

# Non-suicidal Self-Injury in Adolescence: The Role of Shame, Self-Criticism and Fear of Self-Compassion

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## Abstract

**Background** Non-suicidal self-injury (NSSI) is a serious and relatively prevalent problem in adolescence. Although several studies have identified risk factors for the aetiology and maintenance of NSSI, little is known about the impact of individual and contextual variables in such pervasive behaviors among adolescents.

**Objective** This paper aims to test whether specific internal traits characterized by shame, self-criticism and fear of self-compassion impact on NSSI, through their effect in daily peer hassles and depression.

**Methods** Participants are 782 adolescents with 12–18 years-old from middle and secondary schools (years of education's mean = 9.46). This study has a cross-sectional design. Self-report measures include external shame, self-criticism, fear of self-compassion, daily peer hassles, depressive symptoms and NSSI.

**Results** External shame, hated self and fear of self-compassion indirectly predict NSSI, through their effect in daily peer hassles and depression. The most pathological form of self-criticism (hated self) is strongly associated with NSSI.

**Conclusions** These findings contribute to clarification of the paths through which the belief that one is seen negatively by others, the hostile self-to-self relationship and the inability to direct compassion for self may increase NSSI. Daily peer hassles and current depressive symptoms seem to play an important role in the association between internal traits and NSSI. Preventive and intervention actions for reducing NSSI in adolescence should address not only interpersonal difficulties but also self-to-self relationship.

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**Keywords** Adolescence · Fear of self-compassion · Non-suicidal self-injury · Self-criticism · Shame

## Introduction

Non-suicidal self-injury (NSSI) is defined as the direct and intentional destruction of one's own body tissue without suicidal intentions and for purposes not culturally sanctioned (American Psychiatric Association 2013), such as cutting, burning, scraping skin, hitting and biting oneself. Although estimates of prevalence rates vary due to different definitions and methods used, NSSI is especially frequent during adolescence with prevalence rates ranging between 10 and 40 % (Cerutti et al. 2011; Giletta et al. 2012; Klonsky et al. 2011; Madge et al. 2011). The average age of onset for NSSI range consistently between 12 and 16 years old (Gratz and Chapman 2009; Klonsky et al. 2011). Regarding differences in gender, there is a trend to find that adolescent girls engage more frequently in NSSI than boys (Giletta et al. 2012; Klonsky et al. 2011; Madge et al. 2011).

Theoretical frameworks have emerged to explain how NSSI may serve specific functions and motivations that maintain and reinforce these behaviors (Gratz and Chapman 2009; Klonsky et al. 2011; Nock 2009). The main functions of NSSI are to regulate negative emotional states, to punish the self, and to influence or communicate with others (Gratz and Chapman 2009; Nock 2009). Indeed, the intrapersonal functions are more common in individuals with NSSI, highlighting the role of self-punishment in the vulnerability for and maintenance of these behaviors (Klonsky et al. 2011). In this case, NSSI is used to direct anger, disgust and loathing towards the self and is experienced as familiar, ego-syntonic and provides immediate emotion *relief* in face of distress, intense feelings of shame and guilt (Gratz and Chapman 2009; Klonsky et al. 2011). Although affect regulation is the most commonly cited motive for NSSI, interpersonal difficulties also seem to represent a common precursor to engage in NSSI (Klonsky et al. 2011).

Even though there are biological and psychological explanatory models for NSSI, the mechanisms for its occurrence and maintenance are not yet fully explored in adolescence. At this stage of life, adolescents begin to form an identity separated from their parents, while turning to peers as a source of support, values and sense of belonging (Gilbert and Irons 2009; Wolfe and Mash 2006). Adolescents become more focused on and highly sensitive to the images and emotions they are eliciting in their peers in order to be approved, valued and included in social groups (Gilbert and Irons 2009). Such concerns may render them more susceptible to difficulties with self-consciousness, self-identity, self-presentation, fear of rejection and victimization, which in turn may lead to different forms of distress and psychopathology (Cunha et al. 2012; Gilbert and Irons 2009). Indeed, stressful peer experiences (e.g., bullying, rejection, harassment, victimization and hassles with friends) are linked to depression, shame and NSSI (Åslund et al. 2007; Claes et al. 2015; Giletta et al. 2012).

Early experiences of shame with family and peer groups operate within an interactional experience (e.g., where the child or adolescent is abused, criticized, ridiculed, ostracized or rejected by significant others) and can become the basis for negative self-experience and negative self-evaluation (Gilbert and Irons 2009). Shame (in other words an experience of shame) arises when one has been criticized, judged or viewed negatively by others. Shame response displays a submission signal and withdrawal as a means to limit possible attacks or rejection from others (Keltner and Harker 1998). According to Gilbert (1998), this

socially focused emotion has internal and external dimensions that are extremely linked to each other, since both involve negative attributes of the self and interact mutually. In other words, when one experiences oneself as existing in a negative way in the minds of others, one may engage in an internal shaming process that involves a harsh self-blaming and self-persecutory attitude towards the self and the adoption of defensive submissive strategies (Gilbert 1998). This internalized shame response entails an internal hostile self-to-self relationship known as self-criticism (Gilbert 1998, 2000; Gilbert and Irons 2009; Gilbert et al. 2004).

Self-criticism typically emerges when people perceive failures in important life tasks or in difficult situations, and involves automatic harsh self-blame and self-attacks, with self-directed anger, disgust or even hate (Gilbert 2000; Gilbert and Irons 2009; Gilbert et al. 2004). Self-criticism may have different forms and functions, which may focus on feeling inadequate, defeated (also known as ‘inadequate self’) or focus on a sense of disgust and anger with the self (i.e., hated self) and with the desire to persecute the self (Gilbert et al. 2004). This last form of self-criticism seems to be more problematic and pathogenic, since it can be used as an attempt to eliminate, exclude and persecute the self (e.g., the self perceived as being bad, defective, and worthless; Castilho et al. 2013; Gilbert 2000; Gilbert and Irons 2009; Gilbert et al. 2004). Indeed, this self-persecuting function of self-criticism was associated with self-harm, depression, and anxiety in a mixed clinical adult population (Gilbert et al. 2010a).

