

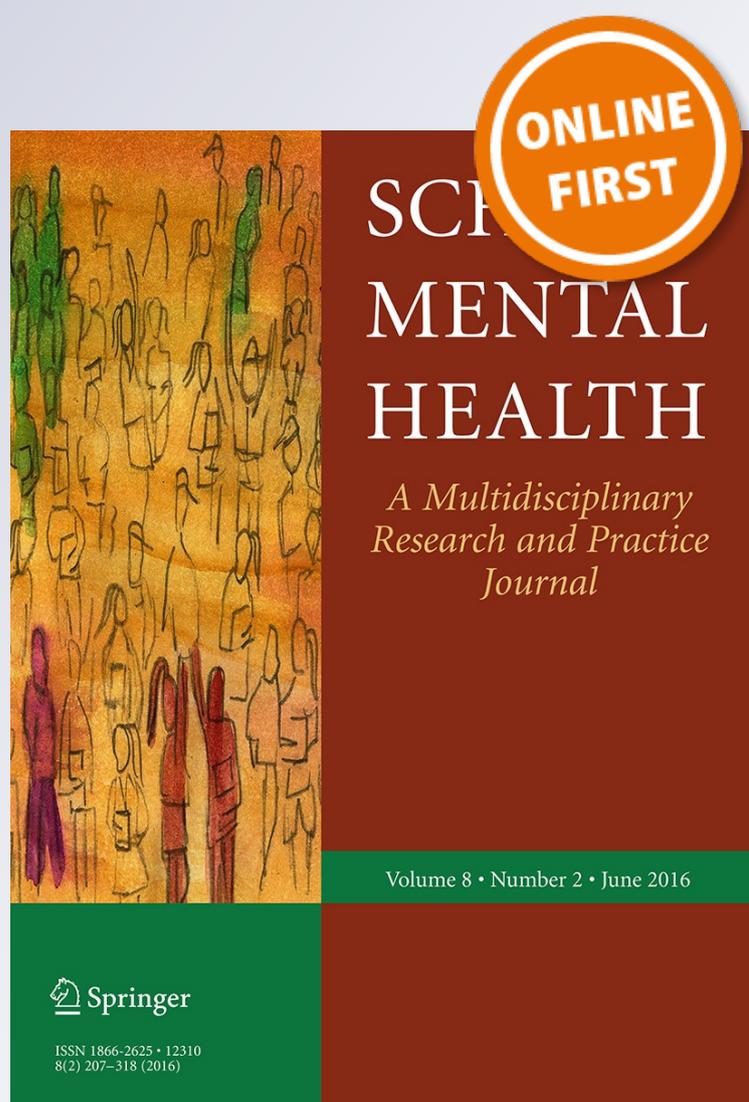
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The Protective Role of Self-Compassion on Risk Factors for Non-suicidal Self-Injury in Adolescence

Ana Xavier¹ · José Pinto-Gouveia¹ · Marina Cunha^{1,2}

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Abstract Non-suicidal self-injury (NSSI) in adolescence is a serious public health problem. Although self-compassion is a protective factor of mental health difficulties in adult populations, its potential impact on adolescence remains scarcely explored. Therefore, we aimed to test whether self-compassion can mitigate the impact of daily peer hassles and depressive symptoms on NSSI. The participants were 643 adolescents (51.6 % female) with ages between 12 and 18 years, from middle and secondary schools. Self-report questionnaires were used to measure daily peer hassles, depressive symptoms, self-compassion and NSSI. Daily peer hassles were positively correlated with depressive symptoms and NSSI. Self-compassion was inversely associated with daily peer hassles and depressive symptoms and NSSI. Path analysis showed that self-compassion had a moderator effect on the association between depressive symptoms and NSSI. Results suggest that self-compassion can be a protective process, as it may buffer against the impact of depressive symptoms on NSSI. This study presents preventive and clinical implications for educators and therapists working with adolescents.

Keywords Adolescence · Depression · Life hassles · Non-suicidal self-injury · Self-compassion

Introduction

Non-suicidal self-injury (NSSI) refers to deliberate and direct destruction of one's body tissue, without suicidal intent. This phenomenon is a serious public health problem, not only because it is associated with debilitating mental health problems, but also because its occurrence is dramatically high during adolescence (Klonsky, Muehlenkamp, Lewis, & Walsh, 2011). For instance, 13–36 % of adolescents report a lifetime history of NSSI in community samples (Hankin & Abela, 2011). The onset of NSSI is between 12 and 16 years old, and it is especially prevalent in female adolescents (Hawton, Saunders, & O'Connor, 2012).

