

## Does self-compassion protect adolescents with non-suicidal self-injury from developing borderline features? A two-wave longitudinal study

Diogo Carreiras, Paula Castilho & Marina Cunha

**To cite this article:** Diogo Carreiras, Paula Castilho & Marina Cunha (18 Apr 2024): Does self-compassion protect adolescents with non-suicidal self-injury from developing borderline features? A two-wave longitudinal study, *Journal of Child & Adolescent Mental Health*, DOI: [10.2989/17280583.2023.2289607](https://doi.org/10.2989/17280583.2023.2289607)

**To link to this article:** <https://doi.org/10.2989/17280583.2023.2289607>



Published online: 18 Apr 2024.



Submit your article to this journal [↗](#)



View related articles [↗](#)



View Crossmark data [↗](#)

# Does self-compassion protect adolescents with non-suicidal self-injury from developing borderline features? A two-wave longitudinal study

Diogo Carreiras<sup>1\*</sup> , Paula Castilho<sup>1</sup>  & Marina Cunha<sup>1,2</sup> 

<sup>1</sup>Center for Research in Neuropsychology and Cognitive and Behavioural Intervention, University Coimbra, Coimbra, Portugal

<sup>2</sup>Instituto Superior Miguel Torga, Coimbra, Portugal

\*Correspondence: [diogocarreiras1@gmail.com](mailto:diogocarreiras1@gmail.com)

**Background:** Adolescence is a vulnerable developmental stage for the onset of non-suicidal self-injury (NSSI) and borderline features, which are related psychological phenomena. Self-compassion reflects a sensitivity to own suffering and a motivation to relieve it, consisting of a more positive and beneficial self-to-self relationship. The aim of the present study was to test the effect of self-compassion between borderline features at baseline and six months with a sample of adolescents with a history of NSSI.

**Methods:** At assessment wave one, participants were 139 Portuguese adolescents with an NSSI history (mean age = 15.52 years, SD = 0.87). Of these, 87 were re-assessed six months later (mean age = 15.46 years, SD = 0.86). Data were analysed through SPSS and PROCESS Macro.

**Results:** The moderation model explained 56% of borderline features six months later, and the interaction between initial borderline features and the low and medium levels of self-compassion was significant. Youth with lower initial borderline features presented higher borderline features six months later if they had low self-compassion.

**Conclusions:** These findings suggest that among adolescents with a history of NSSI, those with lower levels of self-compassion tend to exhibit higher borderline features in six-month when compared to their peers with higher levels of self-compassion. This observation emphasises the potential beneficial effect of self-compassion within this population.

**Keywords:** adolescence, borderline symptoms, longitudinal analysis, self-harm, youth

---

## Introduction

Borderline personality disorder (BPD) can be a severe disorder with impairing features such as emotional instability, interpersonal difficulties, chronic feelings of emptiness, impulsivity, self-harm behaviours, and suicide attempts (American Psychiatric Association [APA], 2013). Although BPD is usually diagnosed in adulthood, borderline features may be identified in adolescence and early ages (Crick et al., 2005; Paris, 2014). Adolescents with a previous history of borderline features have a higher risk for the onset of non-suicidal self-injury (NSSI: Gratz et al., 2014). Goodman and colleagues (2017) showed that 95% of adolescents with BPD, who were hospitalised in the past, had self-injury behaviours, with more than half of them reporting at least 50 episodes.

NSSI was defined as the intentional and direct destruction of body tissue without suicide intention (Brown & Plener, 2017; Klonsky & Moyer, 2008). These self-harming behaviours encompass cutting, burning and craving skin, punching, and biting, among others (Greydanus & Shek, 2009). The developmental stage of adolescence is a vulnerable period for the onset of NSSI (Klonsky et al., 2011). The prevalence of these behaviours among adolescents in community samples, as indicated by a meta-analysis encompassing a total of 280 408 participants, stands at approximately

16.9%, with an average onset age of 13 years (Gillies et al., 2018). Notably, NSSI has a close relationship with various psychopathological outcomes and symptoms, including personality disorders (Ayodeji et al., 2015) and eating disorders (Ayodeji et al., 2015), and it increases the risk of suicide attempts and completed suicide (Hargus et al., 2009; Nock et al., 2006). Numerous studies explored various functions of self-harming behaviours, including emotional regulation, self-punishment, dissociation prevention, and interpersonal influence (Briere & Gil, 1998; Klonsky, 2007, 2009). Sex differences in borderline features and NSSI were also studied, revealing consistent evidence that females typically exhibit higher levels of both (Bresin & Schoenleber, 2015; Carreiras, Castilho, et al., 2020; Carreiras, Loureiro, et al., 2020; Xavier et al., 2019).

Research on psychological processes and underlying mechanisms with implications on the evolution of borderline features has been growing (Carreiras, Cunha, et al., 2022; Sharp et al., 2015). Self-compassion can be considered an attitude to deal with difficult situations. It includes being touched by and open to one's suffering, without avoiding or disconnecting from it, having the desire to ease the suffering and heal oneself with kindness. It also means being non-judgmental and understanding and seeing the suffering as part of the human experience (Neff, 2003). More studies found that self-compassion was negatively correlated with psychopathology (Krieger et al., 2013; MacBeth & Gumley, 2012; Marsh et al., 2018) and positively correlated with well-being and adaptive psychological functioning (Kelly et al., 2014; Neff et al., 2007; Neff & Germer, 2013; Yarnell et al., 2015). Moreover, it was reported that adolescents with lower levels of self-compassion tend to exhibit higher psychological distress, alcohol use, and suicidal behaviour (Tanaka et al., 2011).