The pathogenic impact of such internal self-to-self relationship not only leads to an increased vulnerability for psychopathology, but also to the inability to generate feelings of self-directed soothing, warmth and care (Gilbert 2000; Gilbert and Irons 2009). In fact, individuals with high shame and self-criticism tend to report negative beliefs about compassion, which are translated in fears, resistance and avoidance to compassionate feelings and behaviors towards themselves (Gilbert 2009; Gilbert et al. 2010b). Fears of compassion involve the resistance and tendency to avoid experiencing compassionate feelings as well as behaving in a compassionate way towards others and oneself. Additionally, fears of compassion might also involve being the target of compassion from others (Gilbert et al. 2010b). Studies conducted in adult populations demonstrated that fears of compassion (especially compassion from others and for self) were associated with self-criticism, depression, anxiety and stress symptoms, alexithymia and difficulties with safeness and self-reassuring feelings (Gilbert et al. 2010b; Gilbert et al. 2012). Recently, Xavier et al. (2015) found that experiences of threat and submissiveness in childhood, fear of compassion for self, negative affect and being female have a significant and an independent contribution to the prediction of the frequency of self-harm behaviors among a community sample of adolescents. Overall, it seems that individuals who are fearful of compassion may have the social safeness/soothing system underdeveloped, and find it hard to feel reassured or calmed/soothed in difficult situations of their lives (Gilbert 2000, 2009; Gilbert et al. 2004; Gilbert and Irons 2009). In addition, both the sense of disconnection from others and the lack of feeling valued or cared for may drive the engagement in NSSI.

## The Current Study

Based on the above theoretical and empirical evidence, the present study aims to develop an integrative model to predict the frequency of NSSI among adolescents. Particularly, the model tests whether specific internal traits characterized by shame, self-criticism and fear

of self-compassion increase the engagement in NSSI, through their effect on perceived troubles with peers and current depressive symptoms. We expect shame, self-criticism and fear of compassion towards oneself to be associated with increased levels of troubles with peers, depressive symptoms and NSSI. We hypothesized that adolescents who believe to be negatively evaluated by others (e.g., unattractive, undesired, inadequate), endorse harsh self-criticism and express resistance and fears of self-compassion will engage in more NSSI, and that this impact occurs through their effect on current troubles with peers and depressive symptoms. The hypothesized model and all paths are displayed in Fig. 1.

## Method

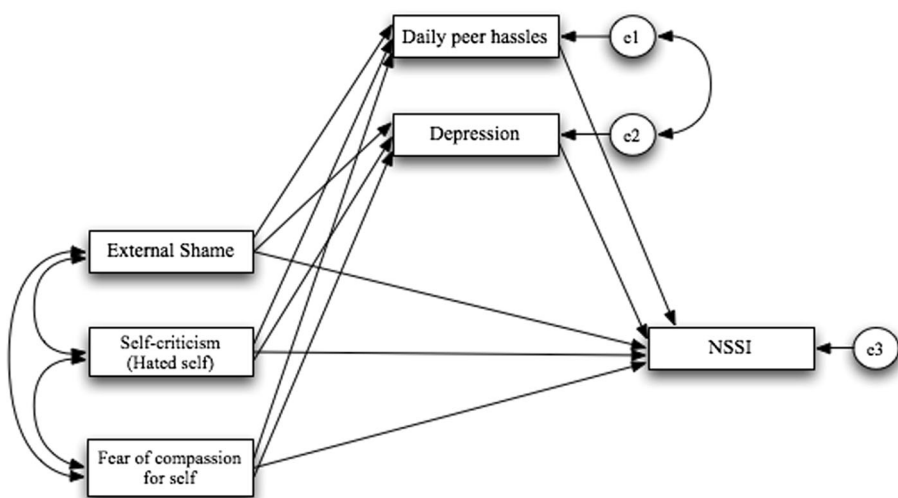
### Participants

The sample consists of 782 adolescents, 369 boys (47.2 %) and 413 girls (52.8 %). The adolescents age ranged between 12 and 18 years old ( $M = 14.89$ ,  $SD = 1.76$ ). Regarding years of education, the mean was 9.46 ( $SD = 1.61$ ). No sex differences for age were found,  $t(780) = 1.135$ ,  $p = .257$ , except for years of education,  $t(780) = 2.475$ ,  $p = .014$ , with girls presenting more years of education than boys ( $M = 9.59$ ,  $SD = 1.63$  vs.  $M = 9.31$ ,  $SD = 1.58$ ).

### Measures

#### External Shame

The Other as Shamer Scale (OAS2; Matos et al. 2015; Portuguese version for adolescents: Cunha et al. 2014) is a shortened version of the Other as Shamer Scale and consists of 8 items that assess external shame (i.e., global judgments of how people think others view



**Fig. 1** Path diagram for the hypothesized model predicting non-suicidal self-injury (NSSI)

them). Respondents are asked to indicate the frequency on a 5-point scale (0 = *Never*; 4 = *Almost always*) of their feelings and experiences to items such as “Other people see me as small and insignificant”. In the original version, OAS2 showed a very good internal consistency ( $\alpha = .85$ ) as well as in the adolescents’ version ( $\alpha = .93$ ). In this study we also obtained a very good internal consistency ( $\alpha = .94$ )

### *Self-Criticism*

The Forms of Self-Criticism/Self-Reassuring Scale (FSCRS; Gilbert et al. 2004; Portuguese version: Castilho et al. 2013) is a 22-item self-report questionnaire that assess respondents’ thoughts and feelings about themselves in a perceived failure or mistake. This scale comprises three subscales: inadequate self; hated self; reassured self. Participants respond on a 5-point scale (ranging from 0 = *not at all like me*, to 4 = *extremely like me*). Gilbert and colleagues (2004) found good internal reliability with Cronbach’s alpha of .90 for inadequate self and .86 for both hated and reassured self. The Portuguese version also presented good internal consistency, ranging between .72 and .89 (Castilho et al. 2013). In this study we only used *hated self* subscale that assess the desire to hurt or persecute the self (e.g., “I have become so angry with myself that I want to hurt or injure myself”.) and it presented good internal reliability ( $\alpha = .80$ ).