Non-suicidal self-injury is multi-determined, including genetic, biological, psychological, social and cultural factors (Hawton et al., 2012). Research has consistently shown that NSSI is frequently associated with stressful life events (e.g., invalidating family environment, emotional, physical and sexual abuse, bullying victimization), with several psychopathological conditions (e.g., depression, anxiety), and with maladaptive psychological processes (e.g., emotional dysregulation, impulsivity, self-criticism, interpersonal difficulties) (Giletta, Scholte, Engels, Ciairano, & Prinstein, 2012; Klonsky et al., 2011; Marshall, Tilton-Weaver, & Stattin, 2013). These both distal and proximal vulnerabilities increase the likelihood that an individual, in face of stressful life events and intense negative emotions, will use NSSI to regulate undesirable internal experiences (e.g., emotions, memories, thoughts), which on the one hand leads to temporary emotional relief, but on the other results in negative long-term outcomes (Gratz & Chapman, 2009; Klonsky et al., 2011; Marshall et al., 2013; Nock & Prinstein, 2005). NSSI is negatively reinforced by the reduction in the intensity or removal of an aversive

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emotional arousal/stimulus. This negative reinforcement is the maintaining factor in the persistence of NSSI (Gratz & Chapman, 2009; Klonsky et al., 2011; Nock & Prinstein, 2005).

Although the link between major negative life events and psychopathology is well established, minor stressors (e.g., daily hassles) also seem to play a crucial role. Major life events are “discrete, observable events standing for significant life changes with a relative clear onset and offset (e.g., divorce, job loss and death of a loved one)” (Wheaton, 1999, p. 183). Daily hassles, on the other hand, are defined as “irritating, frustrating demands that occur during everyday transactions with the environment” (Holm & Holroyd, 1992, p. 465), namely family, peers, school and neighborhood contexts. Major and minor life stressors can be distinguished in the following aspects. Firstly, daily hassles appear to be more frequent than major life events and affect the majority of individuals (Pinquart, 2009). Secondly, the temporal intervals between the occurrence of daily hassles and psychological distress are shorter than the temporal intervals between the occurrence of negative major life events and psychological distress (Pinquart, 2009). Thirdly, daily hassles seem to mediate the relationship between major life events and psychopathology (Johnson & Sherman, 1997). Indeed, micro stressors, when experienced cumulatively, are associated with high stress and levels of psychopathological symptoms, although major life events also have an important effect (Wheaton, 1999).

Past research has shown that daily hassles are associated with maladaptive cognitive emotion regulation strategies (Garnefski, Boon, & Kraaij, 2003), depressive symptoms (Chang & Sanna, 2003), substance use (Bailey, & Covell, 2011) and suicidal ideation (Mazza & Reynolds, 1998) among adolescents. Daily hassles may be an important source of psychological distress during adolescence, especially if these minor stressors in day-to-day life occur within peer group (e.g., problems with peers, disappointments by friends). Thus, daily peer hassles can be hypothesized as one of the negative minor stressor that may contribute to the development and maintenance of NSSI during adolescence. Indeed, adolescents may engage in NSSI to cope with interpersonal problems, such as negative peer relations at school (Jutengren, Kerr, & Stattin, 2011).

In contrast, there is an alternative and effective way to regulate threat and negative affect. Self-compassion refers to the ability to be kind and understanding toward oneself in the face of failure or difficulties, rather than being harshly judgmental and self-critical. In addition, self-compassion also encompasses the recognition of personal mistakes, failures and setbacks as part of the overall human condition, rather than seeing them as personal and isolating. Being self-compassionate also implies being mindfully

aware of painful thoughts and feelings rather than to avoid, suppress or over-identify oneself with them (Neff, 2003a). According to Neff (2003a), self-compassion entails six interrelated components: three of them are positive indicators of self-compassion (i.e., self-kindness, common humanity and mindfulness) and other three are negative and counterparts of the first three components (i.e., self-judgment, isolation and over-identification). Self-compassion is an adaptive way of relating to the self when confronted with personal mistakes, inadequacies or difficult life situations, without attempts to avoid or suppress undesirable emotions nor engaging in self-critical thoughts (Neff, 2003a, b; Neff & McGehee, 2010).

Research has been consistently supporting that self-compassion is significantly associated with positive psychological functioning (e.g., positive affect, adaptive coping, life satisfaction, social connectedness) and may have a protective effect in a wide range of mental health difficulties (e.g., shame, self-criticism, rumination, avoidance, maladaptive coping, depression; Barnard & Curry, 2011; MacBeth & Gumley, 2012; Neff, Kirkpatrick, & Rude, 2007). Although the majority of research on self-compassion was mainly conducted in adult populations, there has been an increasing interest in the development of self-compassion skills among adolescents. Part of this interest has been encouraged by the results from some studies showing that self-compassion is significantly associated with mental health in adolescent populations (e.g., Bluth & Blanton, 2014, 2015; Neff & McGehee, 2010).

Indeed, adolescents who are more self-compassionate tend to report secure attachment style, greater feelings of social connectedness, higher levels of mindfulness and lower levels of depression and anxiety (Bluth & Blanton, 2014, 2015; Cunha, Martinho, Xavier, Espírito-Santo, 2013; Cunha, Xavier, & Castilho, 2016; Neff & McGehee, 2010). In contrast, adolescents who are low in self-compassion were more likely to struggle with psychological distress, emotion dysregulation, substance use and suicide attempt (Tanaka, Wekerle, Schomuck, Paglia-Boak, & the map research team, 2011; Vettese, Dyer, Li, & Wekerle, 2011). According to research on compassion focused therapy (CFT; Gilbert, 2009), some individuals tend to display difficulties, fears and resistance to generate compassionate, warm and soothing feelings toward themselves and others, and even to receive these feelings from others. These have been defined as fears of compassion, which may difficult and block the motivation to learn and develop compassionate skills (Gilbert, McEwan, Matos, & Rivis, 2011). Moreover, two recent studies in a community sample of adolescents showed that adolescents who fear and avoid compassionate feelings toward themselves, when they make mistakes or are confronted with difficult situations, are more likely to engage in NSSI (Xavier, Cunha, &

Pinto-Gouveia, 2015), particularly in the presence of daily peer hassles and depressive symptoms (Xavier, Pinto-Gouveia, & Cunha 2016).

