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Psychodynamic profiles of non-suicidal self-injury in adolescence: From the intra-psychic to the interpersonal dimension

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ABSTRACT. L'autolesività non suicidaria (ANS), intesa come danno intenzionale che l'individuo infligge alla propria superficie corporea senza intento suicidario, è particolarmente diffusa tra gli adolescenti. La letteratura scientifica ha cercato di classificare l'ANS, focalizzandosi principalmente sulle caratteristiche sindromiche. Molti altri studi ne hanno approfondito le funzioni, tuttavia pochi hanno indagato le stesse in termini di criteri utili ad inquadrare clinicamente i comportamenti autolesionistici. Lo studio si propone di identificare possibili profili di autolesionismo, incrociando elementi relativi al quadro sindromico (ad esempio, la frequenza o la tipologia della condotta) con meccanismi latenti che ne sono alla base (funzioni psichiche), quali la regolazione emotiva e l'investimento corporeo. I soggetti coinvolti nella ricerca sono stati 108 adolescenti che avevano messo in atto condotte autolesive (*M* = 14.6, *DS* = .9; 34 maschi e 74 femmine). L'analisi del cluster degli aspetti sindromici ha mostrato due tipologie di ANS, Ripetitiva e Episodica, che sono state incrociate con le caratteristiche latenti. La distribuzione delle funzioni dell'autolesionismo ha consentito di individuare due profili principali: autolesionismo grave e autolesionismo moderato. Infine, viene proposto un uso delle funzioni come criteri utili alla base di una diagnosi di autolesionismo.

SUMMARY. Nonsuicidal self-injury (NSSI), considered deliberate and self-inflicted destruction of one's own body tissue without suicidal intent, is particularly widespread among adolescents. The literature has attempted to classify NSSI, focusing primarily on syndromal features. Many studies have addressed the functions of NSSI but very few have investigated using these functions as criteria to assess nonsuicidal self-injury behaviours. This study aimed to identify profiles for nonsuicidal self-injury behaviours, matching the manifest syndromal aspects (e.g., frequency, variety of the methods) with the latent functional ones like psychic functions, especially emotion regulation, and body investment. A sample of 108 adolescents with a history of nonsuicidal self-injury (M = 14.6, SD = .9; 34 males and 74 females) participated in the study. Cluster analysis of syndromal aspects have shown two types of NSSI, Repetitive and Episodic, which were matched to latent features. NSSI functions distribution led to the emergence of two main profiles: Serious nonsuicidal self-injury and Moderate nonsuicidal self-injury. Some reflections on the use of functions as diagnostic criteria for NSSI are discussed.

Keywords: *Nonsuicidal self-injury, Profiles, Adolescence, Psychic function*

INTRODUCTION

In recent years we have seen an increase in nonsuicidal self-injury behaviours (NSSI), defined as deliberate and self-inflicted destruction of one's own body tissue without suicidal intent and for purposes not socially or culturally sanctioned (e.g. cutting, burning and scratching the skin or hitting; Nock, 2010).

It is well-known that nonsuicidal self-injury is particularly widespread amongst the adolescent and young adult populations, increases in early adolescence and declines in late adolescence, with an average age of onset of 14 years (Brown & Plener, 2017; Cerutti, Manca, Presaghi & Gratz, 2011; Cipriano, Cella & Cotrufo, 2017; Plener, Schumacher, Munz & Groschwitz, 2015). Furthermore, females are more likely to implement the indicated behaviours than males (Bresin & Schoenleber, 2015; Gargiulo & Margherita, 2014; Valencia-Agundo, Corbet Burcher, Ezpeleta & Kramer, 2018), with gender differences linked to aetiology, trajectories and contexts (Gargiulo & Margherita, 2019; Gargiulo, Tessitore, Le Grottaglie & Margherita, 2020; Whitlock & Rodham, 2013). NSSI is particularly widespread among school populations, thus 18% of teenagers who attend school report having severely self-harmed at least once in their lifetime (Lewis & Heath, 2015; Swannell, Martin, Page, Hasking & St John, 2014). Although studies have focused on the school context, there is a need to intercept and better comprehend self-injury behaviours at school (Berger, Hasking & Reupert, 2014; Gargiulo, 2020).

Within a scientific discussion (Plener & Fegert, 2015) regarding the nomenclature and classification of the behaviour, which aimed to distinguish it on the one hand from suicide attempts and on the other from generalized self-harming behaviours, the *Diagnostic and Statistical Manual of Mental Disorder 5* proposed the definition of Nonsuicidal self-injury as a specific psychiatric diagnosis and not only as a symptom or syndrome present in different personality disorders (APA, 2013). This classification allowed for better differential diagnosis, particularly in adolescence, by preventing early stigmatization through a diagnosis of suicide or borderline personality (Gargiulo et al., 2014). In this sense, part of the literature focused on implementing studies in NSSI in adolescence following the diagnostic criteria of DSM-5, such as the number of episodes in the last year, to establish whether it is occasional or Repetitive NSSI (Madjar, Zalsmanb, Mordechaia & Shovalb, 2017; Manca, Cerutti & Presaghi, 2005; Manca, Presaghi & Cerutti, 2014; Sarno, Madeddu & Gratz, 2010; Shaffer & Jacobson, 2009).

