

Prevalence and Correlates of Suicide Attempt in Chinese Patients With Borderline Personality Disorder

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Research article

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Abstract

Background: The suicidal behaviors in patients with borderline personality disorder (BPD) have been extensively studied in western countries. However, few data are available on the suicidal behaviors, especially suicide attempt (SA), in Chinese BPD patients.

Methods: 84 Chinese BPD patients were included and the following data were collected: the demographics, comorbidity of DSM-IV axis I and axis II diagnoses of mental disorders, times of hospitalization, and history of SA. All patients self-completed the Barratt Impulsiveness Scale-IV, Beck Depression Inventory-IV, Buss & Perry Aggression Questionnaire, Child Trauma Questionnaire-Short Form and Beck Hopelessness Scale.

Results: 52 (61.9%) patients reported SA(s) during their lifetime. Univariate logistic regression analysis found eleven variables associated with SA in BPD patients, including female, unemployment, times of hospitalizations, major depressive disorder (MDD), motor impulsiveness, hostility, self-aggression, total score of aggression, depressive symptoms, emotional neglect and total score of abuse. Multivariate logistic regression analysis identified three correlates of SA from variables above: MDD, hostility, and self-aggression. Self-aggression showed a weak correlative trend.

Conclusions: Chinese BPD patients are at a great risk of suicide; the treatment of MDD and reduction of aggression might be helpful for the suicide prevention in clinical management of Chinese BPD patients.

Introduction

The main features of BPD include a pervasive pattern of instability in self-image, interpersonal relationships, and affect, as well as markedly impulsive behavior [1]. In western countries, BPD is the commonest personality disorder in clinical and nonclinical settings, with the prevalence of about 10%-20% in clinical populations [2, 3], and 1.1%-5.9% in the nonclinical population [4–6]. In China, a multi-center study reported that the prevalence of BPD reached 9.9% in psychiatric treatment settings [7]. BPD is a serious personality disorder that can cause severe social function impairments, and it has been associated with a high risk of suicide. Suicidal symptoms, such as repetitive suicidal behavior, suicide threat and suicide gesture, are necessary components of the diagnostic criteria for BPD [1]. It has been documented that about 50%-75% of BPD patients have attempted suicide [8–10]; in addition, each patient has attempted suicide for more than three times during his/her lifetime [11]. Repetitive suicidal behaviors of BPD patients were sometimes misinterpreted as merely threatening or manipulative in clinical practice. However, since SA leads to a greater risk of completed suicide than expected [12], it is a significant clinical concern in BPD patients nowadays.

Literature articles reported that several types of factors were associated with SA in BPD patients, such as comorbidity, personality traits, childhood abuse, demographic characteristics, and hospitalizations [11, 13–21]. Previous studies on BPD indicated that there were significant relations between SA patients and affective disorders, especially depressive disorders [11, 15, 18]. However, a few studies found that a

comorbid diagnosis of major depression had a short-term effect, or little effect on suicide risk of BPD patients [19, 20]. Similarly, substance abuse is common in suicide attempters or completers with BPD [14, 15], but some scholars found no associations between substance abuse and attempted/completed suicide [19]. The relevant factors of another type are personality traits of BPD patients, such as aggression, anger, hostility and impulsivity [11, 13, 14, 16, 18, 20], but negative results have appeared as well [21]. Childhood abuse was also associated with SA in BPD patients, especially sexual abuse, which was the strongest predictor [16, 17]. In addition, low socioeconomic status, age of patient, hospitalization, or poor psychosocial functioning, have been classified as risk factors for SA in BPD patients [17, 20, 21].

As mentioned above, the clinical characteristics of suicidal behaviors of BPD patients are mainly derived from western countries. To the best of our knowledge, no empirical study has been conducted to examine the clinical epidemiology of SA in BPD patients in China so far. Considering the clinical importance of suicidal behaviors of BPD patients, the prevalence and correlates of SA in BPD patients were examined in this study.

Methods

Participants

Participants were selected from patients treated at Wuhan Mental Health Center from 2013 to 2015; the Center is the largest psychiatric specialty hospital in Central China, with over 1,000 inpatient beds. Patients with BPD according to DSM-5-TR [22] and aged from 18 to 60 years old were included. Those with severe somatic diseases or neurological diseases, such as epilepsy, were excluded. Two experienced psychiatrists assessed the eligibility and invited eligible patients to participate in the study. Finally, 84 BPD patients were enrolled.

Among the 84 BPD patients, 52 (61.9%) had attempted suicide, with the age ranging from 18 to 38 (mean age: 24.6 ± 5.5). Other clinical characteristics and demographic data are shown in Table 1.

Assessment

The trained investigators interviewed the patients in a standardized form, aiming to collect the demographic information (gender, age, education background, occupation, and marital status), axis I diagnoses of DSM-5-TR, times of hospitalization, and history of SAs.