On the one hand, these results suggest that it is not only the low levels of self-compassion itself, but also the resistance or difficulty to generate soothing, warmth and calming feelings toward oneself that are linked to psychopathology (Gilbert & Irons, 2009). On the other hand, self-compassion may operate as a useful emotional regulation strategy to cope with adverse or difficult situations (Neff, 2003a; Neff & McGehee, 2010). For instance, a recent study, conducted in a large adolescents' sample, found that self-compassion predicts changes in mental health over 1 year and acts as a buffer against the negative effects of low self-esteem (Marshall, Parker, Ciarrochi, Sahlra, Jackson, & Heaven, 2015). Thus, self-compassion is an adaptive psychological process that can help to regulate negative affect. When promoting these self-compassionate skills, psychological health and resilience can be enhanced (Barnard & Curry, 2011; Neff, 2003a, b).

In addition to these empirical studies, therapeutic interventions for developing, cultivating and increasing self-compassion abilities have been proposed (for a review see Barnard & Curry, 2011). Several authors have also pointed out the relevance of developing self-compassion approaches for adolescent population (Gilbert & Irons, 2009; Neff & McGehee, 2010) and, in particular, for adolescents at risk (e.g., NSSI; adolescents with maltreatment histories) (Reddy et al., 2013; Vliet & Kalnins, 2011). However, research on self-compassion in adolescence is still in its early stages and the potential protective impact of self-compassion on this age group should be explored.

Therefore, we aim to explore the relationship among daily disruptions with peers group, depressive symptoms, self-compassion and NSSI. The major goal of this study is to test the moderator effect of self-compassion in the relationship between daily disruptions with peers, depressive symptoms and NSSI. It is expected that daily disruptions with peers and depressive symptoms would be positively associated with NSSI. In turn, self-compassion is predicted to be inversely associated with daily disruptions with peers, depressive symptoms and NSSI. It is hypothesized that self-compassion would mitigate the impact of daily peer hassles and depressive symptoms on the frequency of NSSI.

Method

Participants

The sample consisted of 643 adolescents, 311 boys (48.4 %) and 332 girls (51.6 %), aged between 12 and 18 years

($M = 15.24$, $SD = 1.64$) from 7th to 12th grade (years of education mean = 9.77, $SD = 1.52$). No significant differences were found between males and females regarding age, $t(641) = 1.856$, $p = .064$, except for years of education, $t(641) = 3.179$, $p = .002$. Girls had more years of education ($M = 9.95$, $SD = 1.49$) than boys ($M = 9.57$, $SD = 1.54$).

Procedures

This sample was recruited as part of a broader research on relative impact of different emotion regulation processes on psychopathological symptoms. This sample of adolescents was collected from middle and secondary schools in the center region of Portugal. Prior to administering the scales, the ethics approval was obtained from the Ministry of Education and the National Commission for Data Protection of Portugal. Additionally, ethics approvals were granted by the schools' Head Teacher, and parents were informed of the goals of the research and gave their written informed consent. Adolescents were informed of the purpose of the study and aspects of its confidentiality. They assented to voluntarily participate in the research. The questionnaires were administered in the classroom in the presence of the teacher and the researcher. Participants completed the questionnaires on their own, and the researcher was only allowed to help them if they had any doubts about the instructions or content of the questionnaires.

Measures

Daily Peer Hassles

The *Daily Hassles Microsystem Scale (DHMS)* (Seidman et al., 1995; Portuguese version: Paiva, 2009) comprises 28 items that assesses the perceived daily hassles within four microsystems (family, peer, school and neighborhood), in the last month. For each item, responses are rated on a four-point scale (1–4), with higher scores representing great daily hassles within each kind of microsystems transactions. In the present study, we only used the *daily peer hassles* subscale (four items), which represents troubles with friends (e.g., "Trouble with friends over beliefs, opinions and choices"). The original study (Seidman et al., 1995) found a Cronbach's alpha of .71 for daily peer hassles. The Portuguese version (Paiva, 2009) obtained a good internal consistency for daily hassles subscale ($\alpha = .72$). In the present study, the internal reliability for daily peer hassles subscale was also good ($\alpha = .73$).

