

# Death Anxiety and Pain Catastrophizing Among Male Inmates With Nonsuicidal Self-Injury Behavior: A Comparative Study

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## Abstract

Most of the studies concerning nonsuicidal self-injury behaviors of persons deprived of liberty were on female participants. This cross-sectional comparative study compared the levels of death anxiety, pain catastrophizing, dissociative experiences, and state-trait anger among male inmates with nonsuicidal self-injury behaviors and noninjuring controls. The results indicated high levels of death anxiety, dissociation, and pain catastrophizing in both groups of participants and the absence of significant differences between the groups. The implications of the results suggest the need of taking into consideration these variables in the behavior management plans used with inmates who engage in self-injurious behavior.

## Keywords

anxiety, catastrophizing, pain, males, inmates

## Introduction

Deliberated self-mutilation behaviors of the incarcerated population have gained the interest of researchers, studies suggesting that nearly 50% of people in prison self-mutilate (Holley & Arboleda-Flórez, 1988). Pathological self-mutilation implies the absence of suicidal intent, including compulsive behaviors, which are moderately harmful such as burning, inserting objects, self-cutting, head-banging, and non-lethal overdoses (Lester, 1972). Behaviors including major self-mutilation, such as self-castration or eye removal, do not belong to this category, being generally associated with psychosis (Favazza & Rosenthal, 1990; Suyemoto, 1998). Recently, the term *self-mutilation* used in the older literature changed with the synonymous concept “nonsuicidal self-injury” (NSSI; Hooley & St. Germain, 2013; Nock, 2010), since it was added to the *DSM-5* (American Psychiatric Association, 2013) as its own disorder. Criteria for NSSI include 5 or more days of intentional self-inflicted harm over the course of the last year, and the individual knows that the repeated engagement in that behavior is not likely to result in death, being motivated by seeking relief from a negative feeling, resolving an interpersonal difficulty, or inducing a positive feeling (American Psychiatric Association, 2013).

The current study explored the relationship between death anxiety, pain catastrophizing, dissociative experiences, and

state-trait anger among male inmates with NSSI behaviors compared with noninjuring controls.

Many previous studies have focused on the clinical characteristics of inmates who engage in NSSI behaviors, and they have identified that male inmates showed clinical characteristics similar to those of female inmates. Matsumoto et al. (2005) examined whether dissociation and bulimia were present among self-cutter male inmates, as has been reported in the case of women (Lacey & Evans, 1986). The results demonstrated that dissociation and bulimia in men were associated with self-cutting as in women, but less prominent. Taking into consideration that NSSI behavior was linked with sexual molestation (King, Coxell, & Mezey, 2002), the explanation of the lower level of dissociation in male self-cutters compared with female self-cutters lies in the fact that fewer boys are victims of sexual abuse (Matsumoto et al., 2005). Male self-cutters started smoking and drinking earlier, they consumed psychoactive substances frequently, they were

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the victims of physical abuse, and they reported suicidal attempts more often in comparison with prisoners who did not indulge in self-injury (Matsumoto et al., 2005).

Studies concerning perception of pain in people who manifested NSSI behaviors (Hooley, Ho, Slater, & Lockshin, 2010; St. Germain & Hooley, 2013) demonstrated that individuals who engaged in NSSI behaviors had a higher threshold of pain perception compared with the control group. St. Germain and Hooley (2013) investigated the period of enduring the pain and the threshold of pain perception depending on the presence or absence of NSSI behavior. The control group consisted of individuals who were not engaged in a self-injury behavior and who did not present clinical disorders specific on Axis I. The group of those who self-injured without the intention to die was formed, especially of people who were self-cutting, and the third group consisted of people who self-injured indirectly (substance abuse, eating disorders, repeated involvement in abusive relationships). The results demonstrated that individuals who engaged in NSSI behaviors endured the pain for a longer period of time compared with the control group. It is important to know that people who engage in NSSI in an indirect way endured the painful stimuli in a similar manner to those who self-injured with no intention of suicide and they had a threshold of pain perception significantly higher than those of the control group.

