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Attachment and Emotion Regulation among Adults with versus without Somatic Symptom Disorder

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***Abstract*—**This cross-sectional study aims to explore the differences among adults with somatic symptom disorder (SSD) versus adults without SSD, in terms of attachment and emotion regulation strategies. A total sample of 80 participants (40 people with SSD and 40 healthy controls), aged 20-57 years old (M = 31.69, SD = 10.55), were recruited from institutions and online groups. They completed the Romanian version of the Experiences in Close Relationships Scale – Short Form (ECR-S), Regulation of Emotion Systems Survey (RESS), Patient Health Questionnaire-15 (PHQ-15) and Somatic Symptom Disorder – B Criteria Scale (SSD-12). The results indicate significant differences between the two groups in terms of attachment and emotion regulation strategies. Adults with SSD have a higher level of attachment anxiety and avoidance compared to the nonclinical group. Moreover, people with SSD are more prone to use rumination and suppression and less prone to use reevaluation compared to healthy people. Implications for SSD prevention and treatment are discussed.

***Keywords*—**Adult attachment, emotion regulation strategies, psychosomatic disorders, somatic symptom disorder.

I. Introduction

PSYCHOSOMATICS emphasizes the connection between psychological factors and somatic symptomatology, providing a framework for a holistic approach to health. Psychosomatic research has evolved over the last decades, leading not only to a better understanding of the psychosomatic disorders, but also to changes in terminology. Somatic symptom disorder represents a relatively new approach in the domain of psychosomatic disorders, where other terminology ("psychosomatic disorder," "somatization," "medically unexplained symptoms," "functional somatic syndromes," "somatoform disorder" etc.) has been used so far [1]-[5], according to the evolution of the conceptualization. The replacement of the category "somatoform disorder," in DSM-4-TR [5], by the new category "somatic symptom disorder (SSD)", in DSM-5 [6], offers not only a better perspective of the mind-body interaction, but also a more clear way of diagnosis, being more relevant to practice [6]. Compared to the former somatoform disorder category, the diagnostic criteria of the most recent category, SSD, no longer require the absence of a medical explanation for somatic symptoms, but it emphasizes the importance of the positive criteria, such as psychological aspects associated with somatic symptoms. Thus, the new SSD category requires three criteria for diagnosis: A) at least one somatic symptom that causes distress or disruption in daily life; B) excessive thoughts, feelings, or behaviors related to the somatic symptoms; C) the persistence of at least one somatic symptom (more than 6 months) [6]. In order to better understand the complexity of SSD and the concepts associated with it, there should be taken into consideration not only recent studies related to SSD, but also studies related to former disorders and terminology, included in the domain of psychosomatic disorders.

One of the major concepts associated with SSD (and similar former disorders) is *attachment*, defined as a powerful emotional bond with another person [7]. Since developing the theory of attachment, Bowlby [8], [9] has emphasized the importance of the relationship with the primary care figure, during childhood, on individual`s physical and mental health. Studies [10], [11] revealed that people with pain, diabetes, inflammatory bowel disease, digestive diseases, cancer, cardiovascular diseases, depressive symptoms, unhealthy habits (smoking, drinking) received inadequate care (low care or overprotection) during childhood, compared to healthy people. Differences have been reported not only in terms of infant-parent attachment during childhood, but also in terms of attachment at adult age and studies [12], [13] showed a higher prevalence of insecure attachment in adults with somatoform disorders, compared to healthy people. Moreover, results [14], [15] revealed correlations between insecure attachment at adult age and health conditions, such as chronic widespread pain, arthritis, headaches, stroke, heath attack, high blood pressure and ulcer.