### *Fears of Compassion for Self*

The Fears of Compassion Scales (Gilbert et al. 2010b; Portuguese version: Duarte et al. 2014) are composed by three scales that assess fear of compassion for self, fear of compassion from others and fear of compassion for others. In the present study we only used the *fear of compassion for self* (FCself) scale in order to tap the resistance or fear of compassionate feelings and behaviors toward ourselves when we make mistakes or things go wrong in our lives. This fear of compassion for self scale comprises 15 items (e.g., “I fear that if I am more self compassionate I will become a weak person.”) and each item is rated on a 5-point scale (0 = *don’t agree at all*; 4 = *completely agree*). In the original version the FCself scale had good internal consistency ( $\alpha = .85$ ). In the present study the Cronbach’s alpha was .90.

### *Daily Peer Hassles*

The Daily Hassles Microsystem Scale (DHMS; Seidman et al. 1995; Portuguese version: Paiva 2009) is a self-report questionnaire composed by 28 items that assess the perceived daily hassles within four microsystems. For each item, respondents answer “yes” or “no” to whether the event “has happened this month”, and if the hassles had occurred, how much of a hassles it was, on a 4-point scale (1 = *not at all a hassles*; 4 = *a very big hassles*). According to the original study, rating of “hasn’t happened this month” and “not at all a hassle” were scored as 1 in calculating the hassles intensity scores, in order to avoid missing subjects. In the present study we only used the *peer hassles subscale*, which represents trouble with friends (6 items; e.g., “Trouble with friends over beliefs, opinions and choices”). In the original study (Seidman et al. 1995) adequate internal consistency was found ( $\alpha = .71$  for peer hassles). In this study we also obtained an adequate internal consistency ( $\alpha = .77$ ).

### *Depressive Symptoms*

The Depression Anxiety and Stress Scales (DASS-21; Lovibond and Lovibond 1995; Portuguese version: Pais-Ribeiro et al. 2004) is a self-report measure composed of 21 items to assess three dimensions of psychopathological symptoms: depression, anxiety and stress. The items indicate negative emotional symptoms and are rated on a 4-point scale (0–3) during the last week. Lovibond and Lovibond (1995) found the subscales to have high internal consistency ( $\alpha = .91$  for depression;  $\alpha = .84$  for anxiety;  $\alpha = .90$  for stress). In the present study only the depression subscale was used and presented good internal consistency ( $\alpha = .90$ ).

### *Non-suicidal Self-Injury (NSSI)*

The risk-taking and self-harm inventory for adolescents (RTSHIA; Vrouva et al. 2010; Portuguese version: Xavier et al. 2013) is a self-report questionnaire that assesses simultaneously risk-taking and self-harm behaviors. In this study we only used the self-harm dimension that measures frequency of self-injury behaviors, such as cutting, burning or 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 4-point scale (0 = *never*; 3 = *many times*), referring to the lifelong history. In the present 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 four respondents were excluded from data set because they reported suicidal intent. In the original study the authors found a very good internal consistency for self-harm dimension ( $\alpha = .93$ ). In this study the self-harm dimension (15 items) presented good internal reliability ( $\alpha = .88$ ).

### **Procedure**

The current sample was collected from middle and secondary schools in the district of Coimbra, Portugal. Prior to the administration of the questionnaires, ethical approvals were obtained by the Ministry of Education and the Commission for Data Protection from Portugal. Then, the Head Teacher of the school and parents were informed about the research goals and gave their written consent. Adolescents consented to participate and were fully informed about the purpose of the study and aspects of confidentiality. They voluntarily participated and filled out the instruments in the classroom in the presence of the teacher and researcher in order to ensure confidential and independent responding. Clarifications were provided when necessary. Participants who did not want to participate or were not authorized by their parents to participate in this study were excluded and were given an academic task by the teacher in the classroom.

### **Data Analysis Strategy**

The current study has a cross-sectional design. Statistical analyses were conducted using PASW Software (Predictive Analytics Software, version 18, SPSS, Chicago, IL, USA) and path analysis from structural equation modelling (SEM) was tested using AMOS software (Analysis of Moment Structures, version 18, Amos Development Corporation, Crawfordville, FL, USA).

Descriptive statistics were computed to analyze demographic variables and means scores on study's variables. Gender differences were tested using independent-samples  $t$  tests (Field 2013). Additionally, a one-way independent ANOVA was used to compare means scores of variables in study among age and grade groups. The post hoc Tukey HSD procedure was performed because it is considered the most powerful test for controlling the Type I error. However, when the assumption of homogeneity of variances was violated, the post hoc Games–Howell procedure was chosen because it is accurate when population variances are different (Field 2013).

Pearson product-moment correlation coefficients were performed to explore the relationships between external shame, self-criticism (hated self), fear of self-compassion, daily peer hassles, depressive symptoms and NSSI.

*Path analysis* was performed to estimate the presumed relations among variables in the proposed theoretical model (Fig. 1). This technique from SEM considers theoretical causal relations among variables that have already been hypothesized (Kline 2005). Although the cross-sectional data of the current study do not allow the establishment of causal chain between variables, it may contribute for the understanding of the possible pathways between the variables under examination and whether these pathways are consistent with the underlying hypothesized theoretical model (Hayes 2013; Kline 2005). In the path model tested, it was examined whether trait-variables (external shame, self-criticism, fear of self-compassion) would predict the frequency of non-suicidal self-injury (NSSI), mediated by current depressive symptoms and daily peer hassles. Demographic variables were included in the model, namely sex as a dummy variable (0 = male, 1 = female) because it is a significant predictor of NSSI; and age and years of education in order to control their effect. Given the limitations linked to cross-sectional data, we also tested a reverse causality model. The maximum likelihood (ML) was used as the estimation method to test for the significance of all path coefficients in the model and to compute fit indexes statistics (Kline 2005). Some goodness-of-fit indexes were used to evaluate overall model fit: *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 fit;  $\leq .08$ , acceptable fit;  $\geq .10$ , poor fit), with 90 % confidence interval (CI) (Hu and Bentler 1999). The significance of the direct, indirect and total effects was assessed by the Bootstrap resampling method. This procedure with 1000 Bootstrap samples was used to create 90 % bias-corrected confidence intervals. The effects were considered as significantly different from zero ( $p < .05$ ) if zero is outside of the upper and lower bounds of the 90 % bias-corrected confidence interval (Hayes and Preacher 2010; Kline 2005).