One of the research areas that has seen the most development in recent years in the field of NSSI in adolescents is a focus on the functions (Lewis & Santor, 2010; Nock & Prinstein, 2004), which have been theorized as intrapersonal and interpersonal (Klonsky, 2007). The term intrapersonal refers to the functions aimed at changing an individual's internal state (emotions, thoughts and physical sensations), whereas the term interpersonal refers to functions that aim to alter the external setting, for example, withdrawal of demands or increased social support (Turner et al., 2012). In the vast majority of research, participants reported intrapersonal functions, mainly affect regulation (e.g. coping with negative emotions) and self-punishment (e.g. expression of anger at self) (Gratz, 2007; Klonsky 2007; Klonsky & Glenn, 2009). Interpersonal or social functions were also reported, though less frequently than intrapersonal ones. Among these, interpersonal influence (e.g. communicating internal distress to others) was the most frequently reported (Klonsky, 2007; Nock & Prinstein, 2004), followed by revenge function, getting revenge on others (Klonsky, 2007). Nonetheless, it should be noted that more than one function can be adopted and functions can vary over time.

Emotion regulation (to regulate, control or express intense and pervasive emotions, such as anger, boredom and sadness, or generally painful moods such as depression, guilt and shame) is the function of NSSI most commonly referred to by those who engage in the behaviour, in particular by adolescents (Klonsky, 2007; Laye-Gindhu & Schonert-Reichl, 2005; Madge et al., 2008; Nock & Prinstein, 2005). Self-injurious behaviour is usually preceded by negative emotions and high arousal, and followed by feelings of calm and relief (Di Pierro, Sarno, Gallucci & Madeddu, 2014; Klonsky, 2009). Therefore, emotional dis-regulation (the inability to recognize, accept, control and be aware of one's emotions) was then conceptualized as a possible risk factor of nonsuicidal self-injury in adolescence (Adrian, Zeman, Erdley, Lisa & Sim, 2011). NSSI has been related to infrequent use of effective coping strategies, lack of emotional expression, and lack of emotional clarity (Dicé, Maiello, Dolce & Freda, 2017; Gratz & Roemer, 2004; Martino et al., 2019). In this sense, a part of the literature has shown that adolescents who self-harm have difficulty putting their sufferings into words and consider it a means of communication that allows them to share emotions of anger and anguish, and which allows their families and those round them to realize how much they are suffering

(Crouch & Wright, 2004; Fortune, Sinclair & Hawton, 2008; Moyer & Nelson, 2007).

In addition, research has investigated the role of negative bodily attitudes in the relationship between emotion dysregulation and nonsuicidal self-injurious behaviour (Muehlenkamp, Bagge, Tull & Gratz, 2013). In particular, negative body regard (e.g. how one perceives, cares for, and experiences one's own body) increases the propensity for an individual to harm their body when he/she is emotionally dys-regulated (Muehlenkamp, 2012). Thus, the negative affective evaluations of the body (e.g. body dissatisfaction, lack of emotional investment in the body) are considered important risk factors for NSSI among college students (Mulay, West, Wallner Samstag & Diamond, 2017). The self-injurious behaviour is a form of attack on the body, related to hatred for one's own body; this hate, as well as body dissatisfaction and disregard, allows the subject to see their own body as an object separated from the self, making it easier to harm it; this can explain pain tolerance during the self-injury act. The self-objectification also contributes to negative body regard, increasing participation in self-harmful behaviours (Orbach, 1996).

Although many studies have investigated the functions of NSSI, few have addressed the functions of NSSI as criteria for clinical assessment (Klonsky, Glenn, Styer, Olino & Washburn, 2015; Nock & Prinstein, 2004). In this regard, the new *Psychodynamic Diagnostic Manual (PDM-2)*, which, from a psychodynamic perspective, offers a diagnosis based on the dimensions of symptom patterns as well as mental functioning and personality, suggested that clinicians should base their assessment on the history of nonsuicidal self-injury and its current manifestations, and, above all, on its functions. More specifically, nonsuicidal self-injurious behaviour has been read as a common and nonspecific psychiatric symptom found in a variety of disorders and also in adolescents without a specific psychiatric diagnosis (Lingiardi & McWilliams, 2017). Thus, there is growing evidence to suggest that NSSI functions have different implications for treatment, prognosis, and suicide risk (Klonsky & Glenn, 2009; Nock & Prinstein, 2005).