All participants completed five validated Chinese self-rating scales: Barratt Impulsiveness Scale-11 (BIS-11) [23], Buss & Perry Aggression Questionnaire (AQ) [24], Beck Depression Inventory-15 (BDI-15) [25], Child Trauma Questionnaire-Short Form (CTQ-SF) [26] and Beck Hopelessness Scale (BHS) [27]. BIS-11 and AQ were used to assess two personality characteristics: impulsiveness and aggression, respectively. Both scales consist of 30 items. BIS-11 has three subscales: impulsive planning, motor impulsiveness and cognitive impulsiveness. AQ has five subscales: physical aggression, anger, verbal aggression, hostility, and self-aggression. CTQ-SF was used for assessing childhood abuse. It consists of 28 items in five

subscales: emotional abuse, sexual abuse, physical abuse, physical neglect and emotional neglect. BDI- α and BHS were used to rate the levels of depressive symptoms and hopelessness, respectively.

Table 1
Characteristics of Chinese BPD patients

Characteristics		N (%)
Gender	Male	22 (26.2)
	Female	62 (73.8)
Education level	Junior college below	32 (38.1)
	Junior college or above	52 (61.9)
Occupation	Unemployed	23 (27.4)
	Student	33 (39.3)
	Others	28 (33.3)
Marital status	Unmarried	75 (89.3)
	Married	5 (6.0)
	Others (divorced, widowed or remarried)	4 (4.7)
Times of hospitalization	0 (outpatient)	5 (6.0)
	1	10 (11.9)
	2 or above	69 (82.1)
DSM- α Axis- α diagnosis	Major depressive disorder (MDD)	57 (67.9)
	Bipolar disorder	8 (9.5)
	Other or unspecified psychotic disorders	5 (6.0)
	Post-traumatic stress disorder	4 (4.7)
	No diagnosis	10 (11.9)

Statistics

Descriptive statistics, multivariate and univariate logistic regression analysis were used. In the univariate logistic regression analysis, the presence or absence of SA was taken as the dependent variable and the above demographic, psychosocial and clinical variables as independent variables. Significant factors mentioned in the above univariate analysis were adopted in the multivariate logistic regression analysis. The forward stepwise regression based on maximum likelihood estimation was used to identify independent factors associated with SA in BPD patients. *95% confidence intervals (CIs)* and *Odds ratios*

(ORs) were used to quantify the correlation between variables and SA. The statistical significance level was set at $p < 0.05$ (two-sided). All analyses were performed with SPSS for Windows Version 20.0.

Results

The univariate logistic regression analysis (Table 2) revealed that there were eleven variables associated with SA in BPD patients, including female, unemployment, times of hospitalizations, MDD, motor impulsiveness, hostility, self-aggression, total score of aggression, depressive symptoms, emotional neglect and total score of abuse.

Table 2

Results of the univariate logistic regression analysis on the factors correlated with SA in BPD patients

Factors	<i>B</i>	<i>S.E.</i>	<i>Wald</i> χ^2	<i>P</i>	<i>OR (95%CI)</i>
Female (vs. male)	1.216	0.546	4.955	0.026	3.375 (1.156, 9.850)
Unemployed (vs. student and other occupations)	1.232	0.624	3.894	0.048	3.429 (1.008, 11.658)
Times of hospitalization	-0.806	0.259	9.678	0.002	0.447 (0.269, 0.742)
MDD (vs. other Axis I diagnosis)	3.219	0.671	23.025	≤ 0.001	25 (6.713, 93.099)
Motor impulsiveness	0.110	0.029	14.768	≤ 0.001	1.117 (1.056, 1.181)
Hostility	0.055	0.017	10.356	0.001	1.057 (1.022, 1.093)
Self-aggression	0.081	0.021	15.404	≤ 0.001	1.085 (1.041, 1.129)
Total score of aggression	0.076	0.023	11.193	0.001	1.079 (1.032, 1.129)
Depressive symptoms	0.059	0.025	5.675	0.017	1.061 (1.011, 1.114)
Emotional neglect	0.317	0.101	9.842	0.002	1.373 (1.126, 1.674)
Total score of abuse	0.071	0.026	7.239	0.007	1.073 (1.019, 1.130)

Other variables that did not associate with SA in BPD patients ($p \geq 0.05$) were not included in the table.

The final model of multivariate logistic regression analysis (Table 3) showed that three independent correlates were significantly associated with SA of BPD patients: MDD ($OR = 26.773$), hostility ($OR =$

1.073) and self-aggression (*OR* = 1.056).