Pain catastrophizing was defined as “an exaggerated negative mental set brought to bear during actual or anticipated painful experience” (Sullivan et al., 2001, p. 53). It was conceptualized in a multidimensional manner, containing elements of rumination (“I can’t seem to keep it out of my mind”), helplessness (“I feel I can’t stand it anymore”), and magnification (“I keep thinking of other painful events”; Sullivan, Bishop, & Pivik, 1995; Sullivan et al., 2001). Studies that investigated the relationship between catastrophizing and pain indicated that catastrophizing was a predictor for pain ratings (Adams, Ellis, Stanish, & Sullivan, 2007; Sullivan et al., 1995; Sullivan, Martel, Tripp, Savard, & Crombez, 2006). Intense catastrophizing during painful stimulation contributes to emotional distress and more intense pain (Sullivan et al., 1995). According to test–retest analysis, the catastrophizing tendency is relatively stable (Sullivan et al., 2001).

Dissociation has been defined as a failure to integrate information and experiences in the normal way, and it can disrupt every area of psychological functioning (American Psychiatric Association, 2013). Dissociative symptoms are manifested as experiences of amnesia, depersonalization/derealization, and absorption. Maaranen et al. (2005) identified that men scored higher than women in the amnesia subscale, and women scored higher than men in the absorption and imaginative involvement subscales, in the general population. The prevalence of pathological

dissociation was 3.4% in the general population (Maaranen et al., 2005), but it is a key feature in dissociative disorders, posttraumatic stress disorder, and personality disorders (American Psychiatric Association, 2013). Patients with dissociative disorders who self-injure frequently do not feel any pain (Bliss, 1986), and the effect of self-injurious behavior is to help them feel alive, connected to the world, or real (Saxe, Chawla, & van der Kolk, 2002; van der Kolk et al., 1996) for the moment. Coons and Milstein (1990) identified that these patients frequently report amnesia for the behavior.

Anger is a basic human emotion that ranges from irritation to rage and is differentiated from aggression, which involves physical or verbal acts of violence elicited by an angry emotion (Taylor, Larson, & Norman, 2013). Experimental studies suggested that pain and anger influence each other, acute physical pain triggers increased anger and anger-related cognitions (Berkowitz, 1990), and anger influenced pain responses (Bruehl, Burns, Chung, & Chont, 2011). It must be stressed that studies identified experiences of shame and guilt, anger, depression, and anxiety as affective predictors of dissociative tendencies in adulthood (Irwin, 1995; Irwin & Melbin-Helberg, 1997).

Our review of the literature reported no data directly addressing the association of pain catastrophizing and death anxiety with NSSI behaviors in male inmates, as the authors intend to examine in this study. Deaton, Aday, and Wahidin (2009) investigated the association between health variables and the death anxiety measured with the Templer Death Anxiety Scale among incarcerated women aged 50 years and older. The results indicated a substantial degree of death anxiety, the concerns regarding the death in prison being influenced by the perceived lack of adequate health care and the indifference of prison staff.

The objective of this research is to investigate the differences concerning death anxiety, state-trait anger, pain catastrophizing, and dissociative experiences depending on the presence of NSSI behavior. Considerable research supports the relations among pain catastrophizing, anxiety, and fear (Drahovzal, Stewart, & Sullivan, 2006; Leeuw et al., 2007), but no one investigated the relation of pain catastrophizing with death anxiety. We assumed that there are significant differences between male inmates with NSSI behaviors and noninjuring controls. Inmates with NSSI behaviors will have a lower intensity of death anxiety and pain catastrophizing, but the dissociative experiences and anger states will be higher than in noninjuring controls.

## Method

### Participants

Participants were 30 male inmates from the *Maximum Security Prison of Iași* who expressed interest in the study

and met the eligibility criteria. Fifteen male inmates were selected in the NSSI group and 15 were selected in the control group by a prison psychologist. The mean age in the NSSI group was 31 years (range = 21-51 years), and the mean age of the control group was 32 years (range = 22-52 years), which was not statistically different ( $t$  test = .39,  $p > .05$ ). The NSSI behaviors considered were ingestion of objects (queues spoon, blades, wires), incisions in the forearms and abdomen, stitching wire lips, voluntary hitting various parts of the body (especially the hands, feet, head) with diverse hard objects, and placing sharp objects in the front of the head (nail in the forehead). Inmates who did not manifest such behavior during incarceration were included in the control group. The nosologic diagnosis and psychiatric history of the subjects were not taken into consideration, due to the limited access of personal files. The educational level was minimum 8th class level.