Although evidence that self-compassion plays a role as a protective factor against BPD in adults was discussed (Keng & Wong, 2017; Loess, 2015; Scheibner et al., 2018; Warren, 2015), studies with adolescent samples exploring the relationship between these constructs are scarce. Keng and Wong (2017) concluded that in college students, self-compassion was an independent predictor of BPD symptoms over and above the effects of an invalidating environment in childhood and Carreiras, Castilho, and colleagues (2020) showed the significant predictive effect of self-compassion, impulsivity, and self-disgust on adolescents' borderline features. More recently, the self-compassion components of mindfulness, isolation, and self-judgement were identified as significant mediators in the relationship between early life experiences of subordination and threat and borderline features in youth (Carreiras, Cunha, et al., 2022). Evidence also supported that self-compassion played a protective role for psychopathological factors related to NSSI (Xavier et al., 2016). People with NSSI, through compassionate mind training, may become more aware of their emotional experience and behave in a gentle way to deal with moments of distress and emotional dysregulation.

BPD symptoms are intricately linked to a negative self-view, characterised by severe self-criticism, self-hate, and self-disgust. This entails viewing oneself as fundamentally flawed, inferior, and undesirable. This negative self-view may cause intense anger, anxiety, and shame directed inwardly (Carreiras, Castilho, et al., 2021; Dammann et al., 2011). Considering this, as self-compassion can function as an antidote to reduce the perceived threat and negative emotions (Gilbert, 2014), and seems to counteract criticism, hostility, and hate towards the self (Van Vliet & Kalnins, 2011; Xavier et al., 2016), its potential self-regulation effect might be helpful in reducing the negative self-view and countering the progression of BPD symptoms.

In this line, the aim of the current study was to evaluate the effect of self-compassion on borderline features at baseline and over six months, controlling the effect of baseline levels of self-compassion and sex in adolescents with NSSI history. We hypothesised that self-compassion would influence the relationship between borderline features at baseline and six months later.

## Methods

This study is part of a broader longitudinal research project about borderline features in youth.<sup>1</sup> Within this overarching research, 139 adolescents were initially identified as having engaged in NSSI at least once in their lifetime and their scores were used as the baseline of the current study (wave one). Of these, 87 were re-assessed six months later (wave two). The attrition rate ( $n = 52$ , 37%) was a result of students transferring to other schools or being absent on the assessment day.

## Participants

At wave one, the sample comprised of 139 Portuguese adolescents, 103 (74%) girls and 36 (26%) boys, who reported having engaged in NSSI at least once in their lifetime. Their age range was 14 and 18 years old (mean = 15.52 years, SD = 0.87 years) and the mean of years of education was 10.22 years (SD = 0.68 years).

At wave two, 87 participants were re-assessed, of which 63 (72%) were girls and 24 (28%) were boys. Their mean age at baseline was 15.46 years (SD = 0.86 years) and the mean years of education was 10.25 (SD = 0.63 years). Comparisons in sociodemographic and psychological variables between adolescents assessed in both waves (study completers) and adolescents only assessed at wave one (study non-completers) are presented in supporting information material. Differences were only found for borderline features, which were higher for study non-completers (Table 1). The NSSI behaviours reported by participants at wave one can be found in Table 2.

## Measures

The Borderline Personality Features Scale for Children (BPFS-C; Sharp et al., 2014; Portuguese version by Carreiras et al., 2020) is a one-dimension self-report questionnaire composed of 11 items to assess borderline features in youth. None of the items includes content about self-harm behaviours. Items are rated on a 5-point Likert scale ranging from 1 = never true, to 5 = always

**Table 1:** Comparison of demographic and study variables between study completers and non-completers at wave one

	Study completers	Study non-completers	<i>t</i> (df)	<i>p</i> -value	<i>d</i>
	( <i>n</i> = 87)	( <i>n</i> = 52)			
	<i>M</i> (SD)	<i>M</i> (SD)			
Age	15.46 (0.86)	15.62 (0.89)	1.01 (137)	0.310	0.18
Years of education	10.25 (0.63)	10.17 (0.76)	0.67 (137)	0.506	0.11
Borderline features	28.48 (6.38)	31.48 (7.44)	2.52 (137)	0.013	0.43
Self-compassion	1.96 (0.55)	1.90 (0.49)	0.59 (137)	0.558	0.12
Self-harm	2.82 (2.24)	3.71 (3.18)	1.78 (137)	0.079	0.32
	<i>n</i>	<i>n</i>	$\chi^2$ (df)	<i>p</i> -value	
Sex					
Boy	24	12	0.35 (1)	0.557	
Girl	63	40			

*M* = mean; *SD* = standard deviation

Borderline features measured by the Borderline Personality Features Scale for Children; Self-compassion measured by the Self-Compassion Scale; Self-harm measured by the Impulse, Self-harm, and Suicide Ideation Questionnaire for Adolescents

**Table 2:** Non-suicidal self-injury behaviours of participants at wave one based on the ISSIQ-A (Impulse, Self-harm, and Suicide Ideation Questionnaire for Adolescents) self-harm subscale (*N* = 139)

Self-harm behaviours	Frequency (%)			
	Never	Sometimes	Often	Always
Hurting own body on purpose	59.7	28.8	10.8	0.7
Hitting with parts of the body against things	74.1	18.0	5.8	2.2
Scratching or pinching own body	44.6	37.4	13.7	4.3
Biting the body or objects	28.1	48.9	17.3	5.8
Cutting parts of the body	76.3	15.8	6.5	1.4
Burning parts of the body	96.4	2.2	0.7	0.7
Pricking needles or other objects in the body	95.0	3.6	1.4	0
Intaking objects or dangerous substances	97.5	2.9	0	0

true. The final score is a sum of all items, with higher scores representing higher level of borderline features. The 11-item version presented good internal consistency ( $\alpha = 0.85$ ; Sharp et al., 2014) as well as the 10-item Portuguese version ( $\alpha = 0.77$ ; Carreiras, Loureiro, et al., 2020). In the current study, Cronbach's alpha was 0.74 in the first wave and 0.84 in the second.