Self-Compassion

The *Self-Compassion Scale (SCS)* (Neff, 2003a; Portuguese version for adolescents: Cunha, Xavier, & Castilho, 2016)

is a self-report questionnaire composed by 26 items and six subscales: self-kindness (five items), self-judgment (five items), common humanity (four items), isolation (four items), Mindfulness (four items) and over-identification (four items). In the present study, the total self-compassion score was used to assess the overall attitude of being kind, tolerant and compassionate toward oneself. Items were rated on a five-point scale (1–5), with higher scores indicating greater self-compassion. The individual subscale scores were also analyzed by the positive valence subscales (i.e., self-kindness, common humanity and mindfulness) and the negative valence subscales (i.e., self-judgment, isolation and over-identification). This measure demonstrated good internal consistency for both adolescents (Cronbach's alpha of .88 for total score and ranging between .70 and .79 for subscales) and adult samples (Cronbach's alpha of .92 for total score and ranging between .75 and .81 for subscales). In the present study, the internal reliability was also good for the total score ($\alpha = .88$) and for each subscale: self-kindness $\alpha = .82$, self-judgment $\alpha = .87$, common humanity $\alpha = .79$, isolation $\alpha = .86$, mindfulness $\alpha = .77$ and over-identification $\alpha = .83$.

Depressive Symptoms

The *Depression Anxiety and Stress Scale (DASS-21)*; Lovibond & Lovibond, 1995; Portuguese version: Pais-Ribeiro, Honrado, & Leal, 2004) is a self-report measure composed of 21 items and designed to assess three dimensions of psychopathological symptoms: depression, anxiety and stress. The items indicate negative emotional symptoms and are rated on a four-point scale (0–3). For the purposes of this study, only depression subscale was used. The depression subscale had high internal consistency in the original study (Cronbach's $\alpha = .91$), in the Portuguese version (Cronbach's $\alpha = .85$) and in the present study (Cronbach's $\alpha = .90$).

Non-suicidal Self-Injury (NSSI)

The *Risk-taking and Self-harm Inventory for Adolescents (RTSHIA)*; Vrouva, Fonagy, Fearon, & Roussow, 2010; Portuguese version: Xavier, Cunha, Pinto-Gouveia, & Paiva, 2013) is a self-report questionnaire that assesses risk-taking and self-harm behaviors. This scale comprises two dimensions: risk-taking (eight items) and self-harm (18 items). In this study, the Portuguese version and only the self-harm dimension were used, which measures frequency of self-injury behaviors, such as cutting, burning, biting. The items contain the word *intentionally*, or end with the phrase *to hurt yourself* or *to hurt or punish yourself* and are rated on a four-point scale (0 = *never*; 3 = *many times*),

referring to lifelong history. In the current study, items 32 and 33, which assess suicidal ideation and intent, respectively, were not included in the overall sum of NSSI and prior to analyses ten respondents were excluded from data set because they reported suicidal intent. In the original study, the self-harm dimension had an excellent internal consistency ($\alpha = .93$). The Portuguese version found a Cronbach's alpha of .89 for self-harm dimension. In this study, the self-harm dimension (15 items) had a good internal reliability ($\alpha = .86$).

Analytic Strategy

Statistical analyses were conducted using Predictive Analytics Software (PASW, version 18, SPSS, Chicago, IL, USA) and Analysis of Moment Structures (AMOS software, version 18, Amos Development Corporation, Crawfordville, FL, USA).

Descriptive statistics were computed to examine demographic variables, and independent samples *t* tests were performed to analyze mean differences for sex in studied variables. Effect size was analyzed accordingly with Cohen (1988) recommendations.

Pearson product-moment correlation coefficients were calculated to explore the relationships between all variables in the study (Cohen, Cohen, West, & Aiken, 2003).

A path analysis from structural equation modeling was performed to estimate the presumed relations of the proposed theoretical model (Kline, 2005). This path analysis tested the moderator effect of self-compassion in the relationship between daily peer hassles and depressive symptoms and NSSI. The moderator model presents six causal paths to the dependent variable (NSSI): (a) the direct effect of daily peer hassles; (b) the direct effect of depressive symptoms; (c) the direct effect of self-compassion; (d) the interaction term between daily peer hassles and self-compassion; (e) the interaction between depressive symptoms and self-compassion; and (f) the effect of sex as covariate variable. The moderator hypothesis is corroborated if each interaction term is significant. The maximum likelihood estimation method was used, and some recommended goodness-of-fit indexes were analyzed (*goodness of fit index*, $GFI \geq .95$, good; *comparative fit index*, $CFI \geq .95$, good; *Tucker–Lewis index*, $TLI \geq .95$, good; *root mean square error of approximation*, $RMSEA \leq .05$, good; Kline, 2005). To avoid multicollinearity problems, a standardized procedure was used, centering the values of the predictors, moderator and outcome variables. Then, the interaction variables through the product of the created variables were obtained (Aiken & West, 1991).

Finally, in order to interpret the significant interaction, a graph was plotted. As recommended by Cohen et al. (2003)

and since the moderator variable has no theoretical cut-points, the following cut-point values were considered: $M - SD$; M and $M + SD$, to create three curves of different levels of self-compassion (i.e., low, medium and high levels). Additionally, a simple slope analysis was performed to probe whether these slopes were statistically significant, i.e., differ significantly from zero (Jose, 2013).

Results

Preliminary Data Analyses

The assumptions of normality, linearity, homoscedasticity and independence of residuals were assured. There were no severe violations to normal distribution ($ISkI < 3$ and $IKuI < 8-10$; Kline, 2005). There was no evidence of the presence of multicollinearity or singularity among the variables, as indicated by the variance inflation factor (VIF) values ($VIF < 5$).