## Measures

Age was included among the sociodemographic characteristics. The past medical history, medical conditions, and comorbidity were not measured due to the limited access of personal files.

**Death Anxiety Scale.** The Death Anxiety Scale (DAS; Templer & Lonetto, 1983) is an instrument with 15 items that measure respondents' anxiety about death. Individuals respond to these items with a true or false response. Scoring is according to the correct answers (true or false) previously established. The minimum score on this scale reflects that the individual is not afraid of death. The internal consistency of the instrument in the current study, after removing Items 2, 9, and 15 is,  $\alpha = .67$ .

**Dissociative Experiences Scale–II.** The Dissociative Experiences Scale–II (DES-II; Carlson & Putnam, 1993) consists of 28 items constructed to measure dissociative experiences, lack of integration of "normal" thoughts, experiences, and feelings into consciousness and current memory. The answer is by encircling a percentage that varies from 0% to 100% and ranging from 0 to 10. The total score is greater as the individual lives through more dissociative experiences. There are three main factors of dissociation: *amnesia* factor, which measures memory loss; *depersonalization/derealization* factor, which measures the sense of unreality of the self; and *absorption* factor, which includes being so preoccupied by something that the person is distracted from what is going on around him. The internal consistency of the scale and the subscales in the current study was adequate:  $\alpha = .96$  (total DES-II),  $\alpha = .88$  (amnesia),  $\alpha = .90$  (depersonalization/derealization),  $\alpha = .84$  (absorption).

**State-Trait Anger Scale–Short Form.** The State-Trait Anger Scale–Short Form was developed by Spielberger, Jacobs, Russell, and Crane (1983). This scale consists of 30 items that measures anger as state and trait, with the short form including 20 items. Responses range on a scale from 1 to 4. In the current study, the internal consistency for state anger (SAS) was  $\alpha = .93$ , and for trait anger (TAS) it was  $\alpha = .88$ .

**Pain Catastrophizing Scale.** The Pain Catastrophizing Scale (PCS; Sullivan et al., 1995) measures the degree to which subjects had some thoughts or feelings when they had experienced pain. The scale consists of 13 items, which are divided into three subscales: rumination, magnification, and helplessness. The answers are ranged on 5-point scales with the end points from 0 (*not at all*) to 4 (*all the time*). High scores indicate a stronger pain catastrophizing. The authors reported good internal consistency of the PCS:  $\alpha = .87$  (total PCS),  $\alpha = .87$  (rumination),  $\alpha = .66$  (magnification), and  $\alpha = .78$  (helplessness; Sullivan et al., 1995). In the current study, Cronbach alpha were as follows: total PCS  $\alpha = .87$ , rumination  $\alpha = .86$ , magnification  $\alpha = .60$ , helplessness  $\alpha = .66$ .

## Procedure

The Ethics Committee of the Faculty of Psychology and Educational Sciences and the National Administration of Penitentiaries from Romania approved the current study. The eligible inmates were provided with an information sheet, they were explained the objectives of the study, and after they had the opportunity to ask questions about the research, they signed the informed consent. The inmates were instructed that they can choose not to participate in this research at any stage. No financial rewards were offered for the participation, but the time out of cell for the duration of the research could be perceived as a potential benefit. Participants completed the scales presented previously in groups up to 10 people. No inmate withdrew from the NSSI group or the control group.

## Statistical Analysis

Preliminary analysis of the data indicated the need to use nonparametric statistical analysis methods due to the fact that scores were not normally distributed. The Mann–Whitney  $U$  test was applied to compare the differences between the self-mutilation group and the comparison group concerning the level of death anxiety, pain catastrophizing, anger, and dissociative experiences. Spearman's correlations were calculated for each group to examine the association between these variables. An alpha level of .05 was used for all statistical tests.