## Results

### Preliminary Data Analysis

Data was screened for univariate normality and there were no severe violations to normal distribution ( $|Sk| < 3$  and  $|Kul| < 8-10$ ; Kline 2005). To inspect for possible multivariate outliers Mahalanobis Distance squared ( $MD^2$ ) were used and results suggest the presence of some high values. The model was tested with and without these cases and since the results did not change, we decided to maintain them in order to preserve the factor's variability (Kline 2005). There was no missing data. Multicollinearity was examined by

inspecting the tolerance and variance inflation factor ( $VIF < 5$ ) and no multicollinearity problems were found among variables (Kline 2005).

## Descriptive Statistics

The means, standard deviations and independent-samples *t* test for gender differences are shown in Table 1. As can be seen in Table 1, there are gender differences for all variables in study. In this sample, females reported more levels of external shame, self-criticism, fear of self-compassion, daily peer hassles, depressive symptoms and NSSI than males. The effect size of the differences ranged between insignificant and small effects (cf. Table 1).

Table 2 displays the means, standard deviations and ANOVA's *F* by age and grade groups. Results for age groups showed significant differences for external shame, depression and NSSI. *Post hoc comparisons*, using the *Tukey HSD* test, indicated that middle adolescence (14–15 years old) had significantly higher levels of external shame than early adolescence (12–13 years old) and later adolescence (16–18 years old). Since the assumption of homogeneity of variance was compromised for depression and NSSI scores (Levene's *F* test:  $p < .05$  for depression and NSSI), the *Welch's F* and *Brown–Forsythe's F* were used, indicating that at least two or the three age groups differ significantly on their means scores of depression and NSSI (cf. Table 2). Results from post hoc comparisons, using the *Games–Howell* post hoc procedure, showed that middle adolescents (14–15 years old) had significantly higher levels of depressive symptoms than early adolescents (12–13 years old). In addition, later adolescents (16–18 years old) reported significantly higher levels of depressive symptoms than early adolescents (12–13 years old). For NSSI, *Games–Howell* post hoc comparison demonstrated that middle adolescence (14–15 years old) report more engagement in NSSI than early adolescents (12–13 years old). All the effect sizes were small (cf. Table 2).

**Table 1** Means (M), standard deviations (SD) and independent-samples *t* test for gender differences ( $N = 782$ )

Variables	Total sample ( $N = 782$ )		Males ( $n = 369$ )		Females ( $n = 413$ )		<i>t</i> ( <i>df</i> )	Cohen's <i>d</i>	<i>r</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
External shame (OAS2)	6.36	6.67	5.37	6.12	7.24	7.03	3.975 (779.492)***	-.28	-.14
Hated self (FSCRS)	4.37	4.55	3.82	4.14	4.86	4.84	3.219 (778.545)***	-.23	-.11
FCself	16.26	11.87	15.09	11.41	17.31	12.18	2.622 (780)**	-.18	-.09
Daily peer hassles (DHMS)	8.01	2.82	7.57	2.51	8.40	3.02	4.227 (775.971)***	-.30	-.15
Depression (DASS-21)	4.89	5.05	3.96	4.49	5.73	5.37	5.021 (776.644)***	-.36	-.18
NSSI	3.07	5.09	2.12	3.72	3.94	5.93	5.178 (702.767)***	-.37	-.18

OAS2 Other as Shamer Scale—brief version, FSCRS Forms of Self-Criticism/Self-Reassuring Scale, FCself Fear of Compassion for Self Scale, DHMS Daily Hassles Microsystem Scale, NSSI nonsuicidal self-injury measured by the risk-taking and self-harm inventory for adolescents (RTSHIA)

\*\*  $p \leq .01$ ; \*\*\*  $p \leq .001$



**Table 2** Means (M), standard deviations (SD), one-way independent ANOVA with *F*-ratio and effect size (N = 782)

Variables	Age groups						<i>F</i> ( <i>df</i> )	Partial $\eta^2$
	12–13 ( <i>n</i> = 195)		14–15 ( <i>n</i> = 279)		16–18 ( <i>n</i> = 308)			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
External shame (OAS2)	5.67	6.19	7.38	7.15	5.87	6.42	5.156 (2779)**	.013
Hated self (FSCRS)	4.40	4.43	4.80	4.86	3.96	4.29	2.463 (2779)	n/a
FCself	16.66	12.16	16.57	11.69	15.73	11.86	.519 (2779)	n/a
Daily peer hassles (DHMS)	8.11	3.12	8.07	2.62	7.88	2.79	.508 (2779)	n/a
Depression (DASS-21)	3.70	4.38	5.31	5.01	5.28	5.36	8.821 (2496.320)***	.019
							7.764 (2768.125)***	
NSSI	2.36	3.71	3.72	5.87	2.94	5.02	4.739 (2507.722)**	.011
							4.583 (2741.352)**	

Variables	Grade Groups						<i>F</i> ( <i>df</i> )	Partial $\eta^2$
	7–8 ( <i>n</i> = 252)		9–10 ( <i>n</i> = 296)		11–12 ( <i>n</i> = 234)			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
External shame (OAS2)	5.74	6.53	7.29	6.94	5.84	6.38	4.743 (2779)**	.012
Hated self (FSCRS)	4.48	4.53	4.82	4.77	3.68	4.20	4.552 (2514.382)**	.011
							4.369 (2776.187)**	
FCself	16.72	11.89	16.65	12.09	15.28	11.54	1.152 (2779)	n/a
Daily peer hassles (DHMS)	8.03	2.93	8.07	2.74	7.91	2.80	.228 (2779)	n/a
Depression (DASS-21)	3.83	4.48	5.61	5.16	5.13	5.30	10.032 (2506.696)***	.023
							9.065 (2746.269)***	
NSSI	2.51	3.85	3.80	5.95	2.76	4.98	4.770 (2505.216)**	.013
							5.246 (2731.550)**	

*n*s non-significant, *n/a* not applicable, OAS2 Other as Shamer Scale—brief version, FSCRS Forms of Self-Criticism/Self-Reassuring Scale, FCself/Fear of Compassion for Self Scale, DHMS Daily Hassles Microsystem Scale, NSSI nonsuicidal self-injury measured by the risk-taking and self-harm inventory for adolescents (RTSHIA)

\* *p* ≤ .05; \*\* *p* ≤ .01; \*\*\* *p* ≤ .001

Regarding grade in school results demonstrated significant differences in external shame, hated self, depression and NSSI (Table 2). Results from *Tukey HSD comparison* indicated that adolescents attending 9–10 grades reported significantly higher scores on external shame than 7–8 grades and 11–12 grades. For Hated self, *Games–Howell* post hoc procedure suggested that adolescent from 9 to 10 grades are more self-critical than adolescents from 11 to 12 grades. In depression scores, *Games–Howell* post hoc procedure indicated that adolescents from 9 to 10 and 11 to 12 grades had significantly higher levels of depressive symptoms than adolescents in the 7–8 grades. Finally, adolescents in 9–10 grades reported more often NSSI behaviors than adolescents in 7–8 grades. The effect sizes were small (cf. Table 2).