The Self-Compassion Scale (SCS; Neff, 2003; Portuguese version for adolescents by Cunha et al., 2015) is a self-report questionnaire used to assess self-compassion. The 26 items represent six subscales (self-kindness, self-judgement, common humanity, isolation, mindfulness, and over-identification) and are rated on a 5-point Likert scale ranging from 1 = almost never, to 5 = almost always. The total score is a mean of all items, considering the reversed subscales. Higher scores reflect higher level of self-compassion. SCS revealed good internal consistency in the original version ( $\alpha = 0.92$ ) and in the Portuguese version ( $\alpha = 0.85$ ). In the present study, the Cronbach's alpha of the total SCS was 0.92 in both waves.

The Impulse, Self-harm, and Suicide Ideation Questionnaire for Adolescents (ISSIQ-A; Carvalho et al., 2015) is a self-report measure composed of 56 items to assess impulse, self-harm, risk behaviours, functions of self-harm, and suicide ideation among youth based on their experiences. Items of this subscale are rated on a 4-point Likert scale ranging from 0 = never, to 3 = always according to the frequency adolescents had engaged in self-harm behaviours. In this study, the self-harm subscale was employed to identify adolescents with a history and/or current engagement in NSSI, defined as those who scored at least one point on this subscale. Examples of items are "I scratch or pinch parts of my body on purpose" and "I burn parts of my body on purpose (e.g., with cigarettes, on the stove, with a lighter)". In the present study, the Cronbach's alphas of the original version were good for all subscales, ranging between 0.77 and 0.90.

### **Data analyses**

Data were analysed using IBM SPSS Statistics version 23 and PROCESS Macro (Hayes, 2013). Normality of data was tested through Kolmogorov–Smirnov test (with Lilliefors Significance Correction) and skewness ( $sk$ ) and kurtosis ( $ku$ ) values. Normality was assumed for  $sk < 3$  and  $ku < 8$  (Kline, 2011). Descriptive statistics and frequencies were used to explore demographic variables. Student's  $t$ -tests for independent and paired samples were conducted to explore differences between groups and assessment waves. Correlations between variables were examined with Pearson's correlation coefficients. Following the reference values of Dancey and Reidy (2017), correlations between 0.10 and 0.39 were considered weak; between 0.40 and 0.69 moderate; and above 0.70 strong. Effect sizes were calculated and interpreted according to Cohen (1988):  $d$  values between 0.20 and 0.49 were considered small, between 0.50 and 0.79 medium, and above 0.80 large.

A moderation model (model 1) was computed on PROCESS Macro with two covariates (sex and self-compassion at baseline) to control its potential confounding effect. We decided to control self-compassion at baseline levels as this approach allowed us to assess how changes in self-compassion over time relate to variations in borderline features. Only the 87 adolescents with an NSSI history who completed both assessment waves were included in this analysis. The G\*Power software ( $\alpha = 0.10$ ) determined a power of 0.90 for this sample size (Faul et al., 2009). A 5 000 bootstrap procedure was used. To interpret the significant interaction, a graphic was plotted, and simple slope analysis was performed to examine the significance of these slopes. Multicollinearity between variables was assessed by examining the tolerance and Variance Inflation Factor ( $VIF < 5$ ; Kline, 2011).

### **Procedure**

Participants were students from four schools in the north and central regions of Portugal. School's headteachers agreed to collaborate with this research. Participants and parents were informed about the study aims, confidentiality, and voluntary participation. They provided written informed consent. Adolescents responded to the self-report questionnaires in the classroom, with the presence of researchers and teachers to guarantee confidentiality and independent responding.

Data were collected in two waves with a 6-month interval in 2019. A code was generated for all participants to identify cases in the two waves.

### **Ethical considerations**

All procedures considered the ethical standards of the Ethics and Deontology Commission of the Faculty of Psychology and Educational Sciences of the University of Coimbra, the Ministry of Education, the National Commission for Data Protection of Portugal (#6713/ 2018) and the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

## **Results**

### **Preliminary analyses**

The Kolmogorov–Smirnov test was non-significant for borderline features and self-compassion ( $p > 0.05$ ). Skewness and kurtosis values were within the acceptable range ( $sk < 3$  and  $ku < 8$ ; Kline, 2011), and normality of data were assumed. Outliers were not eliminated to keep the natural distribution and variance, and because they did not change the significant results. No multicollinearity among variables was found ( $VIF < 5$ ; Kline, 2011).

### **Descriptive statistics and differences between waves**

Means and standard deviations for borderline features and self-compassion in the two waves are presented in Table 2. Non-significant differences were found between wave one and wave two for borderline features,  $t_{(86)} = 0.64$ ,  $p = 0.524$ , and self-compassion,  $t_{(86)} = 1.04$ ,  $p = 0.302$ .

### **Differences between girls and boys**

Sex differences were analysed (Table 3), and girls presented higher levels of borderline features in comparison to boys at wave two ( $t_{(85)} = 2.47$ ,  $p = 0.016$ ). The effect size of this differences was medium. Boys showed higher levels of self-compassion than girls at wave one ( $t_{(85)} = 2.91$ ,  $p = 0.005$ ) and wave two ( $t_{(85)} = 3.03$ ,  $p = 0.003$ ), with large effect sizes.

### **Correlations**

The associations between variables in the two waves are presented in Table 4. As expected, the association between the same variables in the different waves was moderate or high, ranging between 0.55 and 0.75 ( $p < 0.001$ ). The correlations between borderline features and self-compassion were negative and significant.