Therefore, trying to integrate these important assessment perspectives, categorical and dimensional, we believe that the diagnostic process is possible thanks to the intersection of different ways of looking at the symptom (Rossi Monti & D'Agostino, 2018). In this sense, the aim of this work was to carry forward a vision that identifies profiles of nonsuicidal self-injury among adolescent population, taking into account both its manifest clinical features, such as frequency and variety of methods, and its latent dimensions, like psychic functions and bodily investment, and improving the diagnostic process with the richness and complexity of psychoanalytic constructs. In a psychodynamic framework, which is the conceptual model that we apply, profiling is conceptualised as an interesting vision in which the diagnosis may include not only the psychopathology, but also the uniqueness of the individual, his/her subjectivity and his/her resources. Therefore, our study proposed to offer a new approach for the assessment of NSSI, that of profiling.

AIMS

Although the literature has largely investigated the different types of NSSI (Repetitive and Episodic; Brunner et al., 2007; Manca et al., 2014), the correlation between emotional regulation and body investment in NSSI (Cerutti, Manca & Presaghi, 2010; Muehlenkamp et al., 2013), as well as the functions of NSSI (Klonsky et al., 2015), our study aimed to collect together all these features in order to investigate different levels of the behaviour. As is well known, NSSI is a complex behaviour, comprising different dimensions. Thus, the study started from the hypothesis that some factors (manifest and latent clinical characteristics, gender and age of onset) may be present in the development of different profiles of NSSI.

Therefore, the aim of the study was to identify profiles of nonsuicidal self-injury by matching the manifest syndromal features (e.g., frequency of NSSI, the urgency i.e. the time lapse between thought and act, perception of the pain during injury, variety of methods used to injure oneself) to NSSI functions. These functions include not only emotional regulation and bodily investment but also latent functional dimensions that may be conceptualized as psychodynamic drivers motivating or reinforcing NSSI. We choose to investigate the intra-psychic dimensions of emotion regulation and body investment because respectively the first is the most common motivation referred by those who self-injure, and the second belongs to the crucial area of definition of Self and bodily boundaries, an important area in a psychodynamic perspective.

In addition, the study addressed NSSI in adolescence, as adolescents are considered the most at risk group for the behaviour.

METHOD

Participants and procedure

The participants were recruited in public high schools in an urban area in the South of Italy and involved in the study as part of a wider research project on nonsuicidal self-injury and risk behaviours in adolescence. The questionnaires were administered to a total sample of 589 adolescents, who completed the questionnaires in their classrooms during school hours. They were asked to respond anonymously. A sub-sample of 108 adolescents (mean age $M = 14.6$, $SD = .9$; 34 males and 74 females) reporting at least one episode of nonsuicidal self-injury behaviour, was eligible for the present study. Most of the students attended Scientific high schools (49%), while the rest attended Social Sciences (33%), Industrial Technology Institute (11%), and Classics (6%). All participants were Italian. The meetings for data collection were followed by a group discussion with adolescents in their classrooms; furthermore, meetings with parents and teachers were organized in order to inform them about the research findings.

The study was carried out after agreements had been made with the schools and their ethical commissions had approved the methods and aims of the research. Participation was voluntary, informed consent was given, and the privacy policy of the educational institution was respected. This research was approved by the Ethical Committee of the University of Naples Federico II.

Measures

All participants were provided with the *Inventory of Statements about Self-injury* (*ISAS*; Klonsky & Glenn, 2009), the *Body Investment Scale* (*BIS*; Orbach & Mikulincer, 1998) and the *Difficulties in Emotion Regulation Strategies* (*DERS*; Gratz & Roemer, 2004).

The ISAS (Klonsky & Glenn, 2009; Italian translation by Maura Manca) is a self-report questionnaire developed in two parts that considers both syndromal and functional aspects of NSSI. In the first part, the frequency of 12 nonsuicidal self-injurious behaviours which are performed deliberately and without suicidal intent are assessed. Examples of nonsuicidal self-injurious behaviours: banging/self-hitting, biting, burning, carving, cutting, wound picking, pinching, rubbing skin against rough surfaces and severe scratching. Participants were asked to estimate the number of times they have performed each behaviour. Five additional questions assess descriptive and contextual factors, including the age of onset, the experience of pain during NSSI, whether it was performed alone or with other people around, the time between the urge to self-injure and the act, and whether the individual wants to stop self-injuring or not. The last four have a multiple-choice format. In the second part 13 functions of the behaviours under two groups (intra-psychic and interpersonal) are assessed through 39 items. Five intra-psychic functions are emotion-regulation, anti-dissociation, anti-suicide, self-punishment, and marking distress. Eight interpersonal functions are: interpersonal boundaries, interpersonal influence, revenge, sensation seeking, peer-bonding, toughness, autonomy, and self-care. Each function was assessed by three items, rated as 0 = not relevant, 1 = somewhat relevant, or 2 = very relevant to the individual's experience of NSSI. The reliability and validity study of ISAS were done by Klonsky and Glenn (2009) and internal consistency for intra-psychic and interpersonal functions was found to be .88 and .80 respectively.

