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Individuals with single versus multiple suicide attempts over 10 years of prospective follow-up

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Abstract

Background: The study attempted to identify characteristics that differentiate multiple suicide attempters from single attempters in individuals with personality disorders (PDs) and/or major depression.

Method: Participants were 431 participants enrolled in the Collaborative Longitudinal Study of Personality Disorders from July 1996 to June 2008. Suicide attempts were assessed with the Longitudinal Interval Follow-up Evaluation at 6 and 12 months, then yearly through 10 years. Logistic regression was used to compare single attempters to multiple attempters on Axis I and II psychiatric disorders and personality trait variables.

Results: Twenty-one percent of participants attempted suicide during the 10 years of observation, with 39 (9.0%) reporting a single suicide attempt and 54 (12.5%) reporting multiple suicide attempts. Although no significant differences were found in baseline Axis I disorders, multiple attempters were significantly more likely to meet criteria for borderline personality disorder and to have higher impulsivity scores than single attempters.

Conclusion: These results underscore the importance of considering both personality disorders and traits in the assessment of suicidality. © 2012 Elsevier Inc. All rights reserved.

1. Introduction

Suicide is a leading cause of death worldwide [1]. An estimated 2.7% of individuals in the United States have made at least one attempt in their lifetime [2]. A history of suicide attempt(s) constitutes one of the strongest predictors of subsequent attempts [3,4], and repetition of suicide attempts increases both the risk of further attempts [5] and eventual suicide completion [6].

Although researchers have traditionally examined all suicide attempters in one category, emerging research suggests that individuals who make multiple suicide attempts (MSA) may represent a distinct population from those reporting a single suicide attempt (SSA) [7,8]. Research comparing

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single to multiple attempters has found more persistent and severe psychiatric symptoms and higher rates of psychiatric comorbidity associated with MSA [7,9,10]. Pagura and colleagues [7] found that comorbidity of three or more psychiatric disorders distinguished community MSA from SSA individuals. Multiple suicide attempts have been associated with anxiety, mood, and substance use disorders [7,11].

While past research has linked suicide attempts to depressive, anxiety, and substance use disorders generally [7,11,12], less research has focused on specific Axis I disorders. Several studies have linked suicide with trauma history [13], yet the relationship of PTSD to multiple suicide attempts is poorly understood. Surprisingly, most studies investigating anxiety disorders among single versus multiple attempters have not addressed PTSD specifically [7,11], examining instead differences in traumatic experiences [7,14,15]. Similarly, research has investigated panic disorder as a predictor of suicide attempts [16], but not contrasting single versus multiple attempters.

Potential differences in personality disorder (PD) or trait comorbidity have received even less attention. Indeed, one key research limitation to date is that the association between comorbidity of mental disorders and MSA may result from unassessed PDs. Extant research has focused on borderline personality disorder (BPD), with several studies indicating that multiple attempters are more likely to meet criteria for BPD than single attempters [11,17,18]. Several studies have linked anger and aggression with suicide attempts [19–21]; one study indicated higher levels of trait anger in MSA than SSA adolescents [9]. Other personality traits frequently associated with suicide behavior, such as impulsivity and negative affectivity [22], remain relatively unexplored in relation to number of suicide attempts.

Extant research suggests notable differences between single and multiple attempters but has several limitations. Aside from one study [16], research examining SSA versus MSA has used cross-sectional, retrospective data or evaluated selective samples of emergency room admissions following suicide attempt, thus precluding causal inferences. Prospective, longitudinal investigations provide important information free of retrospective recall biases that fills a knowledge gap about the relationship among psychiatric comorbidity, personality traits, and suicide attempts over the life span.

This study extends previous research by investigating suicide attempts in a prospective, longitudinal study of individuals with PDs. Earlier work has examined personality traits [23] and Axis I and Axis II disorders [24] as prospective predictors of suicide attempts over 2- and 7-year follow-up intervals. These studies found that: 1) worsening of major depressive disorders (MDD) and substance use disorders (SUD) prospectively predicted suicide attempts in the following month [24], 2) recent interpersonal loss and legal/criminal problems prospectively predicted suicide attempts in the following month [25], 3) affective instability

was the only BPD criterion (controlling for self-injurious behaviors) significantly predicting suicide attempt status over 2 years of follow-up [26]; and 4) the personality trait of negative affectivity robustly and significantly predicted suicide attempts over 7 years of follow-up [23]. The primary aim of this prospective study was to examine differences in personality traits and Axis I/II comorbidity between individuals with single versus multiple suicide attempts over a 10-year period.