**Table 3:** Mean (*M*) and standard deviation (*SD*) of borderline features and self-compassion for boys and girls who completed the two assessment waves. Student's *t*-test (*t*) for differences between groups and Cohen's *d* for effect sizes ( $N = 87$ )

	Total ( $N = 87$ )	Boys ( $n = 24$ )	Girls ( $n = 63$ )	<i>t</i> ( <i>df</i> )	<i>d</i>
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )		
Borderline features Wave 1	28.48 (6.38)	26.86 (6.63)	29.10 (6.23)	1.46 (85)	0.35
Borderline features Wave 2	28.93 (7.33)	25.88 (5.71)	30.10 (7.59)	2.47* (85)	0.63
Self-compassion Wave 1	1.96 (0.55)	2.22 (0.48)	1.86 (0.54)	2.91* (85)	0.71
Self-compassion Wave 2	2.00 (0.57)	2.29 (0.45)	1.90 (0.58)	3.03* (85)	0.75

\* $p < 0.05$ , \*\* $p < 0.001$

Borderline features measured by the Borderline Personality Features Scale for Children

Self-compassion measured by the Self-Compassion Scale

**Table 4:** Pearson correlations between the study variables in the two waves ( $n = 87$ )

	1	2	3	4	5	6
1. Borderline features wave 1	1					
2. Borderline features wave 2	0.55**	1				
3. Self-compassion wave 1	-0.56**	-0.48**	1			
4. Self-compassion wave 2	-0.43**	-0.66**	0.75**	1		
5. Self-harm wave 1	0.32*	0.38**	-0.54**	-0.43**	1	
6. Self-harm wave 2	0.28*	0.58**	-0.48**	-0.58**	0.70**	1

\* $p < 0.05$ , \*\* $p < 0.001$

Borderline features measured by the Borderline Personality Features Scale for Children

Self-compassion measured by the Self-Compassion Scale

Self-harm measured by the Impulse, Self-harm, and Suicide Ideation Questionnaire for Adolescents

### ***The moderator effect of self-compassion on the evolution of borderline features over six months***

A moderator model was computed with self-compassion at wave two as a moderator variable between borderline features at wave one and borderline features at wave two. Sex and self-compassion at wave one were entered as covariates, to control for the potential confounding effect of differences between boys and girls, as well as previous levels of self-compassion. The attained model was statistically significant,  $F_{(5, 81)} = 20.21$ ,  $p < 0.001$ , and explained 56% of borderline features at wave two. The effect of borderline features at wave one on borderline features at wave two was significant ( $B = 1.28$ , 95% CI [0.59, 1.97],  $t = 3.69$ ,  $p < 0.001$ ), as well as the interaction with self-compassion ( $B = -0.40$ , 95% CI [-0.72, -0.08],  $t = -2.49$ ,  $p = 0.01$ ). Sex ( $B = 1.00$ , 95% CI [-1.55, 3.56],  $t = 0.78$ ,  $p = 0.44$ ) and self-compassion at wave 1 ( $B = 1.57$ , 95% CI [-1.10, 5.14],  $t = 1.29$ ,  $p = 0.20$ ) did not present a significant effect on borderline features at wave two.

Using the results of the moderation analysis, a graph was plotted (Figure 1) to analyse the relationship between borderline features at wave one and wave two as a function of the different levels of self-compassion. We can observe that for the same levels of initial borderline features, adolescents with higher levels of self-compassion presented lower borderline features six months later. These results show the moderation effect of self-compassion on borderline features' variations over a 6-month period among adolescents with NSSI. The simple slope analysis indicated that for lower and medium levels of self-compassion, the effect of borderline features at wave one on borderline features at wave two was significant:  $t_{(\text{low self-compassion}) (81)} = 4.81$ ,  $p < 0.001$ ;  $t_{(\text{medium self-compassion}) (81)} = 4.70$ ,  $p < 0.001$ ;  $t_{(\text{high self-compassion}) (81)} = 1.81$ ,  $p = 0.07$ .

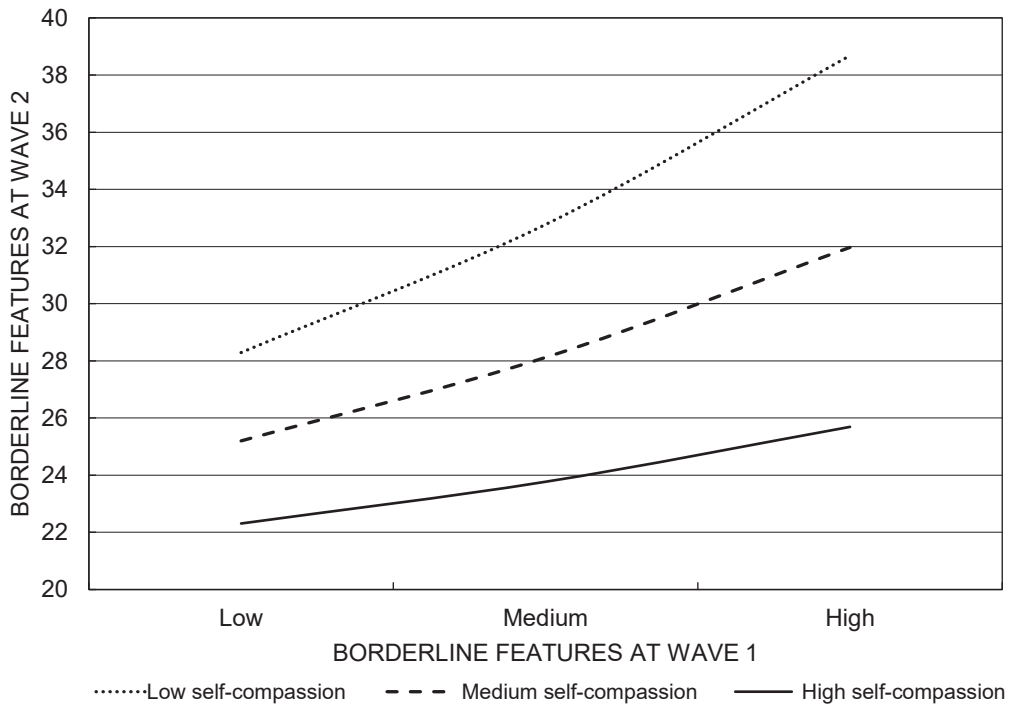
## **Discussion**

Considering that adolescents with a history of, or current NSSI are at increased risk to develop BPD in comparisons to adolescents without these behaviours (Crowell et al., 2009; Crowell & Beauchaine, 2008; Hessels et al., 2018), the present study aimed to examine whether self-compassion had an effect in borderline features over a period of six months, in adolescents with NSSI in their lifetime.

