

Clinical and sociodemographic variables as risk factors for suicidal behavior in Borderline Personality Disorder: a retrospective study.

Iñigo Alberdi-Paramo (✉ inigoalb@ucm.es)

Instituto de Investigación Sanitaria del Hospital Clínico San Carlos <https://orcid.org/0000-0003-4383-2985>

Germán Montero-Hernández

UCM

María Dolores Sáiz-González

UCM: Universidad Complutense de Madrid

Marina Díaz-Marsá

UCM: Universidad Complutense de Madrid

José Luis Carrasco-Perera

UCM: Universidad Complutense de Madrid

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Abstract

Background: Suicidal behavior (SB) is nuclear in Borderline Personality Disorder (BPD). It is considered a symptom clinically relevant and with an important prognostic value. The literature describes different variables related to SB in BPD such as impulsivity, aggressiveness or hopelessness. There are not hardly any studies focused on the role of sociodemographic variables and their specific relationship with SB in BPD. The objective of this work is to identify which clinical and sociodemographic parameters could act as markers of suicide risk in BPD.

Methods: A cross-sectional, observational, and retrospective study was conducted of a sample of 134 patients diagnosed with BPD. The analysis of the association between variables was carried out with a multivariate negative binomial logistic regression model.

Results: SB is related to the number of siblings with statistical significance. Likewise, a greater number of suicide attempts is significantly associated with female gender, parenthood, permanent work, sick leaves and the number of previous hospital admissions. Both the presence of SB and a greater number of suicide attempts are significantly related to history of trauma in childhood and to the score in Hamilton Anxiety Rating Scale.

Conclusions: These parameters could act as risk factors for SB in BPD. The role of these variables could be the subject of further research projects in order to identify them in clinical practice.

1. Background

Borderline Personality Disorder (BPD) is a multifactorial etiology disorder characterized by emotional instability, feelings of emptiness and impulsive behaviors^{1,2}. Amidst impulsive behaviors associated with BPD, non-suicidal self-injury and suicidal behavior (SB) are considered as nuclear³⁻⁵. Between 40 and 85% of BPD patients perform suicide attempts (SA), with an average number of three attempts per patient^{6,7}. Completed suicide rate among BPD patients is between 5 and 10%, which is about 400-times higher than the estimated for general population^{7,8}. It is considered a symptom clinically relevant and with an important prognostic value, being one of the phenomenons that most affects the functionality of these patients⁶.

The literature describes different variables related to SB in BPD such as impulsivity^{9,10}, aggressiveness^{11,12} or hopelessness^{13,14}. Among clinical variables that relate to SB, depressive^{12,15} and anxiety symptoms^{16,17} have been mentioned. One of the most studied factors in recent years is the role of childhood trauma and its relationship with SB in BPD^{9,18}, highlighting particularly bullying^{7,19} and sexual abuse^{20,21}.

There are not hardly any studies focused on the role of sociodemographic variables and their specific relationship with SB in BPD, and only a few specific sociodemographic factors of BPD have been

identified as related to SB. Poor management of perpetuated stress situations has been mentioned as a possible factor related to SB in BPD, as well as its possible causes such as unemployment, hospital admission, frustrated belonging to a group or social isolation^{16,22,23}.

The objective of the present work is to identify the clinical and sociodemographic variables that could increase the risk of SB in BPD patients and which of them are associated with a greater number of SA in order to be detected in clinical practice.

2. Methods

1. Study design

We performed a cross-sectional, observational and retrospective study aimed to analyze the association between different clinical and sociodemographic variables in SB and Borderline Personality Disorder.

2. Participants

The sample was composed of 134 patients between 18 and 56 years old, diagnosed with BPD according to DSM-5 criteria (APA, 2014). These patients were recruited consecutively in the admission process to the Personality Disorder Day Hospital of the Hospital Clínico San Carlos in Madrid (Spain), which is a specific and nationwide reference unit for the treatment of patients with this diagnosis.

Patients who met criteria for other diagnoses, had an IQ of less than 85 or severe neurological disease, a history of traumatic brain injury, severe medical illness, current abuse of psychoactive substances – except for tobacco- or declined to participate in the study were excluded. The Hospital Ethics Committee approved the evaluation protocol and all the participants signed the informed consent.

3. Variables and instruments

For the clinical evaluation we used a questionnaire that assessed several clinical and sociodemographic variables, the presence or absence of SB excluding nonsuicidal self-injuries (differentiating these from SB by the absence of intentionality to die), and the number of previous autolytic attempts (**table 1**).