2. Methods

The Collaborative Longitudinal Study of Personality Disorders (CLPS) is a four site, naturalistic, prospective study of four PD groups: schizotypal (STPD), borderline (BPD), avoidant (AVPD), and obsessive compulsive (OCPD), and a comparison group with MDD but without PD. The design, methodology, sample characteristics are detailed elsewhere [27] as are Axis I and Axis II comorbidities [28].

2.1. Participants

Participants are 18 through 45-year-old treatment-seeking patients at clinics affiliated with the four CLPS sites, with additional recruits from advertisements and fliers. All participants currently or previously received psychiatric treatment. Inclusion required one or more PD targeted in the CLPS (STPD, BPD, AVPD, OCPD), assessed by the Diagnostic Interview for DSM-IV PDs (DIPD-IV), [29] or MDD without PD in the comparison group, assessed by the Structured Clinical Interview for DSM-IV Disorders (SCID-I/P) [30]. Personality disorder diagnoses were confirmed by at least one other Axis II assessment, either the clinician-rated Personality Assessment Form [31] or the self-report Schedule for Adaptive and Nonadaptive Personality (SNAP) [32]. The target PDs were chosen to capture a broad range of personality pathology. Patterns of comorbid PDs approximated other clinical samples [33–35]. Further, participants' treatment-seeking status provided a clinically relevant study group. Exclusion criteria were: acute substance intoxication/withdrawal, active psychosis, IQ less than or equal to 85, cognitive impairment, and history of schizophrenia, schizopreniform, or schizoaffective disorders.

The initial CLPS study cohort of 668 participants was interviewed at 6 months, 1 year, then annually following the baseline assessment. Each participant signed informed consent and the study was approved by the institutional review boards at the respective sites/institutions. This examination comprises the 431 participants (64.5%) with 10 years of follow-up data available. Of those, 93 (21.6%) attempted suicide during the follow-up decade. This excludes the 6 participants who committed suicide. Attrition analyses indicated no significant differences in demographic, diagnostic, or personality variables between suicide attempters with and without 10 years of follow-up data.

2.2. Measures

Diagnostic Interview for DSM-IV Personality Disorders [29] is a semi-structured interview assessing individual *DSM-IV* criteria for each of the 10 personality disorders. The PD diagnoses had good interrater and test–retest reliability: BPD ($\kappa=0.68$ and 0.69), AVPD ($\kappa=0.68$ and 0.73), OCPD ($\kappa=0.71$ and 0.74), respectively [36]. Test–retest kappa was 0.64 for STPD, however the interrater reliable sample was insufficient to calculate κ [36].

Longitudinal Interval Follow-Up Evaluation [37] is a semi-structured interview designed to assess the longitudinal course of mental disorders, psychosocial functioning, and suicide-related behaviors. Questions probe whether subjects have engaged in any suicidal behavior, and episodes are coded by month of occurrence and for both intent and medical threat. Consistent with prior research, we defined attempts as events where the participant endorsed at least minimal (non-zero) intent to die [25,38].

Structured Clinical Interview for DSM-IV Axis I Disorders-Patient Version [30] a semi-structured diagnostic interview with established reliability, assesses 33 *DSM-IV* Axis I diagnoses. Interrater reliability kappas for Axis I diagnoses for CLPS interviewers ranged from $.57$ to 1.00 (median $.76$). Test–retest kappas ranged from $.35$ to $.78$ (median $.64$) [36].

Schedule For Non-Adaptive and Adaptive Personality [32]. The SNAP, a 395 item true–false self-report questionnaire, includes 13 standardized scales for *DSM-III-R* based personality dimensions in addition to 15 trait and temperament scales. The current report utilized raw scores from these trait and temperament scales: aggression, negative affectivity, impulsivity, disinhibition. The scales demonstrate good internal consistency and test–retest reliabilities [32]. Internal consistency reliabilities in this sample are 0.85 , 0.83 , 0.83 , 0.86 respectively.

NEO Personality Inventory Revised [39]. The 240-item NEO-PI-R self-report questionnaire assesses the five-factor model of personality. Besides the five domains of neuroticism (N), extraversion (E), openness to experience (O), agreeableness (A), and Conscientiousness (C), the NEO-PI-R provides 30 facet scores, 6 per domain. This study utilized 4 facets: impulsiveness (N5), self-discipline (C5), deliberation (C6), and excitement seeking (E5), consistent with prior research [21]. Internal consistency reliabilities for the variables of interest in this sample are 0.71 (N5), 0.84 (C5), 0.77 (C6) and 0.58 (E5).