From wave one to wave two, we had an attrition rate of 37%, which is explained by transference of students for another schools or school absence at the assessment moment. Nevertheless, we found that study completers had lower borderline features than non-completers. This might be related to school difficulties (including absenteeism and higher frequency of being suspended or expelled from school) often reported by adolescents with BPD symptoms (Kramer et al., 2017; Larrivée, 2013).

Results showed that borderline features and self-compassion were relatively stable from baseline to six months later, which might be due to the short timeframe of this study. Changes in borderline features and self-compassion may become more evident with a broader timeframe, possibly allowing the observation of more substantial shifts. Sex differences in both assessment points were also





**Figure 1:** Graphical representation of the moderation effect of self-compassion (measured by the Self-Compassion Scale) on borderline features (measured by the Borderline Personality Features Scale for Children) at wave one and wave two

expected, considering previous studies reporting higher borderline features in females (Carreiras, Castilho, et al., 2020; Trull et al., 2010) and higher self-compassion in males (Bluth et al., 2017; Cunha et al., 2016; Yarnell et al., 2015). These differences might be related to the fact that girls tend to exhibit increased internalised difficulties and a more critical and punitive internal talking (Chaplin & Aldao, 2013; Yarnell et al., 2015).

The association between borderline features and self-compassion was negative and moderate, suggesting that being less kind and understanding towards the self in difficult situations is related to higher borderline features in youth. Similar results were presented in cross-sectional studies (Carreiras, Castilho, et al., 2020; Carreiras, Cunha, et al., 2022; Keng & Wong, 2017), highlighting the potential of self-compassion as an effective emotion regulation mechanism for reducing borderline features among young individuals. Moreover, the protective effect of self-compassion was defended between depressive symptoms and NSSI in adolescents (Xavier et al., 2016) suggesting that an understanding attitude towards the self might improve psychological health and resilience (Barnard & Curry, 2011; Neff, 2003). Borderline symptoms are usually marked by a devaluation of the self, self-loathing, self-criticism, and low self-esteem (Donald et al., 2019; Krawitz, 2012), which might be the foundation for feelings of emptiness, disturbed self-image, negative affect, and NSSI. Developing the ability of being self-kind, mindful of the internal experience, and perceiving suffering as part of a common humanity might decrease the evolution of borderline symptomatology. The effect of protective internal psychological mechanisms for the evolution of borderline features is scarcely explored in adolescents, particularly in those with NSSI. Considering this, we hypothesised that self-compassion would protect adolescent with NSSI from increasing borderline features and we intended to test the moderation effect of self-compassion in a two-wave longitudinal design.



Accordingly, a moderation model was tested with self-compassion as a moderator between borderline features at baseline and six months later. Differences between boys and girls in these variables were reported in previous studies and supported in our data which led us to control sex, considering its potential confounding effect. Additionally, self-compassion at baseline was controlled for in our model to consider the effect of previous levels of self-compassion. The moderation model accounted for 56% of borderline features six months later, and borderline features at baseline as well as the interaction with self-compassion were significant predictors. The potentially confounding variables showed a non-significant effect on borderline features. These results suggest that adolescents with NSSI with lower self-compassion present higher borderline features over six months than those with higher self-compassion. The influence of self-compassion in the variations of these features seems to work at low and medium levels. That is, the absence of self-compassion and therefore a more critical and harsh internal talk might be a significant factor for the borderline features' growth. Self-compassion entails being kind and understanding with oneself, not trying to avoid or suppress the internal experience and perceiving their own suffering as part of common humanity (Neff, 2003). This self-regulation process might attenuate the growth of borderline features in adolescents with NSSI, working at decreasing criticism, hate, and disgust towards the self (Carreiras, Cunha, et al., 2022; Van Vliet & Kalnins, 2011; Xavier et al., 2016).

Adolescents who engaged in NSSI are at increased risk to develop BPD (Gratz et al., 2014; Zanarini et al., 2006) and it makes this population an important target to work with to prevent the evolution of borderline features. This study provides significant insight into self-compassion as a buffer in the evolution of such features. Considering that NSSI are quite prevalent in youth (Gillies et al., 2018), compassion-focused interventions should be implemented in school settings to promote a safe, kind, and understanding self-to-self relationship. Moreover, psychotherapists who work with adolescents with NSSI, are encouraged to help them cultivating a kinder internal speech, more awareness of their current experiences, and a feeling of being part of a shared human experience that includes difficulties and struggles. These self-compassion skills might counteract the propensity that adolescents with NSSI have, to develop borderline symptoms. Self-compassion could replace some maladaptive emotion regulation processes common in BPD (e.g., dissociation, self-criticism, experiential avoidance) (Donald et al., 2019; Sharp et al., 2015; Zanarini et al., 2008) and improve affect regulation (e.g., distress tolerance, mindfulness) (Schaich et al., 2021; Wupperman et al., 2009).

### **Limitations and future recommendations**

The current study presents limitations. The adolescent sample with NSSI is overrepresented by girls, which preclude the generalisability of our results for all adolescents, including boys. The exclusive use of self-report questionnaires also encompasses bias, for example, social desirability. Alternative data collection methods, such as interviews, could provide valuable information about NSSI history. Additionally, a mood measure could be helpful to control for, for example, the influence of depressive symptoms in statistical analysis. Finally, although our moderation model used repeated measures, the moderator was a cross-sectional variable, which stresses caution when drawing causality conclusions.

### **Conclusion**

This work was conducted on a sample of adolescents at increased risk to develop borderline features, and the longitudinal data allowed us to consider the temporal relationships between variables despite the short time length. Our results have important clinical implications, shedding light on the influence of self-compassion on borderline features among adolescents with NSSI. Compassion-focused intervention programs designed to cultivate and increase self-compassion might be important to implement in groups of adolescents with NSSI to attenuate the development of borderline symptoms. Future studies are encouraged to replicate these findings in more representative adolescent samples, or separately for boys and girls, and using the different components of self-compassion as individual moderators. Additionally, it would be relevant to

examine the protective role of self-compassion in the evolution of borderline features using wider time intervals (e.g., two years follow-up).