4. Procedure

Patients were individually evaluated by a psychiatrist and a clinical psychologist for approximately 120 minutes in the Personality Disorder Day Hospital of the Hospital Clínico San Carlos in Madrid (Spain). In order to reduce variability, all tests were performed at similar times (between 10 and 12 a.m.).

5. Statistical analysis

The mean and the standard deviation were used for the description of continuous data and the percentages for categorical data. Regarding the quantitative variables, their concordance to a normal distribution was determined using the Kolmogorov-Smirnov test. The sample was divided into two groups

according to whether or not there was a history of SB. Variable comparisons were made using Chi-squared test and Student's t-test. The association between variables was analyzed through a multivariate negative binomial logistic regression model. Data analysis was performed using the SPSS statistical package, version 19.0. The significance level established for all of the hypothesis testing was 0,05.

3. Results

The 134 patients participating in the study were divided into two groups according to their gender: 37 men (27.6%) and 97 women (72.3%). The mean age was 30 years old, with a standard deviation of 8.74; in a range between 18 and 56 years. The main socio-demographic characteristics of the sample are shown in **table 2**.

A total of 104 patients (77.6%) reported history of at least one suicide attempt (SA), whilst 30 patients (22.4%) did not have any history of suicidal behavior. The mean number of suicide attempts per patient was 2.69, with a standard deviation of 1.774.

Suicide attempts are significantly related to the following variables according to the univariate analysis (**table 3**):

- Number of siblings ($\chi^2 = 15.738$; $p = 0.028$). Significantly associating having a brother with a history of having completed an IS.
- History of having suffered trauma ($\chi^2 = 5.486$; $p = 0.019$).
- Hamilton Anxiety Rating Scale (HARS) ($p = 0.014$).

The rest of the variables studied (**table 4**) were not significantly related to suicide attempts.

Regarding the association with the number of suicide attempts through an univariate analysis by negative binomial regression (see **table 5**) statistically significant differences were observed with:

- Women (72.3%) had significantly ($p=0.022$) more SA than men (27.6%).
- Having children is related to more SA. Likewise, the greater the number of children (as a continuous variable), the greater the number of SA.
- Patients with permanent work (19.4%) performed more SA than those who had never worked (50%).
- Current work activity. Being on sick leave (11.9%) is related to performing more SA when compared to being unemployed (58.2%).
- Number of hospital admissions. Having previously been admitted to hospital (85.2%) is related to a greater number of SA compared to not having been admitted (14.8%).
- History of trauma. The presence of history of trauma (81.3%) is related to a greater number of SA.
- Hamilton Anxiety Rating Scale (HARS) with positive scores is significantly related to performing a greater number of SA.

According to the multivariate analysis using logistic regression, an association was found between SB and HARS score with an odds ratio of 1.063 ($p = 0.011$; CI: 1.014-1.115).

In addition, according to the multivariate analysis using a negative binomial regression, statistically significant differences were observed between SB and being on sick leave compared to being unemployed ($p = 0.025$; CI: 0.059-0.71), history of trauma ($p = 0.047$, CI: 0.017-0.930) and HARS score ($p = 0.040$; CI: 0.001-0.002).

4. Discussion

Presented data show slightly higher SA rates (77.6%) than those reported in the literature (40-70%)^{7,24,25}. This may be due to the fact that the patients of our sample come from a clinical population with distinctive characteristics compared to other populations of patients with BPD. The sociodemographic profile of the sample corresponds to patients who, due to the severity of their clinical course and difficulties in their treatment, are referred from other health areas to a Reference Unit in the treatment of patients diagnosed with BPD. Therefore, these are patients with BPD who have been on treatment for several years and who have already passed the onset and early stages of the disease. Their average age is thirty years, with an age range between seventeen and fifty-six years old. In the literature, studies predominate in patients with BPD who have had fewer years of treatment and with average ages closer to adolescence^{26,27}. Precisely, some authors point out a specific functioning of BPD patients based on their age group²⁸.

Regarding gender, 27.6% of the patients in our sample are men and 72.4% women. This corresponds almost exactly to the 1/4 ratio given by the DSM-5²⁹ and other review articles in high impact factor journals^{2,25,30}. According to the data studied, being a woman is related to the presence of a greater number of SA. Classical studies and recent meta-analysis indicate that SA are more frequent in women, whilst completed suicide is more frequent in men^{6,31,32}.