2.3. Statistical Analysis

All analyses were performed using SPSS 19.0 for Windows. Categorical variables were evaluated using chi-square tests, continuous variables using *t*-tests. Following correlational analyses between trait predictor variables and assessment of tolerance and variance inflation factor to identify problematic collinearity, multivariate logistic regression was used to compare single to multiple attempters on personality trait variables. All analyses were two-tailed.

3. Results

Of the 431 participants with 10 years of prospective data, 93 (21.6%) attempted suicide during the decade of follow-up. The final analysis group included 39 (9.0%) reporting an SSA, and 54 (12.5%) reporting MSA over ten years. Mean age at intake was 33.1 ($SD=7.63$). The sample was primarily Caucasian (75.3%) women (77.4%); 33.3% were employed, 24.7% married or cohabitating, and 69.9% reported at least high school education/GED. For those reporting MSA, mean number of attempts was 5.4 ($SD=13.3$) and median was 2. No significant differences in demographic variables distinguished single from multiple attempters.

3.1. Axis I and II disorders

Among Axis I diagnoses frequently associated with suicide, MDD was highly prevalent but did not statistically differ among groups (59.0% single attempters vs. 46.3% multiple attempters; $\chi^2(1)=1.46$, $p=.23$). Nor did groups significantly differ in rates of drug abuse/dependence [41.0% vs. 53.7%, $\chi^2(1)=1.46$, $p=.23$], alcohol abuse/dependence [43.6% vs. 59.2%, $\chi^2(1)=2.23$, $p=.14$], PTSD [33.3% vs. 44.4%, $\chi^2(1)=1.17$, $p=.28$], or panic disorder [23.1% vs. 29.6%, $\chi^2(1)=0.50$, $p=.48$].

Among the four PDs targeted in CLPS, only BPD differed significantly across the two groups [$\chi^2(1)=8.15$, $p<.005$]: 56.4% of single attempters met criteria for BPD at baseline versus 83.3% of multiple attempters. No significant differences were found in rates of OCPD [41.0% vs. 24.1%, $\chi^2(1)=3.03$, $p=.08$], AVPD [56.4% vs. 61.1%, $\chi^2(1)=0.21$, $p=.65$], or STPD [2.6% vs. 1.9%, $\chi^2(1)=0.06$, $p=1.0$] comparing single to multiple attempters.

3.2. Personality traits at baseline

Although several personality trait variables were significantly intercorrelated, none indicated problematic collinearity. As Table 1 shows, no significant group differences emerged in negative temperament, aggression, excitement

Table 1
Personality traits variables in single and multiple suicide attempters.

	SSA (<i>n</i> =39)	MSA (<i>n</i> =54)	<i>t</i> (90)
NEO impulsivity (N5)	18.24 (4.56)	22.02 (5.64)	3.41***
NEO self-discipline (C5)	15.56 (7.15)	12.84 (6.39)	1.83
NEO excitement seeking (E5)	15.78 (5.33)	16.11 (5.00)	0.25
NEO deliberation (C6)	15.89 (5.69)	12.65 (5.02)	2.84**
SNAP negative temperament	21.32 (4.53)	23.40 (4.41)	1.79
SNAP aggression	6.41 (3.53)	8.44 (5.29)	1.97
SNAP disinhibition	10.27 (7.28)	13.53 (6.03)	2.16*
SNAP impulsivity	7.28 (4.81)	9.56 (4.12)	2.32*

Note. SSA = single suicide attempter, MSA = multiple suicide attempter, SNAP = Schedule for Adaptive and Nonadaptive Personality.

* $p<.05$.

** $p<.01$.

*** $p<.005$.

seeking, or self-discipline. However, multiple attempters reported higher baseline scores on disinhibition and impulsivity on both SNAP and NEO respectively, and lower scores on deliberation compared to single attempters. The four personality trait variables significant at the univariate level were included in a logistic regression comparing multiple to single attempters. In this model containing deliberation, disinhibition, and impulsivity (SNAP & NEO), only NEO impulsivity continued to distinguish between multiple and single attempters (OR=1.11, CI=1.00–1.23, Wald $\chi^2=3.99$, $df=1$, $p<.05$).