The BIS (Cerutti et al., 2010; Orbach & Mikulincer, 1998) is a brief 24-item self-report measure of emotional investment in the body, with particular reference to distorted body perceptions and the tendency to protect and damage one's body. Each item is scored on a 5-point scale, ranging from 1 (I do not agree at all) to 5 (I strongly agree). Nine of the items are reverse-scored, and items are summed up within each scale to obtain a total subscale score. The BIS includes four subscales: the body image, which includes items about body image, feelings and attitudes; the body touch includes items investigating personal comfort in situations of physical contact with others; the body care consists of items that investigate care behaviours towards one's body; the body protection investigates the desire to protect one's body. An exploratory factor analytic study with Israeli youths provided support for a four-factor solution. Estimates of internal consistency reported for the scale in Israeli youths ranged from .75 to.92. The reliability study of BIS Italian version using Cronbach's alpha was .65 (Cerutti et al., 2010). Estimates of concurrent validity were also reported by Orbach and Mikulincer (1998) for the instrument development and validation of Israeli samples. The scale already proved to be predictive of both self-harming behaviours and suicidal tendencies in the first study that the authors carried out with adolescents and young

adults aged between 13 and 19. In this research, those with higher scores reported greater self-esteem as well as having experienced adequate maternal care, they were more likely to indicate an ability to enjoy the pleasures of the body and its sensual aspects.

The DERS (Gratz & Roemer, 2004) is a 36-item self-report measure that assesses individuals' typical levels of emotion dysregulation across six domains: non-acceptance of emotional responses; difficulties in pursuing goal-directed behaviours when experiencing negative emotions; difficulties in controlling impulsive behaviours when experiencing negative emotions; lack of emotional awareness; limited access to emotion regulation strategies; and lack of emotional clarity. Higher values indicate greater difficulties in emotion regulation. The DERS has demonstrated good reliability (Cronbach's α = .93) and adequate construct and predictive validity and is significantly associated with objective (i.e., behavioural, physiological, and neurological) measures of emotion regulation (Gratz & Roemer, 2004; Gratz, 2007). The Italian version of the DERS was found to have adequate internal consistency (α =.90; Sighinolfi et al., 2010).

Statistical analysis

Internal consistency of the scales was assessed using Cronbach's α.

Two Step Cluster algorithm developed in SPSS (Version 23), was performed to find homogeneous clusters of nonsuicidal self-injury with respect to manifest clinical features. This method was selected because it is capable of handling both continuous and categorical variables and group data so that subjects within groups are similar in terms of the considered variables. If the desired number of clusters is unknown, the Two Step Cluster algorithm identifies automatically the optimal number of clusters and the best partitions in clusters, minimizing the Bayesian Information Criterion (BIC). Otherwise, the number of clusters can also be fixed by the users if number of clusters known a priori or the computed solution is not satisfactory.

Cluster models are typically used to find groups (or clusters) of similar records based on the variables examined, where the similarity between members of the same group is high and the similarity between members of different groups is low. The results can be used to identify associations that would otherwise not be apparent.

The log-likelihood method was used for similarity measures, since both continuous and categorical variables were considered in the analysis.

The interpretation of profiles takes into account the distribution of each characteristic among clusters, looking at the categories of each variable that mainly characterized each profile and following an interpretive criterion to assign labels to them. The silhouette measure of cohesion and separation was used as a measure for the overall goodness-of-fit of the found cluster structure.

We used a data-driven approach to define clusters because we aimed to identify the clusters (obtained by optimizing a statistical criterion) that emerged from the spontaneous aggregation of features, to interpret, then, the data with the help of the psychodynamic literature. Thus, a data-driven approach combined with a knowledge-based approach was essentially used, a blending that is increasingly implemented in Psychological Research (Dolce, Marocco, Maldonato & Sperandeo, 2020). A very similar approach was used also in Freda, Savarese, Dolce & Picione (2019).

For quantitative variables, data were reported as mean (± standard deviation) or median [25th;75th percentile], as appropriate, and Student's t-test or Mann-Whitney U test were performed accordingly to test for statistically significant differences between the two clusters obtained from the cluster analysis. For qualitative variables, data were reported as number of participants (%), and χ^2 test or Fisher's exact test were performed, as appropriate, to test for statistically significant differences between the two obtained clusters.

All statistical analyses were performed by using R (R Core Team, 2018). The level of significance was set at α = .05.

RESULTS

Internal consistency of the scales was considered satisfactory for DERS and for intra-psychic and interpersonal factors of ISAS (Cronbach's α was equal to .77, .73 and .83, respectively), while for BIS Cronbach's α coefficient was equal to .6. However, as mentioned above, Cronbach's α was .65 (less than .7) also in the study where the BIS Italian version was validated (Cerutti et al., 2010).

From our analysis, two clusters of nonsuicidal self-injury among a nonclinical sample of adolescents emerged. The silhouette measure indicated a weak overall goodness-of-fit of the cluster structure, but the partition was still satisfactory

from an interpretive point of view and interesting associations were identified. We also explored the three-clusters solution, but the two clusters optimal solution was the most satisfactory from an interpretive point of view. The approach we used to interpreting the results is that of examining fields across clusters to determine how and how much (in terms of percentages) values are distributed among clusters.