**Table 1.** Bivariate Correlations of the Variables in the Nonsuicidal Self-Injury (NSSI) Group.

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. SAS	1	.28	.53*	.51	.52*	.61*	.46	.39	.43	.41	.22	-.42
2. TAS		1	.65**	.60*	.54*	.60*	.29	.18	.28	.60*	.32	-.01
3. DES-II			1	.94**	.87**	.92**	.22	.01	.26	.55*	.26	-.30
4. Amnesia				1	.82*	.86**	.18	-.04	.24	.50	.33	-.21
5. Depersonalization					1	.82**	.40	.19	.46	.51*	.30	-.31
6. Absorption						1	.52*	.33	.47	.76**	.14	-.31
7. PCS							1	.95**	.91**	.71**	.10	-.26
8. Rumination								1	.82**	.60*	.02	-.19
9. Magnification									1	.58*	.21	-.16
10. Helplessness										1	.05	-.24
11. DAS											1	-.19
12. Age												1

Note. SAS = State Anger Scale; TAS = Trait Anger Scale; DES-II = Dissociative Experiences Scale-II; PCS = Pain Catastrophizing Scale; DAS = Death Anxiety Scale.

\* $p < .05$ . \*\* $p < .01$ .

## Results

There was no significant difference ( $p > .05$ ) in the intensity of death anxiety between the two groups, but the scores are higher ( $M = 6.13$ ,  $SD = 1.99$ ) in the NSSI group than in the control group ( $M = 5.13$ ,  $SD = 3.31$ ).

The mean score on the DES-II in the NSSI and control groups were 79.67 and 63.93, respectively, without significant differences between the groups ( $p > .05$ ). According to Carlson and Putnam (1993), scores of 10 or less are considered to be in the low dissociation range, scores between 10 and 29.9 are considered to be in the middle range, and scores of 30 or above are considered to be in the high range. Eleven participants in the NSSI group (73%) and 13 participants in the control group (86%) had scores greater than 30, which was used as a common cutoff score for major dissociative disorder or posttraumatic stress disorder.

A total PCS score of 30 is considered the cutoff score for clinically relevant levels of catastrophizing. In the NSSI group, 7 participants (46%) had obtained a total score greater than 30; and in control group, 2 participants (13%) had obtained the same score. However, the results of the nonparametric Mann-Whitney  $U$  test indicated there was no significant difference between the NSSI group and the comparison group regarding pain catastrophizing ( $z = -0.27$ ,  $p > .05$ ), death anxiety ( $z = -1.23$ ,  $p > .05$ ), anger level as state and trait ( $p > .05$ ), and dissociative experiences ( $z = 0.45$ ,  $p > .05$ ). Spearman's correlations were calculated post hoc to verify the association between the variables of the study for both groups of participants.

As reported in Table 1, in the NSSI group, the state anger score was positively associated with the total DES scores ( $r = .53$ ,  $p < .05$ ), absorption of DES subscales ( $r = .61$ ,

$p < .05$ ), and depersonalization ( $r = .52$ ,  $p < .05$ ), but not with amnesia ( $p > .05$ ). The helplessness subscale score was positively associated with trait anger scores ( $r = .60$ ,  $p < .05$ ), DES-II total ( $r = .55$ ,  $p < .05$ ), depersonalization ( $r = .51$ ,  $p < .05$ ), and absorption ( $r = .76$ ,  $p < .05$ ).

The scores of state anger regarding the inmates in the control group (Table 2) were positively associated with DES total scores ( $r = .64$ ,  $p < .01$ ), the amnesia subscale ( $r = .70$ ,  $p < .01$ ), and depersonalization ( $r = .67$ ,  $p < .01$ ), but not with absorption ( $p > .05$ ). Magnification in the control group was positively associated with DAS ( $r = .63$ ,  $p < .05$ ), which means that the exaggeration was higher as the death anxiety increased. In the comparison group there was a positive relation between amnesia and PCS ( $r = .62$ ,  $p < .05$ ), and participants' age was significantly associated with death anxiety ( $r = .52$ ,  $p < .05$ ), which suggested that an older age was associated with a higher intensity of death anxiety.