Another essential concept for understanding health outcome, including SSD, is *emotion regulation*, which involves the physiological, cognitive and behavioral processes, conscious and unconscious, used to prevent the occurrence of a negative emotion or to manage the positive or negative emotions, in order to a better adaptation to the environment and personal objectives [16]-[18]. Studies revealed that high skills in emotion regulation are associated with a good health [19] and emotion regulation difficulties are involved in the development or maintenance of somatoform disorders, somatization and functional gastrointestinal disorders [20]-[22]. People with SSD and similar disorders (somatoform disorders etc.) have difficulties in emotion regulation, such as a low level of awareness, identification and description of emotions, inhibition or exaggeration in the expression of emotions, impairment in physiological activation and a sympathovagal imbalance [23]-[26]. Studies also indicated differences in terms of emotion regulation strategies, people with SSD and similar

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disorders (somatization disorder, coronary artery disease, etc.) being prone to a higher use of suppression, rumination, other-blame, self-blame and catastrophizing and a lower use of reevaluation and acceptance, having great difficulties in distracting from the unpleasant emotional stimulus and expressing their anger inappropriately (by suppressing it or by expressing it in an exaggerated manner), compared to healthy people [24], [27]-[29].

Given that there is a sparse research on attachment and emotion regulation strategies among adults with SSD and most studies investigate only two emotion regulation strategies (suppression and reappraisal) and former conceptualizations of SSD, the present study aims to overcome these shortcomings. In order to highlight the peculiarities of attachment and emotion regulation strategies in people affected by SSD, the differences between these people and healthy people will be investigated.

II. Methodology

A. Participants and Procedure

This study involved 80 Romanian adults, aged 20-57 years old (M = 31.69, SD = 10.55), selected from institutions and online groups dedicated to people with disorders, as well as healthy people. They were selected from a larger group, based on cut-off criteria suggested by previous studies [30]-[33], for detecting SSD. Thus, for this study, the clinical group consists of people who fulfill three criteria: A) a Patient Health Questionnaire-15 (PHQ-15) [34] total score ≥ 10; b) a Somatic Symptom Disorder – B Criteria Scale (SSD-12) [35] total score ≥ 20; C) persistence of somatic symptomatology (more than 6 months). The nonclinical group consists of people who do not fulfill any of these criteria, having a low level of somatic and psychological symptomatology.

Participants received an information sheet about the study and, after providing their consent for participation, they completed a socio-demographic datasheet, as well as four questionnaires for evaluating attachment, emotion regulation strategies and somatic symptom disorder. Participation was voluntary, with no financial compensation. The study was carried out according to legislation and ethical standards.

B. Instruments

Attachment was assessed by using the Experiences in Close Relationships Scale – Short Form (ECR-S) [36]. ECR-S is a simplified version of the original scale ECR [37] and consists of 12 items, rated on a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree). The scale allows to evaluate adult attachment by two dimensions: *Anxiety* – characterized by fear of abandonment or rejection, excessive need for others` approval, discomfort as a result of partner`s unavailability or unresponsiveness, and *Avoidance* – characterized by fear of intimacy or closeness, reluctance to depend on others, tendency of self-reliance, reluctance to self-disclose [36]. High scores on these two subscales indicate an insecure attachment, while low scores indicate a secure attachment [37]. The Romanian version of ECR-S, used in this study, was previously developed by the author (with ECR-S`s author's permission) and consists of 11 items, corresponding to the two attachment dimensions: Anxiety and Avoidance. The Cronbach`s alpha values reported for the original version of ECR-S (in six studies) were 0.77-0.86 for Anxiety and 0.78-0.88 for Avoidance [36]. In the current study, the Cronbach`s alphas for Anxiety and Avoidance were 0.79 and 0.73, respectively.