## Note

<sup>1</sup> The database used in this study is available from the corresponding author on reasonable request.

**Acknowledgements** — This study was supported by author Diogo Carreiras' PhD grant (SFRH/BD/129985/2017), sponsored by the Portuguese Foundation for Science and Technology (FCT).

## ORCID iDs

Diogo Carreiras – <https://orcid.org/0000-0003-2048-1895>

Paula Castilho – <https://orcid.org/0000-0003-1864-3146>

Marina Cunha – <https://orcid.org/0000-0002-5957-1903>

## References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Association. <https://doi.org/10.1176/appi.books.9780890425596>
- Ayodeji, E., Green, J., Roberts, C., Trainor, G., Rothwell, J., Woodham, A., & Wood, A. (2015). The influence of personality disorder on outcome in adolescent self-harm. *The British Journal of Psychiatry*, *207*(4), 313–319. <https://doi.org/10.1192/bjp.bp.113.138941>
- Barnard, L. K., & Curry, J. F. (2011). Self-compassion: Conceptualizations, correlates, & interventions. *Review of General Psychology*, *15*, 289–303. <https://doi.org/10.1037/a0025754>
- Bluth, K., Campo, R. A., Futch, W. S., & Gaylord, S. A. (2017). Age and gender differences in the associations of self-compassion and emotional well-being in a large adolescent sample. *Journal of Youth and Adolescence*, *46*(4), 840–853. <https://doi.org/10.1007/s10964-016-0567-2>
- Bresin, K., & Schoenleber, M. (2015). Gender differences in the prevalence of nonsuicidal self-injury: A meta-analysis. *Clinical Psychology Review*, *38*, 55–64. <https://doi.org/10.1016/j.cpr.2015.02.009>
- Briere, J., & Gil, E. (1998). Self-mutilation in clinical and general population samples: Prevalence, correlates, and functions. *The American Journal of Orthopsychiatry*, *68*(4), 609–620. <https://doi.org/10.1037/h0080369>
- Brown, R. C., & Plener, P. L. (2017). Non-suicidal self-injury in adolescence. *Current Psychiatry Reports*, *19*: 20. <https://doi.org/10.1007/s11920-017-0767-9>
- Carreiras, D., Castilho, P., & Cunha, M. (2020). The effect of impulsivity, self-disgust and self-compassion in borderline features in adolescence: Study of sex differences. *Portuguese Journal of Behavioral and Social Research*, *6*(1), 50–63. <https://doi.org/10.31211/rpics.2020.6.1.170>
- Carreiras, D., Castilho, P., & Cunha, M. (2021). What stands between self-disgust and borderline features? The need to cultivate self-compassion in adolescents from Portugal. *Psychologica*, *64*(2), 51–64. [https://doi.org/10.14195/1647-8606\\_64-2\\_2](https://doi.org/10.14195/1647-8606_64-2_2) [https://doi.org/10.14195/1647-8606\\_64-2\\_2](https://doi.org/10.14195/1647-8606_64-2_2)
- Carreiras, D., Cunha, M., & Castilho, P. (2022). Which self-compassion components mediate the relationship between adverse experiences in childhood and borderline features in adolescents? *European Journal of Developmental Psychology*, *19*, 847–868. <https://doi.org/10.1080/17405629.2021.1981283>
- Carreiras, D., Loureiro, M., Cunha, M., Sharp, C., & Castilho, P. (2020). Validation of the Borderline Personality Features Scale for Children (BPFS-C) and for Parents (BPFS-P) for the Portuguese Population. *Journal of Child and Family Studies*, *29*: 6265. <https://doi.org/10.1007/s10826-020-01800-7>
- Carvalho, C. B., Nunes, C., Castilho, P., da Motta, C., Caldeira, S., & Pinto-Gouveia, J. (2015). Mapping non suicidal self-injury in adolescence: Development and confirmatory factor analysis of the impulse, self-harm and suicide ideation questionnaire for adolescents (ISSIQ-A). *Psychiatry Research*, *227*(2–3), 238–245. <https://doi.org/10.1016/j.psychres.2015.01.031>
- Chaplin, T. M., & Aldao, A. (2013). Gender differences in emotion expression in children: A meta-analytic review. *Psychological Bulletin*, *139*(4), 735–765. <https://doi.org/10.1037/a0030737>
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Lawrence Erlbaum Associates, Publishers.
- Crick, N. R., Murray-Close, D. M., & Woods, K. (2005). Borderline personality features in childhood: A short-term longitudinal study. *Development and Psychopathology*, *17*, 1051–1070. <https://doi.org/10.1017/S0954579405050492>

