkerke $R^2 = 0.310$.

NA: not applicable; SE: standard error; CI: confidence interval.

The current results confirm prior findings. That is, individuals who are single, compared with those who are in a relationship, may be at greater risk for suicidality.²⁶ And perceiving oneself to be a burden can predict suicidality. For instance, in analyses of suicide notes, more expressions of burdensomeness were evident in those suicide attempters who succeeded versus those who did not, and in the notes of those who died by more violent relative to less violent means.²⁷

Given the current results, two considerations are relevant. First, interpersonal variables may not only explain but may also supersede mood variables in explaining suicidality, perhaps more so in Asian than in western societies. For example, in a study conducted in China, risk factors for completed suicide included severe acute stress at the time of death, which most commonly consisted in severe interpersonal conflict, while a significant proportion of the suicide completers was neither diagnosed with depression nor met diagnostic criteria for a specific form of psychopathology.⁶ Second, even if psychological variables such as depression and hopelessness were to accurately and reliably predict suicidality in individuals of Asian descent, in this population, salience is often not given to psychological symptoms, and as a result they may not be reported.²⁸ Thus, not only are interpersonal stressors risk factors for suicidality, but the assessment of such stressors can ensure that individuals will not fall through the mental health cracks if they do not endorse depression or appear depressed, for whatever the reason.

The current report contains several limitations. The sample, a relatively small convenience sample of undergraduate university students, represents a rather homogenous and narrow demographic. The reliability of the measure utilized (i.e. INQ) was not sufficient for a comprehensive assessment of the theory tested, and the other measures utilized have not yet been validated in the Macao population. Lastly, the mechanisms through which perceived burdensomeness and lack of a relationship with a significant other directly lead to suicidality and/or indirectly contribute to suicidality via intervening variables was not explored, and was thus not determined in the current report.

Nonetheless, the current results do highlight important clinical issues. It is suggested that screening for interpersonal stress should be included in any mental health assessment, particularly in an assessment in an Asian society, and specifically in at-risk groups in such societies.

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Disclosure

The authors report no conflict of interest. The authors alone are responsible for the content and writing of the paper.

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