Descriptive Statistics

As given in Table 1, there were sex differences for all variables. In this sample, female adolescents reported higher levels of daily peer hassles, depressive symptoms and NSSI than male adolescents. In contrast, males had higher levels of self-compassion than females. The magnitude of the differences had a small effect size (Table 1).

Correlations

As shown in Table 2, results showed that daily peer hassles was significantly and positively correlated with depressive symptoms and NSSI, and negatively correlated with self-compassion. Depressive symptoms were significantly and moderately associated with NSSI and inversely correlated with self-compassion. Finally, self-compassion was negatively and moderately correlated with NSSI.

Table 2 Intercorrelations between all variables for male (above the diagonal) and female (below the diagonal) adolescents ($n = 643$)

	1	2	3	4	5	6
(1) Age	–	.91	ns	ns	ns	ns
(2) Years of education	.91	–	ns	ns	ns	ns
(3) Daily peer hassles	ns	ns	–	.43	–.28	.35
(4) Depression (DASS-21)	ns	ns	.37	–	–.51	.41
(5) Self-compassion (SCS)	ns	ns	–.34	–.64	–	–.33
(6) NSSI (RTSHIA)	ns	ns	.31	.46	–.41	–

ns Non-significant, DASS-21 depression anxiety and stress scales, SCS self-compassion scale, NSSI non-suicidal self-injury measured by the risk-taking and self-harm inventory for adolescents (RTSHIA) All correlation coefficients are statistically significant at $p \leq .001$

Moderation Analysis

A path analysis was performed in order to test whether self-compassion moderated the effect of daily peer hassles and depressive symptoms on NSSI. Sex variable was included in the model as covariate in order to control its potential confounding effect. Results showed that all paths were statistically significant, except the direct effect of the interaction term between daily peer hassles and self-compassion on NSSI ($b = -.04$, $SE = .13$, $Z = -.28$, $p = .783$, $\beta = -.01$) and the direct effect of sex on NSSI ($b = .56$, $SE = .33$, $Z = 1.71$, $p = .087$, $\beta = .06$). These two nonsignificant paths were removed, and the model was recalculated. The model (cf. Fig. 1) revealed an excellent fit to the data ($GFI = .99$, $TLI = .99$, $CFI = .99$, $RMSEA = .03$, $95\% \text{ CI} = [0.00, 0.88]$, $p = .643$) and explained 27 % of NSSI. Daily peer hassles presented a direct positive effect ($b = .34$, $SE = .08$, $Z = 4.27$, $p < .001$, $\beta = .16$), depressive symptoms revealed a direct positive effect ($b = .20$, $SE = .05$, $Z = 4.28$, $p < .001$, $\beta = .21$) and self-compassion showed a direct negative effect ($b = -1.49$, $SE = .34$, $Z = -4.39$, $p < .001$, $\beta = -.19$) on NSSI. The interaction effect between the depressive symptoms and self-compassion was $\beta = -.13$

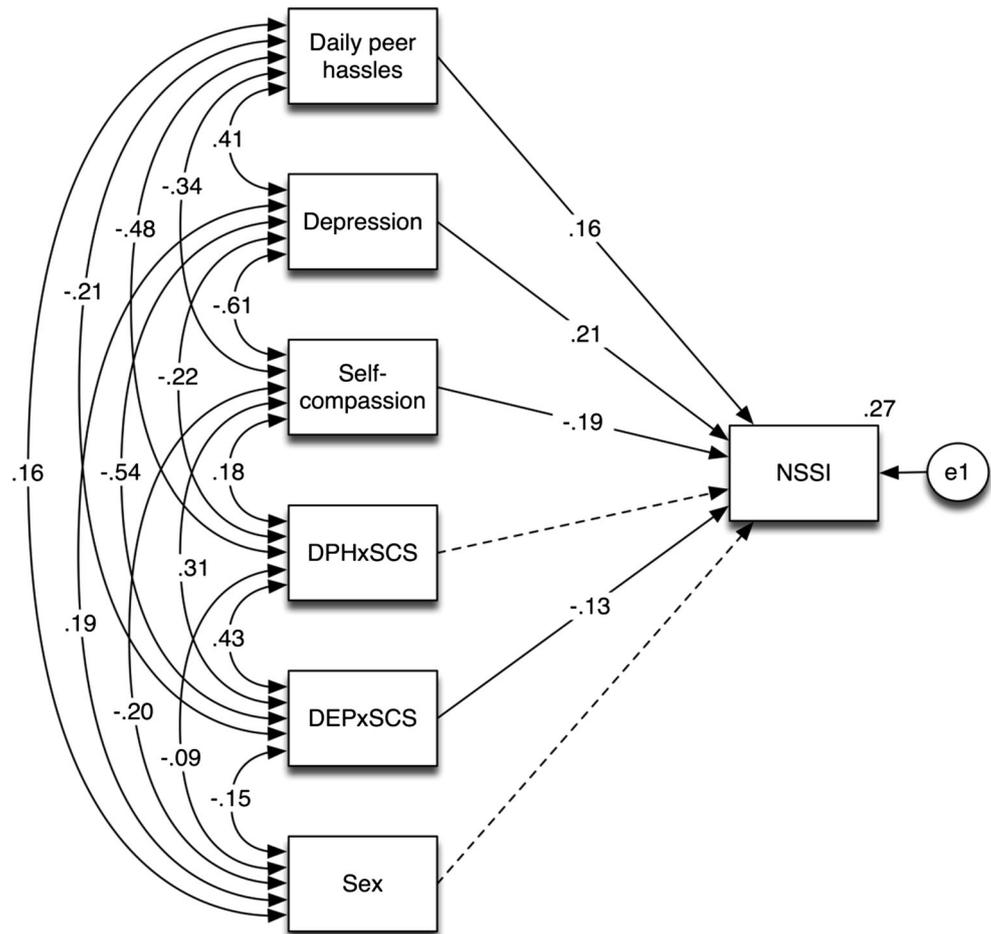
Table 1 Means (M), standard deviations (SD) and independent samples t test for sex differences among all variables in study ($n = 643$)