## Correlations

Pearson product moment correlation coefficients for all variables are shown in Table 3. External shame was significantly and positively associated with self-criticism (hated self) and with fear of self-compassion. External shame also revealed positive moderate correlations with daily peer hassles and depressive symptoms. Hated self and fear of self-compassion were positively associated with each other and with daily peer hassles and depressive symptoms. External shame, fear of self-compassion and daily peer hassles presented lower correlations with NSSI. Hated self and depression were moderately related to NSSI.

## Path Analysis

Taking into account the previous results and the proposed hypotheses, we intend to test whether external shame, hated self and fear of self-compassion indirectly influence NSSI through their effect on daily peer hassles and depression. In this path model demographic variables (i.e., sex, age and years of education) were included to control their effect (i.e., drawing covariances among exogenous variables). A reverse causality model was also tested (i.e., NSSI impact on daily peer hassles and depression and these variables impact on the dispositional variables). Results showed that the model fit was very similar to the previous model and both models explain the data equally well. These results do not clarify the direction of the effects of the relationship between variables under study. However, the

**Table 3** Summary of intercorrelations for scores on self-report measures (N = 782)

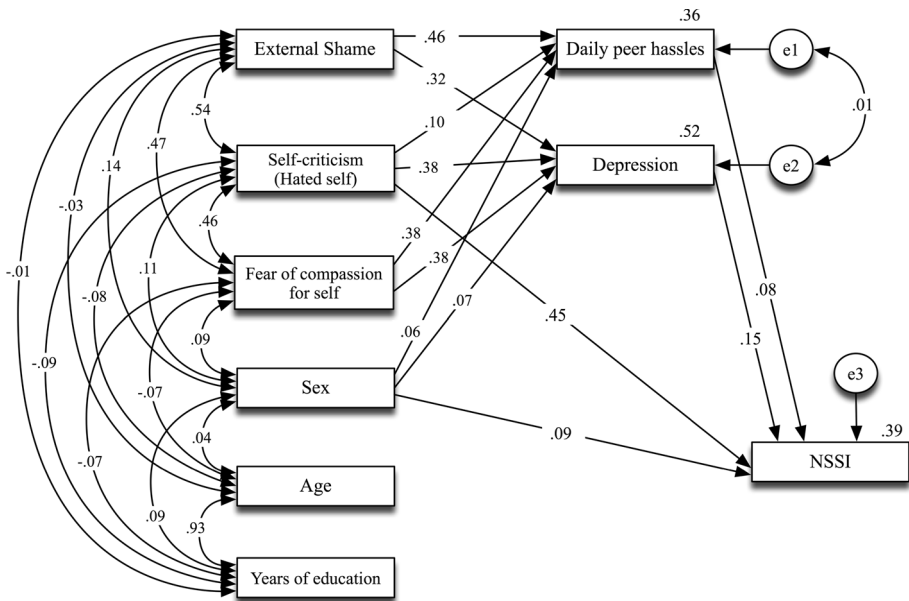
	External shame (OAS2)	Hated self (FSCRS)	FCself	Daily peer hassles (DHMS)	Depression (DASS-21)
Hated self (FSCRS)	.54				
FCself	.47	.46			
Daily peer hassles (DHMS)	.57	.41	.38		
Depression (DASS- 21)	.61	.63	.48	.42	
NSSI	.39	.59	.29	.34	.49

All coefficients are significant at  $p < .001$

OAS2 Other as Shamer Scale—brief version, FSCRS Forms of Self-Criticism/Self-Reassuring Scale, FCself Fear of Compassion for Self Scale, DHMS Daily Hassles Microsystem Scale, NSSI nonsuicidal self-injury measured by the risk-taking and self-harm inventory for adolescents (RTSHIA)

hypothesized model is considered more plausible according to theoretical background. Indeed, theoretical accounts point out that shame, self-criticism and fears of self-compassion are vulnerability factors for the development of depression (Gilbert 1998, 2000, 2009). Additionally, a longitudinal study conducted by Marshall and colleagues (2013) clarify the direction of the effects of the relationship between depression and NSSI, showing that depressive symptoms predict increases in NSSI 1 year later.

The theoretical model (Fig. 1) was tested through a saturated model, which comprised 45 parameters. Given that saturated models always produce a perfect fit to the data, model fit indexes were neither examined nor reported. The following paths were not statistically significant: the direct effect of years of education on depression ( $b = .238, SE = .205, Z = 1.161, p = .246, \beta = .076$ ); the direct effect of years of education on daily peer hassles ( $b = -.058, SE = .135, Z = -.427, p = .669, \beta = -.033$ ); the direct effect of age on depression ( $b = .136, SE = .187, Z = .728, p = .467, \beta = .047$ ); the direct effect of age on daily peer hassles ( $b = .018, SE = .123, Z = .144, p = .886, \beta = .011$ ); the direct effect of fear of self-compassion on NSSI ( $b = -.018, SE = .015, Z = 1.230, p = .219, \beta = -.042$ ); the direct effect of external shame on NSSI ( $b = -.005, SE = .031, Z = -.171, p = .865, \beta = -.007$ ); the direct effect of years of education on NSSI ( $b = .067, SE = .237, Z = .284, p = .776, \beta = .021$ ); and the direct effect of age on NSSI ( $b = .012, SE = .216, Z = .056, p = .955, \beta = .004$ ). Thus, these nonsignificant paths were sequentially removed, and the model, consisting of 37 parameters, was respecified and recalculated (Fig. 2). This respecified model revealed an excellent model fit:  $GFI = .99, CFI = .99, TLI = .97, RMSEA = .055, 90\% CI (.033-.079), p = .311$ . In the respecified model all paths were statistically significant, and the significance of indirect effects was further confirmed through bootstrap resampling method. The model accounted



**Fig. 2** Path diagram for the final model predicting non-suicidal self-injury (NSSI). Standardized regression coefficients are presented; all paths are statistically significant ( $p < .001$ )

for 52 % of depressive symptoms, 36 % of daily peer hassles peers and 39 % of NSSI variances (Fig. 2).