Emotion regulation strategies were assessed by using the Regulation of Emotion Systems Survey (RESS) [38]. RESS is a self-report 38-items questionnaire, with answers rated on a 5-point Likert scale (1 = Never, 5 = Always). The scale allows to evaluate six emotion regulation strategies: *Rumination* – focus on the emotional experience, its causes and consequences; *Engagement* – involvement in the emotion, by intensifying the emotional expression, as an attempt to bring the emotional experience to a tolerable level; *Suppression* – active effort to conceal the observable, behavioral manifestation of the emotional experience; *Relaxation* – control of the physiological component (automatic arousal) of the emotion; *Distraction* – diverting the attention form the emotional situation; *Reappraisal* – reframing the emotional experience, in order to alter it [38]. Higher scores indicate a more frequent use of a certain strategy for regulating a negative emotion [38]. The Romanian version of RESS, used in this study, was previously developed by the author (with RESS`s authors permission) and is similar to the original version (38 items, six subscales). The Cronbach`s alphas reported for the original version of RESS range between 0.91 and 0.98 for the six subscales [38]. In the current study, the Cronbach`s alphas for the six subscales ranged between 0.82 and 0.94.

Somatic symptom disorder was assessed by using instruments for each criteria: Criteria A) the Patient Health Questionnaire-15 (PHQ-15) [34]; Criteria B) the Somatic Symptom Disorder – B Criteria Scale (SSD-12) [35]; Criteria C) a question about duration of symptoms.

PHQ-15 is a 15-item questionnaire, which allows to evaluate somatic symptoms severity. Answers are rated on a 3-point Likert scale (0 = Not at all, 2 = Bothered a lot) and the total score ranges between 0 and 30. The cut-offs for minimum, low, medium and high severity are 5, 10 and 15 [34]. The Romanian version of PHQ-15, used in this study, was previously developed by the author (no PHQ-15`s authors permission was required [39]) and is similar to the original version of PHQ-15 [34] (15 items, a general score), which proved to be adequate also for the general population [40]. The Cronbach`s alpha reported for the original version of PHQ-15 was 0.80 [34]. In the current study, the Cronbach`s alpha was 0.92.

SSD-12 is a 12-item scale, which allows to evaluate the cognitive, affective and behavioral aspects related to somatic symptoms. Answers are given on a 5-point Likert scale (0 = Never, 4 = Very often). Higher scores represent higher intensity of the psychological symptoms [35]. The Romanian version of SDD-12, used in this study, was previously developed by the author (with SSD-12`s author's permission) and is similar to the original version for the general population [32] (12 items, a general score). The Cronbach`s alpha reported for the original version of SSD-12 was 0.95 [32], [35]. In the current study, the Cronbach`s alphas were 0.98.

C. Data Analysis

Data analysis was performed using the free statistical software, Jamovi, version 1.8.2 [41], available online for research purposes. Four participants provided incomplete answers (one item missing) for ECR-S and RESS questionnaires and missing values were replaced with the mean values of the remaining items of the corresponding subscale. Data were assessed for normality using Shapiro-Wilk test. Descriptive statistics included mean and standard deviation for each subscale of the four instruments. Attachment and emotion regulation strategies were compared between people with SSD and control group, using nonparametric Mann-Whitney U test. The level of significance was set at $p < 0.05$ and the effect size was given by rank-biserial correlation.

III. Results

A. Descriptive Statistics

The demographic characteristics of the sample (SSD group, non-SSD group and total sample) are presented in Table I, as total number and percentage. The majority of participants were women (87%), aged 20-39 (77%), having higher education (75%), monthly income less than 5000 lei (86%) and being in a relationship (69%).

TABLE I
DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS

Demographic variable	SSD	Non-SSD	Total sample
Gender			
Female	37 (92%)	33 (82%)	70 (87%)
Male	3 (8%)	7 (18%)	10 (13%)
Age group			
20-29	21 (52%)	21 (52%)	42 (52%)
30-39	10 (25%)	10 (25%)	20 (25%)
40-49	4 (10%)	7 (18%)	11 (14%)
50-59	5 (13%)	2 (5%)	7 (9%)
Educational level			
Secondary education	16 (40%)	4 (10%)	20 (25%)
Higher education	24 (60%)	36 (90%)	60 (75%)
Monthly income			
<2000 lei[a]	22 (55%)	12 (30%)	34 (52%)
2000-5000 lei	14 (35%)	13 (32%)	27 (34%)
>5000 lei	14 (10%)	15 (38%)	19 (25%)
Marital status			
Single	14 (35%)	11 (28%)	25 (31%)
In a relationship	26 (55%)	28 (72%)	55 (69%)

[a]The value of 1000 lei is approximately 200 EUR.

