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Current Opinion in Psychology

Review

Self-harm in the context of borderline personality disorder

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Abstract

The present article gives a selective overview of recent studies on the role of nonsuicidal self-injury (NSSI) and suicidal behavior in the context of borderline personality disorder (BPD). Previous research found self-harming behavior, particularly NSSI, to constitute an easily accessible marker in the early detection of individuals at risk of development of BPD. The review further summarizes studies that investigated interrelations between BPD features and self-harming behavior over time. Mainly, affective instability has been shown to play a role in the maintenance of NSSI and the increased risk of suicidal behavior among individuals with BPD. Finally, results about the effectiveness of treatment programs on the reduction of self-harming behavior among individuals with BPD are presented.

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Current Opinion in Psychology 2021, **37**:139–144

This review comes from a themed issue on **Personality Pathology: Developmental Aspects**

Edited by **Carla Sharp**, **Andrew Chanen** and **Marialuisa Cavelti**

For a complete overview see the Issue and the Editorial

Available online 6 January 2021

https://doi.org/10.1016/j.copsyc.2020.12.007

Keywords

Borderline personality disorder, Self-harm, Nonsuicidal self-injury, Suicidal behavior, Suicide attempts, Adolescence.

Introduction

Borderline personality disorder (BPD) is characterized by an instability in different domains such as emotion regulation, interpersonal relationships, impulse control, and self-image [1]. Although a vast body of research has shown that the course of BPD across the life span is characterized by high rates of symptomatic remission, the majority of patients never fully recover with respect to psychosocial functioning [2–4], which underlines the high relevance of early interventions for BPD not only for the individual but also for the society. BPD symptomatology has further been shown to be closely related to the occurrence of various comorbid mental disorders, such as mood disorders, anxiety disorders, eating disorders, post-traumatic stress disorder, or substance use disorders [5].

Self-harm can and should nowadays be divided into nonsuicidal self-injury (NSSI) and suicidal behavior (SB). Both are common in psychiatric populations; however, they are particularly relevant in the context of BPD. They can be considered to be observable symptoms for underlying problems of emotion regulation, impulse control, and interpersonal relations. In this sense, individuals diagnosed with BPD have an elevated risk of engaging in NSSI or SB, as well as of premature death. Prevalence rates of NSSI have been estimated to be around 17% in adolescent [6] and 6% in adult samples of the general population [7], and prevalence rates of 95% and 90% have been reported for adolescent and adult samples with BPD, respectively [8]. Moreover, previous research found at least 75% of patients with BPD attempt suicide [9].

Relying on longitudinal data over a time period of 24 years, Temes et al. [10] found about 5.9% and 14.0% of patients with BPD die as a result of suicide or nonsuicide-related causes (e.g. cardiovascular or substance-related complications, cancer, accidents), respectively, compared with 1.4% and 5.5% of patients with personality disorders other than BPD. These findings of high suicide rates among individuals with BPD are in line with previous research relying on prospective cohort study designs, which reported suicide rates of 3–5% [3,4,11]. Paris and Zweig-Frank [12] even reported a suicide rate of 10% based on data that were retrospectively collected over an interval of 27 years among adults with BPD. Meta-analytic findings confirm a 52-fold increase in suicide rates among individuals with BPD compared with the general population [13].

Phenomenology and epidemiology of self-harm

As noted previously, self-harming behavior includes the two concepts of NSSI and SB that can be distinguished based on the intention to die. NSSI is defined as the repeated infliction of injuries to the surface of the body without suicidal intent [1]. The most prevalent forms of NSSI are deliberate cutting (e.g. with knifes, razors, or broken pieces of glass) among women and hitting one's body among men [14]. In community samples, a peak of NSSI during adolescence followed by a decline in young adulthood has been observed [15]. In a retrospective study, about 90% of adult patients with BPD had a history of NSSI, and of those, two-thirds reported an onset of NSSI before the age of 18 years [16].

By way of contrast, SB refers to actions that are undertaken with the intent to die. Methods can include substance overdoses, jumping from high height, hanging oneself, shooting oneself, or the refusal of food or fluid intake [17]. Particularly, substance overdoses have been discussed as prevalent suicide methods among patients with BPD; however, it has been argued that suicide attempts via substance overdoses often reflect ambivalent motivation and vary with regard to the intent to die [18]. While increased rates of completed suicides in BPD cohorts have been reported for young to middle adulthood [10,12], SB has been shown to be more common among adolescents and young adults with BPD and to decrease with age [2,4,19].