Results showed a significant indirect effect of external shame on NSSI [ $b_{OAS} = .087$ , 95 % CI (.046–.133),  $p = .002$ ], even when covariate and predictor variables were controlled for. This indirect effect indicates that higher external shame is associated with NSSI through its effect on depression ( $\beta = .323 \times .154 = .049$ ) and daily peer hassles ( $\beta = .456 \times .081 = .036$ ). Similarly, even when covariate and predictor variables were controlled for, there was a significant indirect effect of hated self on NSSI [ $b_{Hated-self} = .067$ , 95 % CI (.039–.099),  $p = .001$ ] through greater levels of depressive symptoms ( $\beta = .382 \times .154 = .059$ ) and daily peer hassles ( $\beta = .102 \times .081 = .008$ ). Additionally, hated-self is strongly associated with NSSI with a direct effect of  $\beta = .45$  ( $b = .507$ ,  $SE = .041$ ,  $Z = 12.248$ ,  $p < .001$ ). There was also a significant indirect effect of fear of compassion for self on NSSI [ $b_{FCself} = .032$ , 95 % CI (.017–.052),  $p = .001$ ], even when covariate and predictor variables were controlled for. This significant indirect effect indicates that fear of compassion for self is associated with NSSI through its effect on depression ( $\beta = .145 \times .154 = .022$ ) and daily peer hassles ( $\beta = .116 \times .081 = .009$ ).

Regarding covariate variables, results demonstrated that sex had a significant indirect effect on NSSI [ $b_{sex} = .016$ , 95 % CI (.007–.030),  $p = .002$ ], even when other variables in the model were controlled for. Sex is associated with NSSI through its effect on depression ( $\beta = .073 \times .154 = .011$ ) and daily peer hassles ( $\beta = .062 \times .081 = .005$ ). Additionally, sex variable had a direct effect on NSSI,  $\beta = .09$ ,  $b = .893$ ,  $SE = .164$ ,  $Z = 3.070$ ,  $p = .002$ .

## Discussion

NSSI is a serious and relatively prevalent problem in adolescence, as evidenced by the high prevalence rates (Giletta et al. 2012; Klonsky et al. 2011). Although several studies have identified risk factors for the aetiology and maintenance of NSSI, little is known about the impact of individual and contextual variables in such pervasive behaviors among adolescents. Therefore, the major aim of this study was to test an integrative model to predict the frequency of NSSI among adolescents. Specifically, the present study explored the indirect impact of individual traits characterized by external shame, self-criticism and fear of self-compassion on the engagement in NSSI, through stressful life events with peers and current depressive symptoms.

The primary goal of this study was to explore the descriptive data regarding variables in study. In this sample, female adolescents reported higher levels of external shame, self-criticism (hated self), fear of self-compassion, daily peer hassles, depressive symptoms and NSSI than males. Our findings also demonstrate that middle adolescence (14–15 years old) were at major risk for psychopathology, particularly for external shame, depression and NSSI. The same pattern was found for grade in school, where adolescents attending 9th and 10th grades reported higher levels of external shame, self-criticism (hated self), depression and NSSI. Cognitive-developmental changes that occur during the transition to adolescence (e.g., self-evaluative processes) can foster heightened self-focus, concerns about negative social evaluations, self-consciousness, and self-critical thinking, which may increase the vulnerability for internalizing problems (Steinberg 2010; Wolfe and Mash 2006), specially for girls (De Rubeis and Hollenstein 2009; Madge et al. 2011; Wolfe and Mash 2006).

Consistent with prior research with adult populations (Gilbert et al. 2004, 2010), correlation analyses results showed that the perception that others look down to the self is associated with self-criticism and fear of self-compassion. In addition, adolescents with an internal relationship characterized by external shame, hated self and fear of self-compassion tend to present more troubles with peers, high levels of depressive symptoms and frequent NSSI.

Results from path analysis indicated that the impact of higher levels of external shame and fear of self-compassion on the engagement in NSSI occurs through daily peer hassles and depressive symptoms. As expected, these results seem to indicate that adolescents who believe they exist in the mind of others in a negative way (e.g., as unvalued, undesired, inferior) and express resistance to compassionate feelings towards themselves tend to engage in NSSI, particularly in the presence of daily troubles with peers and depressive symptoms. Interestingly, our results also showed that hated self had both a direct and indirect effect (through daily peer hassles and depressive symptoms) on NSSI.

In line with previous theoretical and empirical contributions (Cunha et al. 2012; Gilbert 1998, 2000; Gilbert and Irons 2009), these results suggest that the emotional disposition characterized by a sense of self negatively perceived by others, a harsh and persecutory self-critical attitude and an inability to experience compassionate feelings towards the self may render the adolescent more vulnerable to enter defeat and threat emotional states when facing stressful life events.

One of the key finding was the strong association between hated self and NSSI. Self-criticism has different forms and functions (Gilbert et al. 2004), aimed at improving and correcting behavior to prevent bad things to happen (e.g., noting mistakes); or aimed at harming or wanting to hurt and destroy the self (e.g., seen as defective, bad, unvalued). Our data suggest that the hatred and disgust towards the self is one reason for physically attacking the self. Thus, NSSI may emerge as an attempt to punish and condemn the self viewed as bad, flawed, unworthy, undesirable, and to regulate negative emotions linked to this hated self (e.g., disgust, anger and hatred). These findings are in line with the conceptualizations of NSSI as an attempt to regulate intense and negative emotions (Gratz and Chapman 2009; Klonsky et al. 2011; Nock 2009). Furthermore, they add to the existent literature by identifying those adolescents with a persecutory and hatred self-attacking who are more likely to engage in NSSI.

Our findings also indicate that gender still has a significant direct and indirect effect on NSSI, even when other variables are controlled for. This result is in accordance with several studies conducted in community-based adolescents, showing that being female is a significant predictor of NSSI (Madge et al. 2011).