The first cluster was defined Repetitive Nonsuicidal Self-Injury (R-NSSI) and the second one Episodic Nonsuicidal Self-Injury (E-NSSI); these findings were in line with the literature, which showed two main types of self-injurious behaviour (Brunner et al., 2007; Madjar et al., 2017; Manca et al., 2014; Sarno et al., 2010; Shaffer & Jacobson, 2009).

The R-NSSI cluster assembled adolescents who reported having self-injured from 5 to 20 times in their lives (71.4%), more than 20 times in their life (79.5%), more than 10 times in the last year (100%), those whose last episode of nonsuicidal self-injury dated back to a few hours before the interview (75%), and those who had never tried to quit hurting themselves (61.5%). This represented the most clinically serious cluster.

Meanwhile, the E-NSSI represented the cluster where the self-injurious behaviour was used as an occasional symptom. Here we found self-harmers who usually tended to scratch (81%) and hit themselves (81.58%), who had self-injured less than 5 times in their life (100%), and never (100%) or only once (100%) in the last year, those whose last episode of NSSI dated back to between 2 months and 1 year before the interview (73.8) or more than 1 year (100%), those who usually spent many hours thinking about hurting themselves before doing it (about 80%), and those who tried at least once to stop hurting themselves (65.3%).

Study sample

The characteristics of the sample are presented in Table 1. Overall, 68% of the sample was female and almost the same gender distribution was found in the clusters that emerged. The mean age in years was 14.6(±.9), and it was very similar in the two clusters. Mean age of onset of nonsuicidal self-injury was equal to 12.5(±2), with no significant variations between the two clusters. Finally, all participants were from high schools, and in particular the percentages were as follows: 49.1% from Scientific, 33.3% from Social Sciences, 11.1% from Industrial Technology and 6.5% from Classics. The distribution of the type of high school did not differ significantly between the two clusters.

Table 1 – Characteristics of participants

	Total N = 108	**R-NSSI N = 41**	**E-NSSI N = 67**	**p**
Sex				1
Male	34 (31.5)	13 (31.7)	21 (31.3)	
Female	74 (68.5)	28 (68.3)	46 (68.7)	
Age (years)	14.6 (±.9)	14.8 (±.8)	14.5 (±1)	.177
Age of onset of Self-harm	12.5 (±2)	12.3 (±2.3)	12.6 (±1.8)	.441
High school address				.104
Scientific	53 (49.1)	24 (58.5)	29 (43.3)	
Human Sciences	36 (33.3)	13 (31.7)	23 (34.3)	
Industrial Tec. Institute	12 (11.1)	1 (2.4)	11 (16.4)	
Classics	7 (6.5)	3 (7.3)	4 (6)	

Note. Data are reported as number of patients (%) or mean (± standard deviation), as appropriate. *p*-values are based on Student's *t*-test, χ^2 test or Fisher's exact test, as appropriate.

The differences in syndromal features between the two clusters

The differences between the two clusters in terms of each considered manifest syndromal feature are presented in Table 2. Significant differences concerning the number of episodes of NSSI in a lifetime emerged between the two clusters (variable "times in life", $p<.001$), notably that 75% of the subjects in the R-NSSI cluster nonsuicidal self-injured more than 20 times in their lifetime compared to 11.9% of the subjects with E-NSSI.

Another important difference regarded the number of episodes of NSSI in the last year ("times in the last year", $p<.001$); the category "more than 10 times" was present in 75% of the subjects belonging to the first cluster while it was completely absent in the second.

The two clusters also differed significantly regarding the "last episode" of NSSI ($p<.001$), as 43.9% of the subjects belonging to the R-NSSI cluster engaged in NSSI a "few hours" before the survey, compared to 9% of the subjects with E-NSSI.

Finally, the time interval between the idea of NSSI to the act itself was another difference between the two clusters ("time", $p = .003$), with 78% of the subjects with R-NSSI usually letting "less than 1 hour" pass from thought of self-injury to the act, compared to the 49% of subjects belonging to the E-NSSI cluster.

In conclusion, the difference between the two clusters was not statistically significant in terms of the variables: "behaviour", "methods", "pain during the act" and "loneliness during the act". However, from a descriptive point of view, limited to our sample, we can observe that both clusters tended to choose a single behaviour: cutting, which was the most common.

The distribution of functional features between the two clusters

Regarding the psychic functions, there were differences between the two clusters (see Table 3). The Repetitive nonsuicidal self-injury was characterized by high scores in affect regulation (3.71±1.66 *vs* 2.79±1.58, $p = .005$), self-punishment (3.27±2.15 *vs* 2.24±1.77, $p = .0079$), and anti-suicide (2.00±1.86 *vs* 1.25±1.71, $p = .0354$). Following Klonsky and Glenn (2009), these three functions are categorized as intra-psychic types. More specifically, the correlation between R-NSSI and anti-suicide function confirmed the findings of other studies (Manca et al., 2014; Nock, Joiner, Gordon, Lloyd-Richardson & Prinstein, 2006).