Variables	Total sample ($n = 643$) M (SD)	Boys ($n = 311$) M (SD)	Girls ($n = 332$) M (SD)	$t(df)$	Cohen's d	r
Daily peer hassles	5.54 (2.19)	5.19 (1.89)	5.87 (2.39)	4.020*** (623.221)	–0.32	–0.16
Self-compassion (SCS)	3.09 (0.59)	3.21 (0.48)	2.98 (0.66)	5.189*** (603.605)	0.40	0.20
Depression (DASS-21)	4.84 (5.01)	3.85 (4.42)	5.77 (5.33)	4.977*** (631.964)	–0.39	–0.19
NSSI (RTSHIA)	2.86 (4.71)	2.00 (3.56)	3.67 (5.46)	4.622*** (573.551)	–0.36	–0.18

SCS Self-compassion scale, DASS-21 depression anxiety and stress scales, NSSI non-suicidal self-injury measured by the risk-taking and self-harm inventory for adolescents (RTSHIA)

*** $p \leq .001$

Fig. 1 Results of a moderation path analysis showing the relationships among daily peer hassles, depressive symptoms, self-compassion, the interaction between daily peer hassles and self-compassion (DPH × SCS), the interaction between depressive symptoms and self-compassion (DEP × SCS) and non-suicidal self-injury (NSSI). Standardized regression coefficients are presented; all paths are statistically significant ($p < .001$), except the paths drawn in *dotted line*



($b = -.15$, $SE = .05$, $Z = -3.16$, $p = .002$). In the final model, all effects were statistically significant and these results suggest the existence of a moderator effect of self-compassion on the association between depressive symptoms and NSSI.

To better understand the relationship between depressive symptoms (independent variable) and NSSI (dependent variable) toward different levels of self-compassion (moderator variable), a graph was plotted, considering low, medium and high levels of self-compassion (Fig. 2). The graphic representation indicated that, for the same level of depressive symptoms, adolescents who scored higher in self-compassion presented lower levels of NSSI. That is, as self-compassion increased, the magnitude of the relationship between depressive symptoms and NSSI decreased. Thus, this graphic representation confirms the buffer effect of self-compassion against the impact of depressive symptoms on the severity of NSSI. Additionally, the simple slope analysis confirmed that the effect of depressive symptoms on NSSI was statistically significant for all levels of self-compassion, $t_{low_SCS}(640) = 8.686$, $p < .001$; $t_{medium_SCS}(640) = 5.590$, $p < .001$; $t_{high_SCS}(640) = 2.591$, $p = .010$.

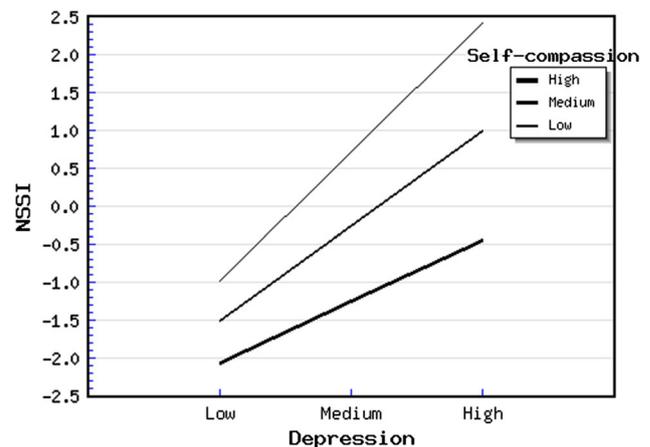


Fig. 2 Graphic for the relationship between depressive symptoms and non-suicidal self-injury (NSSI) with *different* levels of self-compassion

Finally, the same moderation analysis was performed in order to test whether the subscales of self-compassion (i.e., self-kindness, self-judgment, common humanity, isolation, mindfulness and over-identification) have individually a moderating effect on the relationship between daily peer

hassles, depressive symptoms and NSSI. Results for self-kindness subscale showed that the model accounted for 23 % of the NSSI and the interaction term between depressive symptoms and self-kindness was statistically significant ($\beta = -.09$, $p = .028$), but the interaction term between daily peer hassles and self-kindness was not statistically significant ($p = .811$). Results for mindfulness subscale showed that the model explained 24 % of NSSI and while the interaction term between depressive symptoms and mindfulness was statistically significant ($\beta = -.08$, $p = .038$), the interaction term between daily peer hassles and mindfulness was not ($p = .212$). For common humanity subscale, neither the interaction term between depressive symptoms and common humanity nor the interaction term between daily peer hassles and common humanity was not statistically significant ($p = .585$ and $p = .785$, respectively) to explain NSSI.