## Discussion

The results indicated that the level of death anxiety does not differ depending on the presence of NSSI behavior. However, the intensity of the death anxiety ( $M = 6.13$  in the NSSI group and  $M = 5.13$  in the control group) was comparable with the one identified by Deaton et al. (2009), where the mean was 6.40 in incarcerated women aged 50 years and older. The positive relation regarding the inmates of the comparison group between age and death anxiety suggested that older age was associated with a greater death anxiety, confirming the results of Fortner and Neimeyer (1999) that elderly people reported higher levels of death anxiety as physical problems emerge and health declines. Male inmates in the NSSI group may be more likely to report an increased death

**Table 2.** Bivariate Correlations of the Variables in the Control Group.

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. SAS	1	.15	.64**	.70**	.67**	.45	.37	.08	.29	.25	-.03	-.24
2. TAS		1	.78**	.35	.38	.68**	.26	.29	.06	.33	.11	-.38
3. DES-II			1	.76**	.77**	.82**	.40	.25	.16	.30	.07	-.43
4. Amnesia				1	.85**	.49	.62*	.41	.38	.39	.01	-.23
5. Depersonalization					1	.48	.45	.19	.32	.25	.11	-.14
6. Absorption						1	.23	.20	.11	.13	.18	-.54*
7. PCS							1	.90**	.83**	.84**	.26	.04
8. Rumination								1	.74**	.73**	.33	.15
9. Magnification									1	.73**	.63*	.29
10. Helplessness										1	.24	-.10
11. DAS											1	.52*
12. Age												1

Note. SAS = State Anger Scale; TAS = Trait Anger Scale; DES-II = Dissociative Experiences Scale-II; PCS = Pain Catastrophizing Scale; DAS = Death Anxiety Scale.

\* $p < .05$ . \*\* $p < .01$ .

anxiety in comparison with noninjuring controls, although the difference was not significant. This result underlines again the difference between NSSI behavior and suicidal behavior in terms of intent to die. The interpersonal psychological theory posits that death anxiety is the key to suicidal barrier (Stellrecht et al., 2006), but people who engage in NSSI do not intend to die and the high level of death anxiety does not prevent the manifestation of self-injuring behavior. Suyemoto (1998) noted several explanatory models of self-injuring behavior, one of them being the adjustment of emotions model, which argues that self-injuring represents the need of expressing and controlling anger, anxiety, or pain that cannot be expressed verbally or through other ways. This explanation could be supported by data from inmates in four penitentiaries from Romania. Popa (2009) stated that among the reasons of self-injuring behavior is the desire to make oneself heard (18%), while 13% of them said they adopted this behavior because they had lost contact with their family. The role of family support is emphasized from the fact that 14% of those who engaged in NSSI behaviors rarely received letters from home, while those who did not manifest this harmful behavior received letters from home more often. An important aspect for an offender's mental health is to maintain contact with family members and friends through visits, telephones, or letters, which can reduce the stress of prison life (Woodall, 2010). A recent study identified the meaning of self-injury from the viewpoint of inmates using a qualitative methodology and an interpretative phenomenological analysis (Hayden, 2015). The results indicated that perceived stress and control, negative emotional states, mental illness, and physiological responses are important, and self-injury becoming a fixed coping mechanism over time.

The limited literature on NSSI in prison (Crighton & Towl, 2000) explains that hurting oneself is a strategy of coping with the demands of imprisonment (Kilty, 2006) because the inmate's requests usually are not accomplished (Mezey, Dubler, Mitty, & Brody, 2002). A sociological analyses from a qualitative research confirmed that self-injury might be an embodied method of managing emotions (Chandler, 2012).

In addition, the purpose of NSSI behavior in penitentiaries can be manipulative and conditional to obtain certain benefits. The intention of the prisoners is not to commit suicide; the majority of them have the knowledge of how to cause wounds so that there will no serious consequences on health. Another explanation could be that the prisoners who engage in NSSI behaviors intend to communicate to the other inmates that they are resilient to pain in order to avoid physical confrontations (Gambetta, 2009). The feeling of security seems to be severely compromised in prison since some male inmates prefer the use of special housing units as a form of protection perhaps from prison guards and other inmates (Valera & Kates-Benman, 2016).