BPD patients generally show poor stress tolerance^{2,25}. For some authors the most frequent stressors described by patients are those related to their work, like work overload, unemployment or job insecurity, which can trigger mental illness related to SB³³. Moreover, frequent changes in employment are associated with a higher risk of SB in patients with BPD¹⁴. The data in our study indicates that having worked permanently compared to never having worked or having done it only occasionally is related to the presence and also to a greater number of SA. Also, being on sick leave is related to a higher number of SA according to the multivariate analysis performed using negative binomial regression. These results would be concordant with Nakao's findings in 2010³³, without any specific studies in BPD population done to date. Regarding unemployment data as a risk factor for suicide, there is controversy as some authors have described it as a protective factor against SB³².

We found that having siblings is significantly related to the history of having performed a SA. To our knowledge, this is a factor very little studied which could be interesting to investigate more deeply. BPD

symptomatology is often shown in interpersonal and family contexts, with data suggesting that having siblings is related to more aggressiveness and problematic functioning, which are in turn related to SB³⁴.

Another factor that increases the risk of a greater number of SA is having children. Poor stress tolerance presented by patients with BPD has been mentioned before and having children can be understood as an important stressor. BPD predisposes to a weaker psychological state in order to face the cognitive stress that entails having a child, which may trigger suicide attempts³⁵.

Being admitted to hospital is another factor related to recent stress. This is significantly associated with a greater number of SA according to the present analysis. These data are coherent with those found in the literature, which affirm that the number of previous hospital admissions is related to a greater number of SA^{14,36}. Furthermore, it has been established that the period following discharge from hospital is of special risk for SB^{37,38}.

Preliminary studies from our research group have already spoken about history of trauma and its important relationship with SB, emphasizing the role of bullying¹⁹. The data is consistent with the literature reviewed and those expected in BPD population^{4,39,40}. This is population particularly vulnerable to adverse events in childhood and the data studied support this significant relationship between trauma and SB in BPD, which in line with that has been described in recent studies^{9,17,18}.

Different authors propose anxiety as the link between sociodemographic and/or clinical variables, such as the aforementioned history of childhood trauma and SB in BPD^{17,41}. Hamilton Anxiety Rating Scale (HARS)⁴² has been widely used as a method of measuring anxiety. This anxiety-state scale evaluates its intensity in its psychological and physical aspects, as well as in its behavioral manifestations. Its items refer to at least the last three days prior to the interview, making it an evaluation of the patient's condition at the time the assessment is done⁴³.

Suicide attempts of the patients with BPD studied are related to anxiety measured with the HARS both in the univariate analysis and in the multivariate analysis. Likewise, anxiety is also related to a greater number of suicide attempts according to the multivariate analysis performed using negative binomial regression. Anxiety is a symptom present in numerous psychiatric syndromes and in a nonspecific way in maladjustment situations attributable to pathological personality traits. The presence of psychopathology is the most important predictor of suicide after a history of previous SB¹⁶. This anxiety could thus increase the risk of suicide with a greater statistical strength than the BPD syndrome itself of which anxiety is part⁴⁴.

Some patients with BPD have a high risk of SB since adolescence, either as an almost constant trait or because it is precipitated in "acute" risk periods². In this last case, the acute precipitation of suicide attempts in patients with BPD may be the variable that most relates to positive scores on the HARS. It is associated through multivariate analysis with statistical significance both with the presence and the number of SA.

The main methodological limitation of the design of this study is that it is an observational, descriptive, retrospective and cross-sectional study of concurrent temporality. This design model does not allow to establish causal links between the associations found and does not have the statistical power that a prospective study could have.

5. Conclusions

The presented results provide different sociodemographic and clinical variables which could act as risk factors for SB in BPD. Consequently, these variables could be an important and useful indicator to consider therapeutically on an early intervention in BPD. The role of these variables could be the subject of further research projects in order to identify them in clinical practice. When compared to a complex and heterogeneous construct like BPD, specific clinical and sociodemographic variables are easier to define and identify by General Practitioners, professionals working in Educational Centers or by Psychiatrists at first consultations. Moreover, further studies are required to clarify the mediating elements between these clinical and sociodemographic variables and suicidal behavior in BPD patients.

Abbreviations

BPD: Borderline Personality Disorder

HARS: Hamilton Anxiety Rating Scale

SA: Suicide Attempts

SB: Suicidal behavior

Declarations

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Ethical Approval and Consent to participate

The Hospital Clínico San Carlos Ethics Committee approved the evaluation protocol and all the participants signed the informed consent.

Consent for publication

Not applicable.

Availability of supporting data

Not applicable.

Competing interests

Íñigo Alberdi-Páramo, Germán Montero-Hernández, María Dolores Sáiz-González, Marina Díaz- Marsá and José Luis Carrasco Perera; to the best of our knowledge, have no conflict of interest, financial or otherwise.

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Tables

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