4. Discussion

This study sought to determine whether psychiatric comorbidity and personality traits differentiate single from multiple attempters in a longitudinal study of individuals with PDs and/or MDD. The study has three major findings: (1) Axis I disorders did not predict elevated risk of multiple suicide attempts; (2) BPD was the only disorder that distinguished between single and multiple attempters; and (3) although negative affectivity predicted suicide attempts in this sample [40], only NEO impulsivity differentiated between single and multiple attempters.

Importantly, we found no differences in Axis I psychopathology between single and multiple attempters. The study findings echo many others that have found high rates of Axis I comorbidity in suicide attempters [16]. A recent study found a differential impact of psychopathology related to repeated suicide attempt between men and women, with PTSD a risk-factor for re-attempt in women and substance misuse associated with multiple attempts in men [41]. However, our results suggest that they do not predict the elevated risk of MSA in a predominantly PD sample. Although we found no differences in rates of Axis I disorders BPD emerged as a risk factor for multiple attempts, consistent with prior investigations [11,17] and research highlighting poor psychosocial outcomes in BPD patients more generally [42].

While this study highlights the relevance of categorically defined BPD in predicting multiple suicide attempts it also underscores the utility of personality dimensions in the prediction of initial and subsequent suicide attempts. Research has highlighted the role of negative affectivity in suicide attempts [43,44]. Earlier CLPS findings identified negative affectivity as a robust predictor of suicide attempts at 7-year follow-up [23]. Yet while negative affectivity predicts suicide attempts generally, our results suggest that impulsivity may distinguish SSA individuals from those who make multiple attempts. Several researchers have highlighted an association between impulsivity and suicide [22], noting that the relationship between impulsivity and suicide may partly depend on how impulsivity is defined [23,45]. The current results suggest that NEO impulsivity, whose items reflect more circumscribed aspects of impulsivity,

helps to distinguish single from multiple attempters. These results require replication and more research is needed to clarify the relationship between the various facets of impulsivity and risk for MSA.

The findings warrant interpretation in the context of several limitations. Attrition occurs in all longitudinal studies. Because this study used data from all 10 years of observation, analyses are based on a reduced sample. However, no baseline differences were observed between suicide attempters who completed 10 years of follow-up and those who did not. Like prior research [11,46] this study divided attempters into single and multiple attempt categories, yet it remains unclear whether attempter status is better conceived as a continuous instead of a categorical variable. Condensing multiple attempters into one category may have obscured important differences among those that make MSA. Status may be fluid: single attempters in this cohort may eventually make additional attempts or non-attempters make their first suicide attempt. Finally, the present report may underestimate the number of suicide attempts in this sample: there was no third-party verification of attempts, patients with certain personality disorders may be more or less likely to disclose, and the study did not assess suicide attempts prior to study entry. However, this study represents one of the few prospective investigations of suicidal behavior; the assessment methodology and long period of study observation lend confidence to the results.

This study examined psychiatric comorbidity and personality trait variables as prospective predictors of multiple suicide attempts over a ten-year period. Borderline personality disorder was the only diagnostic variable that distinguished single from multiple attempters. Study results suggest a need for greater attention to impulsivity, an underlying process that cut across multiple psychiatric disorders, in the prediction of suicide attempts and underscore the importance of considering personality traits in addition to PDs in the assessment of suicidality.

References

- [1] DeLeo D, Bertolote J, Lester D. Self-directed violence. Geneva, Switzerland: World Health Organization; 2002.
- [2] Nock M, Kessler R. Prevalence of and risk factors for suicide attempts versus suicide gestures: analysis of the national comorbidity survey. *J Abnorm Psychol* 2006;115:616-23.
- [3] Borges G, Angst J, Nock M, Ruscio A, Walters E, Kessler R. A risk index for 12-month suicide attempts in the National Comorbidity Survey Replication (NCS-R). *Psychol Med* 2006;36:1747-57.
- [4] Brown GK, Beck AT, Steer RA, Grisham JR. Risk factors for suicide in psychiatric outpatients: a 20-year prospective study. *J Consult Clin Psychol* 2000;68:371-7.
- [5] Owens D, Dennis M, Read S, Davis N. Outcome of deliberate self-poisoning: an examination of risk factors for repetition. *Br J Psychiatry* 1994;165:797-801.
- [6] Harris E, Barraclough B. Suicide as an outcome for mental disorders. A meta-analysis. *Br J Psychiatry* 1997;170:205-28.
- [7] Pagura J, Cox BJ, Sareen J, Enns MW. Factors associated with multiple versus single episode suicide attempts in the 1990–1992 and