- Crowell, S. E., & Beauchaine, T. (2008). The development of borderline personality and self-injurious behavior. In T. P. Beauchaine & S. P. Hinshaw (Eds.), *Child and adolescent psychopathology* (pp. 510–539). Wiley.
- Crowell, S. E., Beauchaine, T. P., & Linehan, M. M. (2009). A biosocial developmental model of borderline personality: Elaborating and extending Linehan's theory. *Psychological Bulletin*, *135*(3), 495–510. <https://doi.org/10.1037/a0015616>
- Cunha, M., Xavier, A., & Castilho, P. (2016). Understanding self-compassion in adolescents: Validation study of the Self-Compassion Scale. *Personality and Individual Differences*, *93*, 56–62. <https://doi.org/10.1016/j.paid.2015.09.023>
- Dammann, G., Hügli, C., Selinger, J., Gremaud-Heitz, D., Sollberger, D., Wiesbeck, G. A., Küchenhoff, J., & Walter, M. (2011). The self-image in borderline personality disorder: An in-depth qualitative research study. *Journal of Personality Disorders*, *25*(4), 517–527. <https://doi.org/10.1521/pedi.2011.25.4.517>
- Dancey, C., & Reidy, J. (2017). *Statistics without maths for psychology* (7th ed.). Pearson Education.
- Donald, F., Lawrence, K. A., Broadbear, J. H., & Rao, S. (2019). An exploration of self-compassion and self-criticism in the context of personal recovery from borderline personality disorder. *Australasian Psychiatry*, *27*(1), 56–59. <https://doi.org/10.1177/1039856218797418>
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. (2009). Statistical power analyses using G\*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*(4), 1149–1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Gilbert, P. (2014). The origins and nature of compassion focused therapy. *British Journal of Clinical Psychology*, *53*(1), 6–41. <https://doi.org/10.1111/bjc.12043>
- Gillies, D., Christou, M. A., Dixon, A. C., Featherston, O. J., Rapti, I., Garcia-Anguaita, A., Villasis-Keever, M., Reebye, P., Christou, E., Al Kabir, N., & Christou, P. A. (2018). Prevalence and characteristics of self-harm in adolescents: Meta-analyses of community-based studies 1990–2015. *Journal of the American Academy of Child and Adolescent Psychiatry*, *57*(10), 733–741. <https://doi.org/10.1016/j.jaac.2018.06.018>
- Goodman, M., Tomas, I. A., Temes, C. M., Fitzmaurice, G. M., Aguirre, B. A., & Zanarini, M. C. (2017). Suicide attempts and self-injurious behaviours in adolescent and adult patients with borderline personality disorder. *Personality and Mental Health*, *11*(3), 157–163. <https://doi.org/10.1002/pmh.1375>
- Gratz, K. L., Dixon-Gordon, K. L., & Tull, M. T. (2014). Predictors of treatment response to an adjunctive emotion regulation group therapy for deliberate self-harm among women with borderline personality disorder. *Personality Disorders*, *5*(1), 97–107. <https://doi.org/10.1037/per0000062>
- Greydanus, D. E., & Shek, D. (2009). Deliberate self-harm and suicide in adolescents. *The Keio Journal of Medicine*, *58*(3), 144–151. <https://doi.org/10.2302/kjm.58.144>
- Hargus, E., Hawton, K., & Rodham, K. (2009). Distinguishing between subgroups of adolescents who self-harm. *Suicide & Life-Threatening Behavior*, *39*(5), 518–537. <https://doi.org/10.1521/suli.2009.39.5.518>
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. The Guilford Press.
- Hessels, C. J., Laceulle, O. M., van Aken, M. A. G., Resch, F., & Kaesle, M. (2018). Differentiating BPD in adolescents with NSSI disorder: The role of adverse childhood experiences and current social relationships. *Borderline Personality Disorder and Emotion Dysregulation*, *5*(1): 20. <https://doi.org/10.1186/s40479-018-0097-5>
- Kelly, A. C., Carter, J. C., & Borairi, S. (2014). Are improvements in shame and self-compassion early in eating disorders treatment associated with better patient outcomes? *International Journal of Eating Disorders*, *47*(1), 54–64. <https://doi.org/10.1002/eat.22196>
- Keng, S. L., & Wong, Y. Y. (2017). Association among self-compassion, childhood invalidation, and borderline personality disorder symptomatology in a Singaporean sample. *Borderline Personality Disorder and Emotion Dysregulation*, *4*(1): 24. <https://doi.org/10.1186/s40479-017-0075-3>
- Kline, R. (2011). *Principles and practice of structural equation modelling* (3rd ed.). The Guilford Press.
- Klonsky, E. D. (2007). The functions of deliberate self-injury: A review of the evidence. *Clinical Psychology Review*, *27*, 226–239. <https://doi.org/10.1016/j.cpr.2006.08.002>
- Klonsky, E. D. (2009). The functions of self-injury in young adults who cut themselves: Clarifying the evidence for affect-regulation. *Psychiatry Research*, *166*(2–3), 260–268. <https://doi.org/10.1016/j.psychres.2008.02.008>
- Klonsky, E. D., & Moyer, A. (2008). Childhood sexual abuse and non-suicidal self-injury: Meta-analysis. *The British Journal of Psychiatry*, *192*(3), 166–170. <https://doi.org/10.1192/bjp.bp.106.030650>
- Klonsky, E. D., Muehlenkamp, J. J., Lewis, S. P., & Walsh, B. (2011). *Non-suicidal self-injury: Advances in psychotherapy: Evidence-based practice*. Hogrefe Publishing.
- Kramer, U., Temes, C. M., Magni, L. R., Fitzmaurice, G. M., Aguirre, B. A., Goodman, M., & Zanarini, M. C. (2017). Psychosocial functioning in adolescents with and without borderline personality disorder. *Personality and Mental Health*, *11*(3), 164–170. <https://doi.org/10.1002/pmh.1377>