Episodic nonsuicidal self-injury, on the other hand, was characterized by high scores in interpersonal influence (.85±.99 *vs* 1.55±1.64, $p = .0156$), defined as interpersonal function (Klonsky & Glenn, 2009). From a descriptive point of view, a distinction between interpersonal and intra-psychic functions emerged. Thus, the episodic cluster tended to report high scores of interpersonal functions, such as sensation seeking, peer bonding, interpersonal influence, compared to those of the repetitive cluster. In this sense, our findings confirmed Klonsky and colleagues' two factors model of NSSI functions (2015).

In particular, by analysing the emotion regulation function, it was found that R-NSSI is characterized by more significant and higher scores in the subscale awareness of emotions compared to those of E-NSSI (see Table 4; 9.8±3.25 *vs* 8.18±3.13, $p = .011$). This factor concerns the degree of attention focused on one's emotional state, which, from our data, appears as a consistently less developed characteristic in the Repetitive nonsuicidal self-injury cluster.

From a descriptive point of view, our study showed that the scores of all the other dimensions of emotion regulation, like the non-acceptance, goals, strategies, impulse and clarity of the emotions, which represent the incapacity to regulate emotions, are higher in the R-NSSI cluster compared to the scores of E-NSSI.

The differences of bodily investment between the two clusters

The analysis of body investment reveals that the Episodic nonsuicidal self-injury cluster shows more significant and higher scores in the subscale of body protection compared to those of Repetitive NSSI (see Table 5; 18.1±4.78 *vs* 20.34±5, $p = .023$). Our study also showed that the scores for body image are equally distributed between the two clusters, whereas scores for body touch and body care are higher in the E-NSSI cluster compared to those in the R-NSSI.

DISCUSSION

From our study, two profiles emerged for nonsuicidal self-injury behaviours among a nonclinical sample of adolescents, namely: Serious NSSI and Moderate NSSI.

Table 2 – Manifest features related to clusters

	Total N = 108	**R-NSSI N = 41**	**E-NSSI N = 67**	**p**
Behaviour				.906
multiple	31 (28.7)	11 (26.8)	20 (29.9)	
single	77 (71.3)	30 (73.2)	47 (70.1)	
Method				.045
cutting	58 (53.7)	25 (61)	33 (49.3)	
bite	18 (16.7)	10 (24.4)	8 (11.9)	
scratching	21 (19.4)	4 (9.8)	17 (25.4)	
hitting	11 (10.2)	2 (4.9)	9 (13.4)	
Times in life				**<.001**
1	14 (13)	0 (0)	14 (20.9)	
2-5	41 (38)	0 (0)	41 (61.2)	
5-20	14 (13)	10 (24.4)	4 (6.0)	
>20	39 (36.1)	31 (75.6)	8 (11.9)	
Times in the last year				**<.001**
never	20 (18.5)	0 (0)	20 (29.9)	
1	16 (14.8)	0 (0)	16 (23.9)	
2-10	41 (38)	10 (24.4)	31 (46.3)	
>10	31 (28.7)	31 (75.6)	0 (0)	
Last episode				**<.001**
few hours	24 (22.2)	18 (43.9)	6 (9.0)	
1 month	20 (18.5)	12 (29.3)	8 (11.9)	
2-12 months	42 (38.9)	11 (26.8)	31 (46.3)	
>1 year	22 (20.4)	0 (0)	22 (32.8)	
Pain				.089
yes	44 (40.7)	15 (36.6)	29 (43.3)	
sometimes	45 (41.7)	22 (53.7)	23 (34.3)	
no	19 (17.6)	4 (9.8)	15 (22.4)	
Loneliness				.186
yes	74 (68.5)	25 (61.0)	49 (73.1)	
sometimes	22 (20.4)	12 (29.3)	10 (14.9)	
no	12 (11.1)	4 (9.8)	8 (11.9)	
Time				**.003**
<1 hour	65 (60.2)	32 (78.0)	33 (49.3)	
1-6 hours	13 (12)	0 (0)	13 (19.4)	
7-24 hours	11 (10.2)	3 (7.3)	8 (11.9)	
>1 day	19 (17.6)	6 (14.6)	13 (19.4)	
Stop				.074
yes	95 (88)	33 (80.5)	62 (92.5)	
no	13 (12)	8 (19.5)	5 (7.5)	

Note. Data are reported as number of patients (%) or mean (± standard deviation), as appropriate. *p*-values are based on Student's *t*-test, χ^2 test or Fisher's exact test, as appropriate.