- 2001–2003 United States national comorbidity surveys. *J Nerv Ment Dis* 2008;196:806-13.
- [8] Miranda R, Scott M, Hicks R, Wilcox HC, Harris Munfakh JL, Shaffer D. Suicide attempt characteristics, diagnoses, and future attempts. *J Am Acad Child Adolesc Psychiatry* 2008;47:32-40.
- [9] Esposito C, Spirito A, Boergers J, Donaldson D. Affective, behavioral, and cognitive functioning in adolescents with multiple suicide attempts. *Suicide Life Threat Behav* 2003;33:389-99.
- [10] Hawton K, Houston K, Haw C, Townsend E, Harriss L. Comorbidity of Axis I and Axis II disorders in patients who attempted suicide. *Am J Psychiatry* 2003;160:1494-500.
- [11] Forman E, Berk M, Henriques G, Brown G, Beck A. History of multiple suicide attempts as a behavioral marker of severe psychopathology. *Am J Psychiatry* 2004;161:437-43.
- [12] Lopez-Castroman J, Perez-Rodriguez Mde L, Jaussent I, Alegria AA, Artes-Rodriguez A, Freed P, et al. Distinguishing the relevant features of frequent suicide attempters. *J Psychiatr Res* 2010;45:619-25.
- [13] Panagioti M, Gooding P, Tarrier N. Post-traumatic stress disorder and suicidal behavior: a narrative review. *Clin Psych Rev* 2009;29:471-82.
- [14] Brodsky B, Malone K, Ellis S, Dulit R, Mann J. Characteristics of borderline personality disorder associated with suicidal behavior. *Am J Psychiatry* 1997;154:1715-9.
- [15] Ystgaard M, Hestetun I, Loeb M, Mehlum L. Is there a specific relationship between childhood sexual and physical abuse and repeated suicidal behavior? *Child Abuse Negl* 2004;28:863-75.
- [16] Sareen J, Cox B, Afifi T, de Graaf R, Asmundson G, ten Have M, et al. Anxiety disorders and risk for suicidal ideation and suicide attempts: a population-based longitudinal study of adults. *Arch Gen Psychiatry* 2005;62:1249.
- [17] Corbitt EM, Malone KM, Haas GL, Mann JJ. Suicidal behavior in patients with major depression and comorbid personality disorders. *J Affect Disord* 1996;39:61-72.
- [18] Rudd M, Joiner T, Rajab M. Relationships among suicide ideators, attempters, and multiple attempters in a young-adult sample. *J Abnorm Psychol* 1996;105:541-50.
- [19] Hull-Blanks E, Kerr B, Kurpius S. Risk factors of suicidal ideations and attempts in talented at risk-girls. *Suicide Life Threat Behav* 2004;34:267-76.
- [20] Mann JJ, Waternaux C, Haas GL, Malone KM. Toward a clinical model of suicidal behavior in psychiatric patients. *Am J Psychiatry* 1999;156:181.
- [21] Oquendo M, Waternaux C, Brodsky B, Parsons B, Haas G, Malone K, et al. Suicidal behavior in bipolar mood disorder: clinical characteristics of attempters and nonattempters. *J Affect Disord* 2000;59:107-17.
- [22] Brezo J, Paris J, Turecki G. Personality traits as correlates of suicidal ideation, suicide attempts, and suicide completions: a systematic review. *Acta Psychiatr Scand* 2006;113:180-206.
- [23] Yen S, Shea M, Sanislow C, Skodol A, Grilo C, Edelen M, et al. Personality traits as prospective predictors of suicide attempts. *Acta Psychiatr Scand* 2009;120:222-9.
- [24] Yen S, Shea MT, Pagano M, et al. Axis I and axis II disorders as predictors of prospective suicide attempts: findings from the collaborative longitudinal personality disorders study. *J Abnorm Psychol* 2003;112:375-81.
- [25] Yen S, Pagano ME, Shea MT, Grilo CM, Gunderson J, Skodol AE, et al. Recent life events preceding suicide attempts in a personality disorder sample: findings from the Collaborative Longitudinal Personality Disorders Study. *J Consult Clin Psychol* 2005;73:99-105.
- [26] Yen S, Shea MT, Sainslow NS, Grilo TM, Skodol SN, Gunderson JG, et al. Borderline personality disorder criteria associated with prospectively observed suicidal behavior. *Am J Psychiatry* 2004;161:1296-8.