- Krawitz, R. (2012). Behavioural treatment of severe chronic self-loathing in people with borderline personality disorder. Part 2: Self-compassion and other interventions. *Australasian Psychiatry*, 20(6), 501–506. <https://doi.org/10.1177/1039856212459586>
- Krieger, T., Altenstein, D., Baettig, I., Doerig, N., & Holtforth, M. G. (2013). Self-Compassion in Depression: Associations With Depressive Symptoms, Rumination, and Avoidance in Depressed Outpatients. *Behavior Therapy*, 44(3), 501–513. <https://doi.org/10.1016/j.beth.2013.04.004>
- Larrivé, M. P. (2013). Borderline personality disorder in adolescents: The He-who-must-not-be-named of psychiatry. *Dialogues in Clinical Neuroscience*, 15(2), 171–179. <https://doi.org/10.31887/DCNS.2013.15.2/implarrivee>
- Loess, P. (2015). *Self-Compassion as a Moderator of the Relationship Between Emotion Dysregulation and Borderline Personality Disorder Symptoms* [Unpublished Master's thesis]. University of Montana. <https://scholarworks.umt.edu/etd/4526>
- MacBeth, A., & Gumley, A. (2012). Exploring compassion: A meta-analysis of the association between self-compassion and psychopathology. *Clinical Psychology Review*, 32(6), 545–552. <https://doi.org/10.1016/j.cpr.2012.06.003>
- Marsh, I. C., Chan, S. W. Y., & MacBeth, A. (2018). Self-compassion and Psychological Distress in Adolescents—A Meta-analysis. *Mindfulness*, 9(4), 1011–1027. <https://doi.org/10.1007/s12671-017-0850-7>
- Neff, K. (2003). The development and validation of a scale to measure self-compassion. *Self and Identity*, 2, 223–250. <https://doi.org/10.1080/15298860309027>
- Neff, K. D., & Germer, C. K. (2013). A pilot study and randomized controlled trial of the Mindful Self-Compassion Program. *Journal of Clinical Psychology*, 69(1), 28–44. <https://doi.org/10.1002/jclp.21923>
- Neff, K. D., Rude, S. S., & Kirkpatrick, K. L. (2007). An examination of self-compassion in relation to positive psychological functioning and personality traits. *Journal of Research in Personality*, 41(4), 908–916. <https://doi.org/10.1016/j.jrp.2006.08.002>
- Nock, M. K., Joiner, T. E., Jr., Gordon, K. H., Lloyd-Richardson, E., & Prinstein, M. J. (2006). Non-suicidal self-injury among adolescents: Diagnostic correlates and relation to suicide attempts. *Psychiatry Research*, 144(1), 65–72. <https://doi.org/10.1016/j.psychres.2006.05.010>
- Paris, J. (2014). A history of research on borderline personality disorder in childhood and adolescence. In C. Sharp & J. L. Tackett (Eds.), *Handbook of borderline personality disorder in children and adolescents* (pp. 9–16). Springer. [https://doi.org/10.1007/978-1-4939-0591-1\\_2](https://doi.org/10.1007/978-1-4939-0591-1_2)
- Schaich, A., Braakmann, D., Rogg, M., Meine, C., Ambrosch, J., Assmann, N., Borgwardt, S., Schweiger, U., & Fassbinder, E. (2021). How do patients with borderline personality disorder experience Distress Tolerance Skills in the context of dialectical behavioral therapy? A qualitative study. *PLoS ONE*, 16(6): e0252403. <https://doi.org/10.1371/journal.pone.0252403>
- Scheibner, H. J., Daniels, A., Guendelman, S., Utz, F., & Bermpohl, F. (2018). Self-Compassion Mediates the Relationship Between Mindfulness and Borderline Personality Disorder Symptoms. *Journal of Personality Disorders*, 32, 838–856. [https://doi.org/10.1521/pedi\\_2017\\_31\\_331](https://doi.org/10.1521/pedi_2017_31_331)
- Sharp, C., Kalpakci, A., Mellick, W., Venta, A., & Temple, J. R. (2015). First evidence of a prospective relation between avoidance of internal states and borderline personality disorder features in adolescents. *European Child & Adolescent Psychiatry*, 24, 283–290. <https://doi.org/10.1007/s00787-014-0574-3>
- Tanaka, M., Wekerle, C., Schmuck, M., Paglia-Boak, A., & The MAP Research Team. (2011). The linkages among childhood maltreatment, adolescent mental health, and self-compassion in child welfare adolescents. *Child Abuse & Neglect*, 35(10), 887–898. <https://doi.org/10.1016/j.chiabu.2011.07.003>
- Trull, T. J., Jahng, S., Tomko, R. L., Wood, P. K., & Sher, K. J. (2010). Revised NESARC personality disorder diagnoses: Gender, prevalence, and comorbidity with substance dependence disorders. *Journal of Personality Disorders*, 24(4), 412–426. <https://doi.org/10.1521/pedi.2010.24.4.412>
- Van Vliet, K., & Kalnins, G. (2011). A compassion-focused approach to non-suicidal self-injury. *Journal of Mental Health Counseling*, 33(4), 295–311. <https://doi.org/10.17744/mehc.33.4.j7540338q223t417>
- Warren, R. (2015). Commentary on emotional processing in a ten-session general psychiatric treatment for borderline personality disorder: A case study. *Personality and Mental Health*, 9, 84–86. <https://doi.org/10.1002/pmh.1290>
- Wupperman, P., Neumann, C. S., Whitman, J. B., & Axelrod, S. R. (2009). The role of mindfulness in borderline personality disorder features. *The Journal of Nervous and Mental Disease*, 197(10), 766–771. <https://doi.org/10.1097/NMD.0b013e3181b97343>
- Xavier, A., Cunha, M., & Pinto-Gouveia, J. (2019). Validation of the Risk-Taking and Self-Harm Inventory for Adolescents in a Portuguese Community Sample. *Measurement & Evaluation in Counseling & Development*, 52(1), 1–14. <https://doi.org/10.1080/07481756.2018.1435189>

- Xavier, A., Pinto-Gouveia, J., & Cunha, M. (2016). The Protective Role of Self-Compassion on Risk Factors for Non-suicidal Self-Injury in Adolescence. *School Mental Health, 8*(4), 476–485. <https://doi.org/10.1007/s12310-016-9197-9>
- Yarnell, L. M., Stafford, R. E., Neff, K. D., Reilly, E. D., Knox, M. C., & Mullarkey, M. (2015). Meta-Analysis of Gender Differences in Self-Compassion. *Self and Identity, 14*(5), 499–520. <https://doi.org/10.1080/15298868.2015.1029966>
- Zanarini, M. C., Frankenburg, F. R., Jager-Hyman, S., Reich, D. B., & Fitzmaurice, G. (2008). The Course of Dissociation for Patients with Borderline Personality Disorder and Axis II Comparison Subjects: A 10-year Follow-up Study. *Acta Psychiatrica Scandinavica, 118*(4), 291–296. <https://doi.org/10.1111/j.1600-0447.2008.01247.x>
- Zanarini, M. C., Frankenburg, F. R., Ridolfi, M. E., Jager-Hyman, S., Hennen, J., & Gunderson, J. G. (2006). Reported childhood onset of self-mutilation among borderline patients. *Journal of Personality Disorders, 20*(1), 9–15. <https://doi.org/10.1521/pedi.2006.20.1.9>