Table 3 – Results of psychic functions related to clusters

	Total N = 108	R-NSSI N = 41	E-NSSI N = 67	p
Affect regulation	3.14 ± 1.67	3.71 ± 1.66	2.79 ± 1.58	**.0050**
Interpersonal boundaries	1.37 ± 1.53	1.37 ± 1.58	1.37 ± 1.51	.9809
Self-punishment	2.63 ± 1.97	3.27 ± 2.15	2.24 ± 1.77	**.0079**
Self-care	1.58 ± 1.25	1.78 ± 1.35	1.46 ± 1.18	.2026
Anti-dissociation	1.49 ± 1.25	1.71 ± 1.25	1.36 ± 1.24	.1597
Anti-suicide	1.54 ± 1.80	2.00 ± 1.86	1.25 ± 1.71	**.0354**
Sensation-seeking	.63 ± 1.12	.54 ± 1.03	.69 ± 1.17	.5003
Peer-bonding	.94 ± 1.47	.66 ± 1.39	1.10 ± 1.51	.1277
Interpersonal influence	1.29 ± 1.47	.85 ± .99	1.55 ± 1.64	**.0156**
Toughness	1.70 ± 1.64	1.59 ± 1.63	1.78 ± 1.66	.5604
Marking distress	1.81 ± 1.55	2.15 ± 1.74	1.60 ± 1.39	.0736
Revenge	.75 ± 1.14	.61 ± 1.00	.84 ± 1.23	.3216
Autonomy	1.40 ± 1.51	1.63 ± 1.56	1.25 ± 1.47	.2053

Note. Data are reported as mean (± standard deviation) or median [25th; 75th percentile] as appropriate. *p*-values are based on Student's *t*-test or Mann-Whitney test, as appropriate.

Table 4 – Results of emotion regulation relating to clusters

	Total N = 108	**R-NSSI N = 41**	**E-NSSI N = 67**	**p**
DERS-Non-Acceptance	15.64(±7.33)	16.76(±8.04)	14.96(±6.83)	.217
DERS-Goals	16.32(±5.32)	16.93(±5.31)	15.96(±5.34)	.360
DERS-Strategies	25.04(±6.45)	25.98(±7.59)	24.46(±5.62)	.238
DERS-Impulse	17.08(±6.49)	17.83(±6.14)	16.63(±6.70)	.352
DERS-Clarity	17.02(±4.93)	17.54(±5.32)	16.70(±4.68)	.395
DERS-Aware	8.80(±3.26)	9.80(±3.25)	8.18(±3.13)	**.011**
DERS-Tot	99.9(±23.69)	104.83(±25.9)	96.88(±21.9)	.091

Note. Data are reported as mean (± standard deviation). *p*-values are based on Student's *t*-test.

Table 5 – Results of body investment relating to clusters

	Total N = 108	**R-NSSI N = 41**	**E-NSSI N = 67**	**p**
BIS-Image	15.83(±6.86)	15.95(±7.18)	15.76(±6.72)	.890
BIS-Touch	19.55(±4.68)	18.73(±4.70)	20.04(±4.64)	.158
BIS-Care	20.19(±4.25)	19.32(±4.99)	20.72(±3.67)	.097
BIS-Protection	19.49(±5.02)	18.10(±4.78)	20.34(±5.00)	**.023**
BIS-TOT	75.06(±14.2)	72.10(±14.82)	76.87(±13.6)	.090

Note. Data are reported as mean (± standard deviation). *p*-values are based on Student's *t*-test.

The Serious nonsuicidal self-injury profile was characterized by repetitive and chronic behaviours, intra-psychic functions and low body investment, representing the most clinically compromised profile. In particular, the dimensions of compulsiveness and impulsiveness of the behaviour, which characterized the Repetitive NSSI cluster, were clinical indicators of a very deep and pervasive anguish in those who self-injure. In addition, these features were associated with intra-psychic functions, such as the regulation of emotions and tensions, the punishment of the self through the body, and the use of nonsuicidal self-injury as a defence against suicidal attempts. The correlation we found between intra-psychic functions and clinical severity is in line with the literature (Klonsky & Glenn, 2009; Nock & Prinstein, 2005), suggesting that endorsement of intrapersonal functions may be indicative of NSSI that is more persistent and more likely to progress to medically severe forms of self-injury, including suicide attempts.

Intra-psychic functions are related to the need to defend and sustain the integrity of the Self. Thus, in a psychodynamic framework, nonsuicidal self-injury is considered an extreme way of preserving the self-cohesion and of protecting the boundaries of self against the loss of identity (Simpson & Porter, 1981): the scars may create a continuity of existence, connecting episodes of dissociation or preserving past events or emotions that could not be integrated into the sense of identity (Miller & Bashkin, 1974). The self-injurious behaviour as a form of skin containment (Turp, 2007) makes it possible to maintain a sense of identity in the face of overwhelming internal emotion. In particular, in adolescence, when it is difficult to symbolize and mentalize the affects (Haza & Keller, 2005; Rossouw & Fonagy, 2012), and when the instinct can physiologically exceed the capacity of representation, the impulsive behaviours are used to express, through the body, emotions that cannot be put into words yet (Blos, 1967).