- [27] Gunderson JG, Shea MT, Skodol AE, McGlashan TH, Morey LC, Stout RL, et al. The Collaborative Longitudinal Personality Disorders Study: development, aims, design, and sample characteristics. *J Pers Disord* 2000;14:300-15.
- [28] McGlashan TH, Grilo CM, Skodol AE, Gunderson JG, Shea MT, Morey LC, et al. The collaborative longitudinal personality disorders study: baseline axis I/II diagnostic co-occurrence. *Acta Psychiatr Scand* 2000;102:256-64.
- [29] Zanarini MC, Frankenburg FR, Sickel AE, Yong L. The Diagnostic Interview for DSM-IV Personality Disorders (DIPD-IV). Belmont, Mass: McLean Hospital; 1996.
- [30] First M, Spitzer R, Gibbon M, Williams J. Structured clinical interview for DSM-IV Axis I disorders — patient version (SCID-I/P). New York: Biometrics Research Department, New York State Psychiatric Institute; 1996.
- [31] Shea MT, Glass DR, Pilkonis PA, Watkins J, Docherty JP. Frequency and implications of personality disorders in a sample of depressed outpatients. *J Pers Disord* 1:27–42.
- [32] Clark L. Manual for the Schedule for Nonadaptive and Adaptive Personality (SNAP). Minneapolis: University of Minnesota Press; 1993.
- [33] Blashfield R, McElroy R, Pfohl B, Blum N. Comorbidity and the prototype model. *Clin Psychol-Sci Pr* 1994:1.
- [34] Oldham J, Skodol A, Kellman H, Hyler S, Doidge N, Rosnick L, et al. Comorbidity of axis I and axis II disorders. *Am J Psychiatry* 1995;152:571-8.
- [35] Stuart S, Pfohl B, Battaglia M, Bellodi L, Grove W, Cadoret R. The cooccurrence of DSM-III-R personality disorders. *J Pers Disord* 1998;12:302-15.
- [36] Zanarini MC, Skodol AE, Bender DS, Dolan R, Sanislow CA, Schaefer E, et al. The collaborative longitudinal personality disorders study: reliability of Axis I of II diagnoses. *J Pers Disord* 2000;14:291-9.
- [37] Keller MB, Lavori PW, Friedman B, Nielsen E, Endicott J, McDonald-Scott P, et al. The longitudinal interval follow-up evaluation: a comprehensive method for assessing outcome in prospective longitudinal studies. *Arch Gen Psychiatry* 1987;44:540-8.
- [38] O'Carroll PW, Berman AL, Maris RW, Moscicki EK, Tanney BL, Silverman MM. Beyond the Tower of Babel: a nomenclature for suicidology. *Suicide Life Threat Behav* 1996;26:237-52.
- [39] Costa P, McCrae R. Revised NEO Personality Inventory (NEO PI-R) and NEO Five-Factor Inventory (NEO-FFI): professional manual. Odessa, Fla: Psychological Assessment Resources; 1992.
- [40] Yen S, Shea MT, Sanislow CA, Skodol AE, Grilo CM, Edelen MO, et al. Personality traits as prospective predictors of suicide attempts. *Acta Psychiatr Scand* 2009.
- [41] Monnin J, Thiemard E, Vandel P, Nicolier M, Tio G, Courtet P, et al. Sociodemographic and psychopathological risk factors in repeated suicide attempts: gender differences in a prospective study. *J Affect Disord* 2012;136:35-43.
- [42] Soloff P, Chiappetta L. Prospective predictors of suicidal behavior in borderline personality disorder at 6-year follow-up. *Am J Psychiatry* 2012;169:484-90.
- [43] Verona E, Patrick CJ, Joiner TE. Psychopathy, antisocial personality, and suicide risk. *J Abnorm Psychol* 2001;110:462-70.
- [44] Stein D, Apter A, Ratzoni G, Har-Even D, Avidan G. Association between multiple suicide attempts and negative affects in adolescents. *J Am Acad Child Adolesc Psychiatry* 1998;37:488-94.
- [45] Maser J, Akiskal H, Schettler P, Scheftner W, Mueller T, Endicott J, et al. Can temperament identify affectively ill patients who engage in lethal or near-lethal suicidal behavior? A 14-year prospective study. *Suicide Life Threat Behav* 2002;32:10-32.
- [46] Michaelis B, Goldberg J, Singer T, Garno J, Ernst C, Davis G. Characteristics of first suicide attempts in single versus multiple suicide attempters with bipolar disorder. *Compr Psychiatry* 2003;44:15-20.