Regarding the negative components of self-compassion scale, results indicated that the interaction terms between depressive symptoms and each subscale of negative valence of self-compassion were statistically significant: self-judgment, $R^2 = 25\%$, $\beta = .12$, $p = .009$; isolation, $R^2 = 24\%$, $\beta = .11$, $p = .012$ and over-identification, $R^2 = 25\%$, $\beta = .14$, $p = .002$. The interaction terms between daily peer hassles and the negative components of self-compassion were not statistically significant ($p > .05$).

Discussion

Previous research has identified the role of stressful life events and depression in the onset and maintenance of NSSI (Hankin & Abela, 2011; Hawton et al., 2012; Marshall et al., 2013). Self-compassion may be a protective factor against mental health difficulties (Barnard & Curry, 2011; Neff, 2003a, b) and appears to be beneficial in adolescence (Bluth & Blanton, 2014, 2015; Cunha et al., 2013, 2016; Marshall et al., 2015; Neff & McGehee, 2010). However, research on self-compassion among adolescents is still scarce. Therefore, the present study aimed to explore the relationship between NSSI and its risk factors and the potential protective factor of self-compassion. The main goal was to test whether self-compassion would mitigate the impact of daily peer hassles and depressive symptoms on the frequency of NSSI in a community sample of adolescents.

Results of the current study indicated that there were significant differences between males and females among studied variables. Females tend to perceive greater daily peer hassles, depressive symptoms and NSSI, when compared with males. Conversely, males endorsed more levels of self-compassion than females. Overall, these findings are in accordance with empirical research showing that

females tend to be self-critical, sensitive to stressful events and to ruminate on their negative emotions, which may contribute to differential pattern of depression prevalence among both genders (Nolen-Hoeksema, 2001). Thus, it is expected that female adolescents are less likely to be kind and self-compassionate in comparison with male adolescents. This trend is similar to that recently found by Bluth and Blanton (2015) and by Cunha and colleagues (Cunha et al. 2016). Other studies also found sex differences in NSSI, with female adolescents reporting more NSSI (e.g., Hawton et al., 2012; Xavier et al., 2015).

Results from correlation analysis showed that daily disruptions with peers were associated with depressive symptoms and NSSI, even when sex was controlled. This result is consistent with broad literature documenting links between stressful life events and psychological maladjustment (e.g., Chang, & Sanna, 2003). The well-known significant association between depressive symptoms and NSSI was also found in the present study. In addition, correlation analyses showed that self-compassion was inversely correlated with daily peer hassles, depressive symptoms and NSSI (even when sex was controlled). These findings suggest that adolescents who are kind and compassionate toward themselves tend to be perceived as having lower problems with peers and to have lower levels of depressive symptoms and NSSI.

Given these findings, a path analysis was performed to test whether self-compassion would moderate the relationship between daily peer hassles, depressive symptoms and NSSI. Results showed that the interaction between daily peer hassles and self-compassion was not statistically significant. Daily peer hassles had a significant and independent effect on NSSI. As documented in the literature, peer relationships assume a newfound importance during adolescence, since adolescents become more sensitive to the images and emotions they are creating in their peers' mind and rely highly on social comparisons and feedback from peers for self-identity development (Gilbert & Irons, 2009). Thus, repetitive daily disruptions or troubles with peers may be particularly damaging among adolescents, whom may use NSSI to regulate threatening and negative emotions arising in these stressful situations. Contrary to our hypothesis, the impact of daily peer hassles on NSSI was not moderated by self-compassion. Daily peer hassles appear to go beyond negative affect and trigger other kind of emotions, such as anger directed to others and to oneself, which may explain its relationship with NSSI. Because self-compassion is focused on strategies to cope with negative affect linked to personal failures, mistakes and inadequacies, the buffering effect of self-compassion in negative affect and not in other emotions seems to be warranted.

Self-compassion involves a self-to-self relationship characterized by kindness, empathic understanding, a sense

of common humanity and a balanced perspective of one's experiences, when confronted with personal failings (Neff, 2003a, b). Moreover, self-compassion is an emotionally positive self-attitude that also entails a motivation to be open to personal suffering without avoiding it (Neff, 2003b). These self-compassion abilities may act as counter affective responses to harsh self-criticism (Gilbert, 2009, 2010; Neff, 2003b, 2016). Thus, each component of self-compassion involves aspects of a self-to-self relationship (i.e., how individuals emotionally respond, cognitively understand or pay attention to their suffering) and is not focused on a self-to-other relationship (Neff, 2016). We believe that if we had used a measure of compassion for others, which implies how we relate to others, we may have found its protective effect on daily peer hassles against NSSI. Therefore, future studies may help to elucidate the absence of moderating effect of self-compassion in the relationship between daily peer hassles and NSSI, and analyze the role of other relevant variables linked to self-compassion, such as acceptance, compassion for others and receive compassion from others.