The results of the present study should be interpreted in the light of the following limitations. First, this study has a cross-sectional design that limits the confidence in causal relations among variables. However, the current study contributes for the understanding of the possible pathways through which internal traits might transmit their effect on NSSI. Future studies should use longitudinal design to prove the causal chain of these mechanisms. Secondly, the data were collected through self-report measures and are retrospective. Although self-report questionnaires used in this study do benefit from being anonymous, future research should include other measures to assess frequency, methods and functions of NSSI, such as structured interviews. Thirdly, the use of a nonclinical sample impairs generalizability of results to a clinical population. Although the processes involved in shame and self-criticism may apply to both clinical and nonclinical populations, the replication of the present study in clinical samples may find more robust findings.

Nevertheless, this study clarifies the paths through which the hostile self-to-self relationship, along with troubles with peers and depression, impacts on NSSI among adolescents. To sum up, the model tested demonstrated that the proneness to feelings of shame, self-directed hostility and fear of compassion towards oneself increases the engagement in NSSI, through their effect in daily peer hassles and depressive symptoms. A key finding is the strong link between hated self and NSSI. Thus, this study has important implications for preventive and intervention actions. At a preventive level, parents, educators, and clinicians should be aware of the pervasive effect of shame feelings, self-critical attitudes and the lack of compassionate/affiliative feelings and behaviors on adolescents' inner states and daily events. At the same time, it is important to promote positive, attentive and safe contexts (e.g., in school, community) to provide opportunities for adolescents to develop adaptive emotional and behavior skills. In clinical practice with adolescents the assessment and identification of the possible origins of the internalizing shaming processes (e.g., abuse, criticism and neglect in childhood) seems to be important. It seems that adolescents, with a self-view as defective or bad and the desire to persecute and punish the self, experience difficulties to be empathic to their distress or reassure themselves when feeling depressed and ashamed or failing at things. Thus, the interactions between the functions of self-criticism and the fear and avoidance of self-compassion should be addressed in therapy. In conclusion, compassion training (e.g., Compassion-focused therapy; Gilbert 2009; Gilbert and Irons 2009), that focus on developing feelings of safeness, warmth and connectedness and diminishing the fears of compassionate feelings, may have a key role to help adolescents managing intense negative emotions and cognitions (e.g., shame and hatred self-criticism) without engaging in NSSI.

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**Author contributions** Ana Xavier, José Pinto Gouveia and Marina Cunha take responsibility for the integrity of the data and the accuracy of the data analysis.

### Compliance with Ethical Standards

**Conflict of interest** Ana Xavier, José Pinto Gouveia and Marina Cunha declare that they have no conflict of interest.

## References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- Åslund, C., Nilsson, K. W., Starrin, B., & Sjöberg, R. L. (2007). Shaming experiences and the association between adolescent depression and psychosocial risk factors. *European Child and Adolescent Psychiatry, 16*, 298–304. doi:10.1007/s00787-006-0564-1.
- Castilho, P., Pinto-Gouveia, J., & Duarte, J. (2013). Exploring self-criticism: Confirmatory factor analysis of the FSCRS in clinical and nonclinical samples. *Clinical Psychology and Psychotherapy, .* doi:10.1002/cpp.1881.
- Cerutti, R., Manca, M., Presaghi, F., & Gratz, K. L. (2011). Prevalence and clinical correlates of deliberate self-harm among a community sample of Italian adolescents. *Journal of Adolescence, 34*, 337–347. doi:10.1016/j.adolescence.2010.04.004.

- Claes, L., Luyckx, K., Baetens, I., Van de Ven, M., & Witteman, C. (2015). Bullying and victimization, depressive mood, and non-suicidal self-injury in adolescents: The moderating role of parental support. *Journal of Child and Family Studies*, 24, 3363–3371. doi:[10.1007/s10826-015-0138-2](https://doi.org/10.1007/s10826-015-0138-2).
- Cunha, M., Matos, M., Faria, D., & Zagalo, S. (2012). Shame memories and psychopathology in adolescence: The mediator effect of shame. *International Journal of Psychology and Psychological Therapy*, 12, 203–218.
- Cunha, M., Xavier, A., Cherpe, S., & Pinto-Gouveia, J. (2014). Psychometric studies of the Other as Shamer Scale for Adolescents—brief version (OASB-A). *Revista de Saúde Pública*, 48 (n.esp.: 2nd IPLeiría International Health Congress/Challenges and Innovation in Health), p. 428.
- De Rubeis, S., & Hollenstein, T. (2009). Individual differences in shame and depressive symptoms during early adolescence. *Personality and Individual Differences*, 46, 477–482. doi:[10.1016/j.paid.2008.11.019](https://doi.org/10.1016/j.paid.2008.11.019).
- Duarte, C., Pinto-Gouveia, J., & Cunha, M. (2014). Fears of compassion in adolescence: Fears of Compassion Scales' examination and implications in this population. In *Poster session presented at the meeting of the 3rd International Conference on Compassion Focused Therapy*, Birmingham, UK.
- Field, A. (2013). *Discovering Statistics using IBM SPSS Statistics* (4th ed.). London: SAGE Publication Ltd.
- Gilbert, P. (1998). What is shame? Some core issues and controversies. In P. Gilbert & B. Andrews (Eds.), *Shame: Interpersonal behaviour, psychopathology and culture* (pp. 3–36). New York: Oxford University Press.
- Gilbert, P. (2000). Social mentalities: Internal 'social' conflicts and the role of inner warmth and compassion in cognitive therapy. In P. Gilbert & K. G. Bailey (Eds.), *Genes on the couch: Explorations in evolutionary psychotherapy* (pp. 118–150). Hove: Psychology Press.
- Gilbert, P. (2009). Introducing compassion-focused therapy. *Advances in Psychiatric Treatment*, 15, 199–208. doi:[10.1192/apt.bp.107.005264](https://doi.org/10.1192/apt.bp.107.005264).
- Gilbert, P., Clarke, M., Hempel, S., Miles, J. N. V., & Irons, C. (2004). Criticizing and reassuring oneself: An exploration of forms, styles and reasons in female students. *British Journal of Clinical Psychology*, 43, 31–50. doi:[10.1348/014466504772812959](https://doi.org/10.1348/014466504772812959).
- Gilbert, P., & Irons, C. (2009). Shame, self-criticism and self-compassion in adolescence. In N. B. Allen & L. B. Sheeber (Eds.), *Adolescent emotional development and the emergence of depressive disorders* (pp. 195–214). Cambridge: Cambridge University Press.
- Gilbert, P., McEwan, K., Gibbons, L., Chotai, S., Duarte, J., & Matos, M. (2012). Fears of compassion and happiness in relation to alexithymia, mindfulness, and self-criticism. *Psychology and Psychotherapy: Theory, Research and Practice*, 85, 374–390. doi:[10.1111/j.2044-8341.2011.02046.x](https://doi.org/10.1111/j.2044-8341.2011.02046.x).
- Gilbert, P., McEwan, K., Irons, C., Bhundia, R., Christie, R., Broomhead, C., & Rockliff, H. (2010a). Self-harm in a mixed clinical population: The roles of self-criticism, shame, and social rank. *British Journal of Clinical Psychology*, 49, 563–576. doi:[10.1348/014466509X479771](https://doi.org/10.1348/014466509X479771).
- Gilbert, P., McEwan, K., Matos, M., & Rivas, A. (2010b). Fears of compassion: Development of three self-report measures. *Psychology and Psychotherapy: Theory, Research and Practice*, 84, 239–255. doi:[10.1348/147608310X526511](https://doi.org/10.1348/147608310X526511).
- Giletta, M., Scholte, R. H. J., Engels, R. C. M. E., Ciairano, S., & Prinstein, M. J. (2012). Adolescent non-suicidal self-injury: A cross-national study of community samples from Italy, the Netherlands and the United States. *Psychiatry Research*, 197, 66–72. doi:[10.1016/j.psychres.2012.02.009](https://doi.org/10.1016/j.psychres.2012.02.009).
- Gratz, K. L., & Chapman, A. L. (2009). *Freedom from self-harm: Overcoming self-injury with skills from DBT and other treatments*. Oakland: New Harbinger Publications Inc.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: The Guilford Press.
- Hayes, A. F., & Preacher, K. J. (2010). Quantifying and testing indirect effects in simple mediation models when the constituent paths are nonlinear. *Multivariate Behavioral Research*, 45, 627–660. doi:[10.1080/00273171.2010.498290](https://doi.org/10.1080/00273171.2010.498290).
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6, 1–55. doi:[10.1080/10705519909540118](https://doi.org/10.1080/10705519909540118).
- Keltner, D., & Harker, L. A. (1998). The forms and functions of the nonverbal signal of shame. In P. Gilbert & B. Andrews (Eds.), *Shame: Interpersonal behaviour, psychopathology and culture* (pp. 78–98). New York: Oxford University Press.
- Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York: Guilford.
- Klonsky, E. D., Muehlenkamp, J. J., Lewis, S., & Walsh, B. (2011). *Non-suicidal self-injury. Advances in psychotherapy: Evidence-based practice*. Cambridge, MA: Hogrefe.

- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, 33, 335–343. doi:10.1016/0005-7967(94)00075-U.
- Madge, N., Hawton, K., McMahon, E. M., Corcoran, P., De Leo, D., de Wilde, E. J., et al. (2011). Psychological characteristics, stressful life events and deliberate self-harm: Findings from the Child and Adolescent Self-harm in Europe (CASE) Study. *European Child and Adolescent Psychiatry*, 20, 499–508. doi:10.1007/s00787-011-0210-4.
- Marshall, S. K., Tilton-Weaver, L. C., & Stattin, H. (2013). Non-suicidal self-injury and depressive symptoms during middle adolescence: A longitudinal analysis. *Journal of Youth and Adolescence*, 42, 1234–1242. doi:10.1007/s10964-013-9919-3.
- Matos, M., Pinto-Gouveia, J., Gilbert, P., Duarte, C., & Figueiredo, C. (2015). The Other As Shamer Scale-2: Development and validation of a short version of a measure of external shame. *Personality and Individual Differences*, 74, 6–11. doi:10.1016/j.paid.2014.09.037.
- Nock, M. K. (2009). Why do people hurt themselves? New insights into the nature and functions of self-injury. *Current Directions in Psychological Science*, 18, 78–83. doi:10.1111/j.1467-8721.2009.01613.x.
- Pais-Ribeiro, J. L., Honrado, A., & Leal, I. (2004). Contribuição para o estudo da adaptação portuguesa das escalas de ansiedade, depressão e stress (EADS) de 21 itens de Lovibond e Lovibond [Contribution to the adaptation study of the Portuguese adaptation of the Lovibond and Lovibond depression anxiety stress scales (EADS) with 21 items]. *Psicologia, Saúde & Doenças*, 5, 229–239.
- Paiva, A. (2009). *Temperament and Life Events as risk factors of Depression in Adolescence*. Unpublished Master's Thesis. University of Coimbra, Portugal.
- Seidman, E., Allen, L., Aber, J. L., Mitchell, C., Feinman, J., Yoshikawa, H., et al. (1995). Development and validation of adolescent-perceived microsystem scales: Social support, daily hassles, and involvement. *American Journal of Community Psychology*, 23, 355–388. doi:10.1007/BF02506949.
- Steinberg, L. (2010). A behavioral scientist looks at the science of adolescent brain development. *Brain and Cognition*, 72, 160–164. doi:10.1016/j.bandc.2009.11.003.
- Vrouva, I., Fonagy, P., Fearon, P. R., & Rousow, T. (2010). The risk-taking and self-harm inventory for adolescents: Development and psychometric evaluation. *Psychological Assessment*, 22, 852. doi:10.1037/a0020583.
- Wolfe, D. A., & Mash, E. J. (Eds.). (2006). *Behavioral and emotional disorders in adolescents: Nature, assessment, and treatment*. New York: Guilford Press.
- Xavier, A., Cunha, M., & Pinto-Gouveia, J. (2015). Deliberate self-harm in adolescence: The impact of childhood experiences, negative affect and fears of compassion. *Revista de Psicopatología y Psicología Clínica*. doi:10.5944/rppc.vol.1.num.1.2015.14407.
- Xavier, A., Cunha, M., Pinto-Gouveia, J., & Paiva, C. (2013). Exploratory study of the Portuguese version of the risk-taking and self-harm inventory for adolescents. *Atención Primaria*, vol. 45, Especial Congreso I (I World Congress of Children and Youth Health Behaviors/IV National Congress on Health Education), p. 165.