In these scenarios, the rejected and injured body becomes a theatre of conflict. Adolescents who endorsed Repetitive NSSI were more likely to have a negative body image, to exhibit a lower tendency to protect it, in line with the main studies (Brunner et al., 2007; Cerutti, Manca, Presaghi & Gratz, 2012; Muehlenkamp, Swanson & Brausch, 2005), and to experience difficulty being with others. For all these reasons, the Serious NSSI profile is characterized by intra-psychic management of the malaise, using the nonsuicidal self-injurious behaviour as a psychopathological compromise to manage conflicts on an individual level.

The second profile, the Moderate nonsuicidal self-injury, was characterized by episodic behaviours, interpersonal functions and high body investment. It represented the profile where the nonsuicidal self-injury was used as an occasional symptom. The characteristics of this group showed a pathologically less structured clinical profile. Regarding the dimension of body investment, people with this profile tended to protect and take care of themselves, and to be more open to other people. Those who belong to this profile reported functions and motivations that have to do with the area of relationships, for example the interpersonal influence: in this sense, the symptom was probably used to communicate with others, to share the behaviour with peers and make it a group ritual, aimed at giving it new meanings. This explains why this profile is oriented towards relationships, whereby the symptom is already a tool to search for the other, for help, even if presented in a still pre-symbolic form. NSSI can also pinpoint to the secondary gains of attention and control over others. Thus, as shown in our previous studies (Margherita & Gargiulo, 2018), the area of relationships in those who self-harm is denoted by ambivalence and conflict; the other is thus painfully present through its very absence, and is continually called on, and, at the same time, rejected. Therefore, from a psychodynamic perspective of object relations (Briggs, Lemma & Crouch, 2008; Lemma, 2010), self-injurious behaviour has been read as an unconscious attempt at separation (e.g. violently cutting away the other, who seems to be living within their own body), a way to distinguish between the self and others, to create boundaries and protect against feelings of being engulfed or fear of loss of identity (Suyemoto, 1998).

In conclusion, our findings are in line with the literature concerning the emerging of two main and different types of NSSI (Brunner et al., 2007; Madjar et al., 2017; Manca et al., 2014; Sarno et al., 2010), as well as with results confirmed by Klonsky and colleagues' two factors model of NSSI functions, intrapersonal and social (2015).

No significant gender differences were found between the two NSSI profiles, confirming current studies about the gender variable between Repetitive and Episodic nonsuicidal self-injury (Brunner et al., 2007; Manca et al., 2014). However, since previous studies evidenced gender differences in terms of methods and functions (Gargiulo & Margherita, 2014), we assumed that our small sample size prevented gender differences from emerging; in our opinion this could assume a clinical relevance in the assessment of NSSI among

adolescents and we hope it will be examined further in future studies.

Finally, no difference was observed for the age of onset of the first episode of NSSI. This result is in line with other studies (Cerutti et al., 2011) and adds evidence that nonsuicidal self-injury tends to emerge in the adolescent community population at the same age, independently of whether it is Repetitive or Episodic.

Limitations

This study is not free from limitations. We are aware that the sample size, limited to a geographic area of Italy, constitutes a limitation for the study; therefore, in our future research, we will increase the sample. In particular, we will balance it for the gender variable in order to test this aspect when profiling self-harm. Another limitation is the lack of certified clinical data at the baseline, due to the impossibility of submitting a clinical test at school; however, in our future research, we will consider also a clinical sample, and we will compare the clinical to the nonclinical one.

CONCLUSION

The aim of the study was to identify profiles for nonsuicidal self-injury behaviours among a nonclinical sample of adolescents. Two main psychodynamic profiles emerged as follows: Serious nonsuicidal self-injury, which represents the more clinically compromised profile, seemed to be more oriented to an intra-psychic level of management of malaise, while the Moderate profile is projected on to the interpersonal one, and more open to the possibility of sharing the pain with others.

Findings from the present study have some clinical implications. First of all, the results suggest that for a large percentage of adolescents, NSSI may represent an episodic behaviour that is not always linked to a clinically compromised profile. In this sense, it is important to have a diagnostic process that does not stigmatize young people (Gargiulo et al., 2014). These data highlight the importance of longitudinal studies in adolescence in order to monitor the occurrence of self-injurious behaviours over time, as well as understanding whether occasional occurrences of NSSI are precursors of Repetitive NSSI, and under which conditions a remission or transition into Repetitive NSSI might occur.

Furthermore, if we identify the specific psychological aspects of each profile, then clinical practices can be developed to address the specific needs and psychological functioning of young self-harmers. Psychic functions could be used by clinicians during the diagnostic process to compile more detailed and sensitive clinical assessments of nonsuicidal self-injury. In this way, it might be possible to understand whether Moderate NSSI may constitute an early indicator of severe personality disturbance. Finally, understanding the functions of NSSI can be critical for treating individuals engaging in NSSI.

Understanding the NSSI experience in the young population is a first step towards developing patient-tailored programs and to supporting preventive interventions at school. In the future, therefore, we will aim to profile self-harmers, maybe integrating quantitative with qualitative research, and thereby integrating nomothetic understanding and idiographic knowledge of clinical presentations.

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