Pain catastrophizing is conceptualized, according to the common coping model, as being part of an interpersonal or common coping style, having a social communicative function (Sullivan et al., 2001). The magnification subscale's score ("I worry that something serious may happen") of the PCS was positively associated with death anxiety among male inmates without NSSI behavior. In the group of prisoners who engaged in NSSI, helplessness subscale scores were positively associated with trait anger scores, DES-II total, and pain catastrophizing. In other words, prisoners who engaged in NSSI exhibit anger as a constant trait of their personality; they have a

higher level of dissociation and catastrophize pain in an intense manner.

The results of this research indicate high levels of dissociative experiences in both groups (NSSI and control groups), although the differences were not significant. The explanation of these results can be multiple. Snow, Beckman, and Brack (1996) suggested that imprisonment may exacerbate or even induce dissociative symptoms and that the dissociative episodes are more common among prisoners compared with the general population. Also, when investigating the phenomenon of dissociation together with NSSI behavior, it should be taken into account that inmates suffer from a mental disorder because most NSSI people meet the criteria for one or more psychiatric disorders (Hawton & Williams, 2001; Rivlin, Hawton, Marzano, & Fazel, 2010). Even though the DES total score of 30 is a cutoff commonly used to screen for major dissociative disorder, the scale is not a diagnostic screening tool for dissociative disorders, a diagnostic screening requiring a complete psychiatric assessment (Calamari & Pini, 2003). Dissociation is identified as one of the factors that contributes to NSSI (Borrill, Snow, Medlicott, Teers, & Paton, 2005; Dear, Thomson, Hall, & Howells, 2001; Roe-Sepowitz, 2007; Snow, 2002), and the results of this research emphasize that it is not the only factor. It was confirmed that the positive correlation between DES total score and state-trait anger and that depersonalization was positively correlated with state-trait anger identified in other studies concerning late adolescent females (Calamari & Pini, 2003).

### Limitations and Future Directions

This comparative study has several limitations. The small number of participants is a limitation that affects the generalization of the results. There may be a bias in the selection of the participants. The behavior of NSSI was not recorded unless it occurred during the imprisonment, but some of those who were selected in the control group (without NSSI behaviors in prison) were likely to manifest these behaviors in the period when they were not in detention. The application of the instruments in groups, not individually, is another limitation that may have affected the results. The consideration of psychiatric diagnosis and other variables describing sociodemographic characteristics would have guaranteed the necessary equivalence of participants to compare the two groups of participants.

The current study used self-report measures as the primary assessment methodology, which does not protect against reporting errors. An important aspect is that the application of PCS did not refer to pain during the NSSI but to the degree of pain catastrophizing in general. From

this point of view, chronic pain should be differentiated from acute pain. The distribution of scores of PCS was realized in clinic samples of chronic pain patients, NSSI including acute pain. It is possible that some prisoners suffered from various chronic pain forms and they had thought about that instead of the pain during NSSI. In future research, it is recommended to consider all these limitations and to include a female sample to make comparisons with male subjects, given the fact that incarcerated women mutilate themselves more often than men. Future research could address the issue of catastrophizing pain as a communicative dimension regarding inmates with NSSI behaviors.

### Conclusions

This cross-sectional study examined the differences between male inmates with NSSI behaviors and inmates without these behaviors regarding death anxiety, pain catastrophizing, state-trait anger, and dissociation. The participants selected in the NSSI group were male inmates who manifested extreme behaviors like swallowing foreign objects or placing sharp objects in the front of the head, but there was no difference regarding the analyzed variables comparing with the control group. A higher level of dissociation tends to be associated with an increased feeling of helplessness ("There is nothing I can do to reduce the intensity of the pain") in the NSSI group. This means that the personalized behavior management plans (Andrade, Wilson, Franko, Deitsch, & Barboza, 2014; Barboza & Wilson, 2011) would need to take into consideration these variables in efforts to change the feelings of the inmates.

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