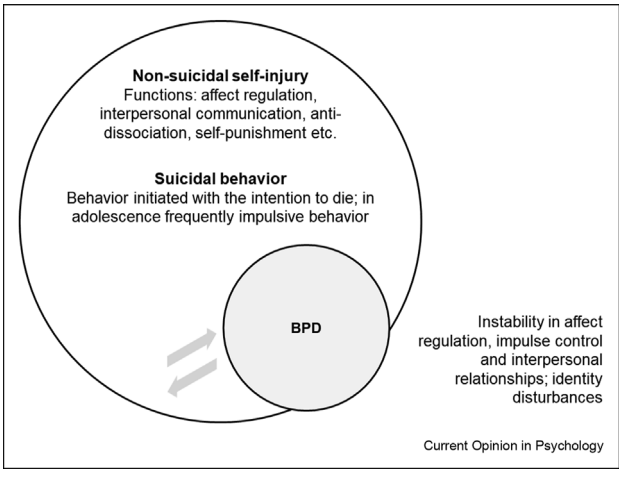
A large body of research found NSSI and SB to be interrelated: In a clinical sample, adolescents with an onset or maintenance of NSSI over a 1-year time interval showed an increased risk of future suicidal thoughts and behavior compared with adolescents without NSSI or with a cessation of NSSI [20]. In line with this finding, meta-analyses of longitudinal studies confirmed significant relations between NSSI and future suicide attempts within clinical and population-based samples [21,22], whereas the relation seems to be increased among individuals with BPD [23]. Self-harming behavior, including NSSI and SB, has further been identified as a risk factor for future suicide [24].

Overall, self-harm and BPD represent distinct constructs with varying prevalence rates: In the general population, about 17% of adolescents [6] and 6% of adults engage in NSSI [7], and about 7% of adolescents [25] and 0.4–5.1% of adults [26] engage in SB during lifetime, and the prevalence rate of BPD in the general population is estimated to be about 3% among adolescents [27] and around 1.5% for adults [28]. Nonetheless, the constructs are related in different ways. First, self-harm can be considered to be an observable risk marker for the early detection of BPD symptomatology during adolescence. Second, self-harm represents a symptom of BPD. Particularly, it can be assumed that core features of BPD, such as affective instability, identity disturbances, or interpersonal difficulties, precede and interact with self-harm. Third, self-harm can be viewed as a target within programs for the treatment of BPD. In the following sections, we will give an overview about previous and particularly recent research that supports these relations (see Figure 1 for a graphical representation of core features and inter-relations between self-harm and BPD).

Self-harm as a risk marker in the early detection of BPD

Studies about the motivation for engagement in NSSI revealed intrapersonal functions, particularly emotion regulation strategies (escaping from a negative state or inducing a positive state) to be most prominent in population-based and clinical samples [29]. Given that emotion dysregulation represents a core feature of BPD [1], it is suggested that NSSI constitutes a useful marker for the detection of individuals at risk of development of BPD. On the one hand, NSSI and SB are observable behaviors that are more easily detectable than underlying problems of emotion dysregulation, interpersonal difficulties, or identity disturbances. On the other hand, previous research indicated that NSSI might precede the development of BPD, highlighting its importance in the early detection and prevention of BPD. Particularly, Groschwitz et al. [30] revealed an earlier onset and longer maintenance of NSSI among young adults with BPD than among those without BPD. Longitudinal studies relying on adolescent samples found NSSI to predict later BPD features in

Figure 1



Core features of BPD and self-harm in adolescence. The variously sized circles represent differences in prevalence rates between BPD and self-harm within overlapping populations. Arrows represent reciprocal relations. BPD, borderline personality disorder.

epidemiological studies, whereas mixed results were reported for studies relying on clinical samples [31,32].

To the best of our knowledge, no study has thus far investigated whether suicide attempts specifically predict the development of BPD. Because engagement in SB commonly occurs with a time delay of 1−2 years after the onset of NSSI [33], SB may less frequently occur at an early stage during the development of BPD. It needs to be critically mentioned that SB [34] and NSSI [35] are associated not only with BPD but also with a broad variety of other mental disorders, such as affective disorders, anxiety disorders, or substance abuse−related disorders. As a consequence, self-harm could be interpreted as a general risk factor for the development of mental disorders. Based on the current state of knowledge, it is not possible to draw conclusions on the specific risk for the development of BPD. Nonetheless, therapeutic interventions targeting self-harm are supposed to reduce mental strain and to consequently decrease the risk of future psychopathology, including BPD.

Self-harm in individuals with BPD

In the following paragraphs, selective studies are presented that investigated short- and long-term relations between BPD and self-harm. Not only does self-harm constitute an antecedent of BPD but also do BPD features, such as affective and interpersonal instability, precede and interact with self-harm. In this sense, core symptoms of BPD itself could be considered to enhance the maintenance of self-harm.

In an ecological momentary assessment (EMA) study, negative affectivity predicted the urge for NSSI among adult patients with low levels of self-concept, whereas effects did not differ between patients with BPD and a clinical control group [36]. Comparing the results of an EMA between a group of adolescents with NSSI and an age-matched healthy control group, Santangelo et al. [37] revealed youths from the NSSI group to show significantly higher levels of affective and interpersonal instability. Interestingly, in the NSSI group, affective instability and instability toward the best friend were correlated with the number of BPD criteria met. In a high-frequency EMA study (hourly assessments), Koenig et al. [38] found negative affective states to predict incidents of NSSI within the next hour among female adolescents. In turn, NSSI resulted in an increase in negative affectivity and a decrease in feelings of attachment within 1 h after the self-injurious event. In an Australian EMA study among youths with BPD, negative emotions, feelings of distress [39], an increase in negative affect, and a decrease of positive affect preceded NSSI [40].