Table 3

Results of the multivariate logistic regression analysis on the factors correlated with suicide attempt in Chinese patients with bipolar disorder

Factors	<i>B</i>	<i>S.E.</i>	<i>Wald</i> χ^2	<i>P</i>	<i>OR (95%CI)</i>
MDD (vs. other Axis I diagnosis)	3.287	0.981	11.228	0.001	26.773 (3.914, 183.132)
Hostility	0.071	0.026	7.239	0.007	1.073 (1.019, 1.130)
Self-aggression	0.055	0.029	3.534	0.060	1.056 (0.998, 1.119)

Discussion

As we know, this is the first study examining SA and its associated factors in BPD patients in China. The results showed that the prevalence of lifetime SA in Chinese BPD patients was up to 61.9%, being consistent with the high rate in western countries [8–10]. Significant correlates of SA in this patient population were MDD, hostility, and self-aggression, partly replicating the findings from western studies [11, 13–16, 18, 20].

Some studies [11, 15, 18] showed that MDD, as a typical and severe type of depressive disorders, was associated with SA in BPD patients. Compared with state depression and temporary psychological symptoms, MDD refers to more profound and persistent mood problems, which may lead the patients to the unfortunate assumption that suicide is the only way to end their painful life. It is consistent with the characteristics of repeated SAs in BPD patients, rather than occasional suicidal impulse, as well as state depression. Some researchers indicated that it is unlikely for acute symptoms to have predict value for suicidal behavior in a long term [21]. Similarly, the correlations of current depressive and hopeless symptoms to SA in this patient population were not found in this study, although previous studies had the opposite results [11, 19]. This is a primarily cross-sectional study, rather than a longitudinal follow-up study, but the history of SAs was reviewed and several retrospective questionnaires were used. Therefore, the relationships revealed in this paper were not only over a single period, but also what we want to achieve.

Aggression, especially hostility and self-aggression with a relatively weak effect, is also a significant correlate of SA in BPD patients, partly replicating the findings of previous studies [11, 13, 14, 16, 18]. There is an intrinsic correlation between self-aggression and aggression toward others, while self-aggression is often used as a psychological explanation for suicidal behavior. In other words, from the pathogenic mechanism of BPD, the hate for important objects caused by severe psychological trauma in the early years and the symbiotic relationship with those objects lead to the extreme self-violence, namely suicide. However, the types of aggression being more associated with SA should be further confirmed. In contrast, impulsiveness is another personality trait of BPD, which does not show an association with SA,

and could be explained by the possibility of overlapping between aggression and impulsiveness [28, 29]. Aggression might be closer to suicide in BPD patients.

The effect of childhood sexual abuse has not been found probably due to taboo in Oriental culture about talking about sex; some Asian studies showed lower rates of sexual abuse in psychiatric patients than other types of abuse [30, 31]. In addition, demographic characteristics and times of hospitalization were not found to be associated with SA in BPD patients. Indeed, there are few literatures to support that BPD patients have different SA risk for different genders, occupations, education levels, or marital status. However, patients' ages and times of hospitalization were also not associated with SA in this study, which were not consistent with the results of the other BPD studies [17, 20], possibly because the majority of the patients were relatively young and had multiple hospitalizations (two or more times).

There are several limitations in this study. First, the subjects were clinical patients from a psychiatric hospital of a city in middle China, with sample limits of severity and region. Second, the cross-sectional studies determined that causality could not be elucidated. Third, this is a preliminary study, and certain data fail to be collected or analyzed further, such as family history of suicide, psychosocial functioning, manner, and frequency of suicide.

Conclusions

In conclusion, the high prevalence of SA in Chinese BPD patients indicates the elevated risk of suicide in psychiatric clinical practice in China. Suicide prevention for Chinese BPD patients should focus on those with MDD and personality characteristics of hostility and self-aggression. The treatment of MDD and reduction of aggression through psychopharmacological and psychotherapy might be helpful in reducing the risk of suicide of Chinese BPD patients.

Abbreviations

AQ: Buss & Perry Aggression Questionnaire; BDI- Φ : Beck Depression Inventory- Φ ; BHS: Beck Hopelessness Scale; BIS- Φ : Barratt Impulsiveness Scale- Φ ; BPD: Borderline personality disorder; CTQ-SF: Child Trauma Questionnaire-Short Form; DSM- Φ : Diagnostic and statistical manual of mental disorders, fourth edition; DSM- Φ -TR: Diagnostic and statistical manual of mental disorders, fourth edition, text revision; MDD: Major depressive disorder; SA: Suicide attempt

Declarations

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Authors' contributions

FY and JT designed the study. FY analysed and interpreted the data, and drafted the manuscript. GL and SZ performed the main work of data collection and revised the manuscript. JT provide supervision for the study. All authors read and approved the final manuscript.

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Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Ethics approval and consent to participate

The study was approved by the Ethics Committee, Wuhan Mental Health Center. All enrolled participants signed the informed consent forms and voluntarily participated in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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