Furthermore, the current study also demonstrates that the interaction between depressive symptoms and self-compassion has an expressive and significant effect upon overall levels of NSSI. This finding suggests that self-compassion attenuates the impact of depressive symptoms on NSSI. In other words, the impact of depressive symptoms on NSSI is diminished in adolescents who have the ability to be kind and compassionate toward themselves. Moreover, the graphic representation supports this moderator effect of self-compassion and also indicated that the three levels of self-compassion (i.e., low, medium and high) were statistically significant. The key finding here is that for high levels of depressive symptoms, the ability to be kind and compassionate toward oneself acts as a buffer against the engagement in NSSI.

Regarding the subscales of self-compassion, the positive components attenuated the effect of depressive symptoms on NSSI. It seems that the self-kindness and mindfulness are protective factors against depressive symptoms and NSSI. Common humanity has not proven a significant moderator, which can be understood by the developmental characteristics of adolescence. Indeed, the egocentrism characteristic of adolescence may lead to difficulties in taking the perspectives of others and recognizing suffering and personal inadequacies as being a normal part of human experience. Other studies have found this lack of common humanity in adolescent samples (e.g., Cunha et al., 2016). On the other hand, the negative components of self-compassion (e.g., self-judgment, isolation and over-identification) seem to amplify the effect of depressive symptoms on NSSI.

Overall, these findings are consistent with theoretical models, showing that increased self-compassion is a

protective psychological factor for depressogenic stressors (Gilbert, 2010; MacBeth & Gumley, 2012). Additionally, results of the present study add to the existent research on adolescence, showing the salutary effect of self-compassion to cope with depressive symptoms and self-destructive behaviors. Thus, these findings may have important preventive and clinical implications. At a preventive level, intervention actions should promote safety, secure and affectionate contexts within community and school settings and emphasize the development of positive emotions and learning of self-compassion abilities.

Regarding the influence of components of self-compassion, our findings revealed that five elements had a moderating effect in depressive symptoms and NSSI. Results indicate that the abilities of self-kindness and mindfulness are important to diminish depressive symptoms and NSSI. Thus, in face of personal inadequacies, adolescents who have the ability to be self-compassionate, instead of being self-critical, will adaptively cope with thoughts and emotions, without experiencing depressive symptoms and engaging in NSSI. Although common humanity was not a significant moderator, all components of self-compassion should be addressed in practice with adolescents, because the six components of self-compassion mutually influence each other to create a self-compassionate mind state. Thus, intervention programs for schools aimed to develop self-compassion abilities should cultivate all these components. Recently, a pilot study of a Mindful Self-Compassion Program for adolescents demonstrated promising results in the reduction of negative outcomes (e.g., depression, anxiety and stress) and the improvement of mindfulness, self-compassion skills and emotional health (Bluth, Gaylord, Campo, Mullarkey, & Hobbs, 2016). Effective interventions for school contexts should employ universal programs in order to promote these abilities in all students and not only in students with emotional and behavioral problems, and to create a caring and supportive school community (i.e., school ecology; Osher, Dwyer, & Jackson, 2004; Welford, & Langmead, 2015).

Therapeutic approaches should be especially developed for adolescents who struggle with NSSI, by focusing on the development of a kind, soothing, warm, compassionate and nonjudgmental self-to-self relationship to counteract high levels of shame, self-criticism and emotional dysregulation in these adolescents. Compassion focused approaches (e.g., CFT; Gilbert, 2009) may be particularly well suited to replace maladaptive emotion regulation processes (e.g., dissociation, rumination and self-criticism), improve affect regulation (e.g., distress tolerance) and address fears of compassion. Additionally, therapeutic supports should preserve the link between the clinical and school contexts, in order to ensure students with NSSI are not singled out as

having pathology but are helped to form relationships with adults and peers and otherwise feel connected and part of a school community.

Nevertheless, some limitations should be noted in this study. Firstly, the cross-sectional design does not allow us to establish causality between variables under study. Secondly, the data are retrospective in nature. Although self-report questionnaires do benefit from being anonymous, future research should include other measures to assess frequency, methods and functions of NSSI, such as structured interviews. Thirdly, given the objectives of the current study, we only analyzed daily peer hassles. Future studies should explore other type of minor life stressors that may also be important in adolescence (e.g., family, school). Finally, we recognize that NSSI is a multi-determined and complex phenomenon and that other risk factors and emotion regulation processes may be involved. However, the model tested in the present paper was intentionally restrained in order to specifically explore the role of self-compassion.

Despite the above methodological limitations, the current study offers new avenues for the implications of self-compassion in adolescence. In particular, these findings showed the protective role of self-compassion against the impact of depressive symptoms on non-suicidal self-injury among adolescents.

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Compliance with Ethical Standards

Conflicts of interest All the authors declare that they have no conflict of interest.

Ethical Approval This article does not contain any studies with animals performed by any of the authors. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standard.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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