Research on prediction of suicides in patients with BPD is still scarce, but more studies have been conducted with regard to suicide attempts. Relying on extensive data sets of electronic health records from different general hospitals in the United States, Barak-Corren et al. [41] found BPD to be one of the main predictors of suicide attempts with ORs ranging from 8.1 to 12.9. Symptoms of BPD have further been shown to predict the reoccurrence of SB. Meta-analytic findings of longitudinal studies relying on samples of adolescents and young adults revealed the diagnosis of BPD to be the strongest predictor of the repetition of SB, followed by feelings of hopelessness, a history of multiple episodes of self-harm, or being diagnosed with any mood disorder, among others [42]. Comparable results have recently been reported for adult samples: In a sample of military members and civilians with past suicide attempts, Kochanski et al. [43] found BPD traits and drug use disorders to significantly predict the reoccurrence of SB in a 3-month follow-up interval even when controlling for other psychiatric disorders. In a cross-sectional study among adults, inpatients with a SB disorder and BPD were nine times more likely for the repetition of SB than inpatients with a SB disorder without BPD [44].

Relying on data from an EMA study, Rizk et al. [45] showed affective instability to be related to variability in suicidal ideation but not to variability in suicidality severity among adults with BPD. In another EMA study conducted during short hospitalizations due to suicidal crises, Mou et al. [46] found negative affective states to be more strongly related to severity of suicidal thinking among adults with BPD than in a clinical control group.

To sum up, previous research found dynamic relations between BPD features and self-harm. Particularly, multiple EMA studies showed changes in affective states, which are known to be both frequent and severe in BPD and to precede engagement in NSSI and suicidal ideation in the short term. Moreover, longitudinal studies found the diagnosis of BPD to be a strong predictor for the (re)occurrence of SB in the long term.

Effects of psychotherapy on self-harm in the context of BPD

Finally, self-harming behavior constitutes an important therapeutic target in the treatment of individuals with BPD. A recent meta-analysis compared effects of therapeutic programs that are specialized for treatment of BPD, namely, dialectical behavior therapy (DBT), mentalization-based treatment (MBT), transference-focused therapy, and schema therapy, on the reduction of BPD symptoms compared with nonspecialized treatment approaches among adults [47]: Specialized psychotherapies showed a medium effect on the reduction of BPD severity and DBT showed a small to medium effect on the reduction of NSSI compared with

treatment-as-usual. Regarding SB, results were mostly inconclusive. Another meta-analysis reported small effects of DBT for adolescents on reduction of NSSI and suicidal ideation and a moderate effect of family-centered therapy on reduction of suicidal ideation, both compared with active control groups (e.g. treatment-as-usual, enhanced clinical care) [48]. Summarizing the results of randomized controlled trials (RCTs) including adolescents with (sub)syndromal BPD, Wong et al. [49] reported significant effects of psychotherapy on reduction of NSSI but not on the frequency of suicide attempts. In a RCT, an outpatient DBT program for adolescents was found to be superior to an enhanced usual care condition with respect to the reduction of NSSI, SB, and depressive symptoms [50]. Finally, MBT proved to be superior compared with a treatment-as-usual condition in reduction of self-harming behavior, including NSSI and SB, in an RCT among adolescents with self-harming behavior and comorbid depression [51]. Interestingly, the effects of MBT revealed to be mediated not only by improved mentalization abilities but also by reductions in the BPD feature of attachment avoidance.

Summary and conclusions

Self-harm, including NSSI and SB, is an important symptom and risk in the context of BPD. Previous research points particularly to the role of NSSI in the early detection of development of BPD symptomatology during adolescence. Detection of NSSI — as an easily identifiable symptom — might help to identify individuals suffering from affective instability, interpersonal instability, or identity disturbances. In addition, previous research found inter-relations between BPD symptoms and self-harming behavior over time. It has been shown that BPD features enhance the risk of engagement in NSSI and SB in several ways. Moreover, individuals with BPD revealed to have an increased risk of death by suicide or by diverse nonsuicide-related causes. It is thus of high relevance to identify individuals with (sub)syndromal BPD and to facilitate the access to mental health services. So far, different treatment programs, particularly DBT and MBT, showed positive effects on the reduction of self-harming behavior among individuals with BPD.

Author contributions

CR and MK contributed equally to the conceptualization of the manuscript. CR wrote the initial draft. MK critically reviewed the original draft and made substantial commentary for the revision. CR revised the manuscript along the lines of MK's suggestions. The final version was acknowledged by both authors.

Conflict of interest statement

None declared.

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