Table II summarizes the mean, standard deviation, minimum and maximum values for each subscale or general score of the four questionnaires.

Participants were assigned to secure or insecure attachment categories, based on the median scores for Anxiety and Avoidance ($Median_{Anxiety} = 3.42$, $Median_{Avoidance} = 2.10$), as recommended in the attachment research [42]. The distribution of secure (Anxiety score < 3.42 and Avoidance score < 2.10) and insecure attachment (Anxiety score ≥ 3.42 and/or Avoidance score ≥ 2.10) is given in Fig. 1. Results show that insecure attachment is more prevalent in the SSD group (32 participants; 80%) than in the control group (19 participants; 47%).

TABLE II
CLINICAL CHARACTERISTICS OF PARTICIPANTS

Subscale/general score	Group	M	SD	Min	Max
ECR-S					
Anxiety	SSD	4.20	1.55	1.17	7.00
	Non-SSD	2.89	1.08	1.00	5.33
Avoidance	SSD	2.85	1.29	1.00	7.00
	Non-SSD	2.03	0.88	1.00	4.00
RESS					
Rumination	SSD	4.20	0.66	2.50	5.00
	Non-SSD	2.59	0.98	1.00	5.00
Engagement	SSD	3.61	0.88	1.25	5.00
	Non-SSD	3.58	0.79	1.25	5.00
Suppression	SSD	2.83	0.89	1.00	5.00
	Non-SSD	2.27	0.90	1.00	5.00
Relaxation	SSD	2.86	1.06	1.00	5.00
	Non-SSD	2.84	0.94	1.25	5.00
Distraction	SSD	3.46	1.12	1.00	5.00
	Non-SSD	3.15	0.96	1.25	5.00
Reappraisal	SSD	3.05	1.00	1.00	5.00
	Non-SSD	3.76	0.77	2.00	5.00
PHQ-15					
General score	SSD	17.2	4.02	10	27
	Non-SSD	1.50	1.15	0	3
SSD-12					
General score	SSD	28.5	7.43	20	46
	Non-SSD	0.65	1.03	0	3

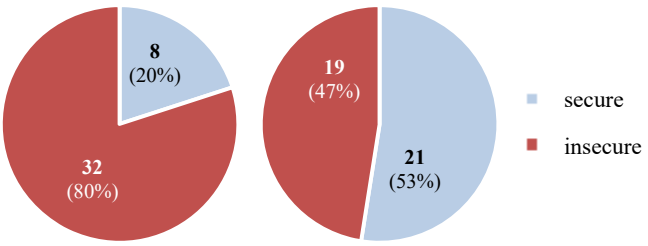


Fig. 1 Attachment (number, percentage) among people with SSD versus control group

The distribution of the use of the six emotion regulation strategies as main strategies is shown in Fig. 2. Some participants obtained maximum scores for more than one strategy, so they were assigned to more than one emotion regulation strategy. Results show that the majority of people with SSD (25 participants; 63%) tend to use rumination as the main strategy for emotion regulation, while almost half of healthy people (19 participants; 48%) tend to use reappraisal as the main strategy for emotion regulation.

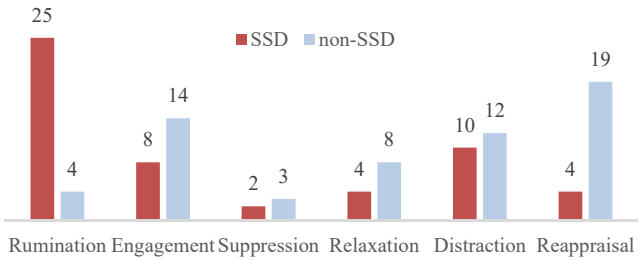


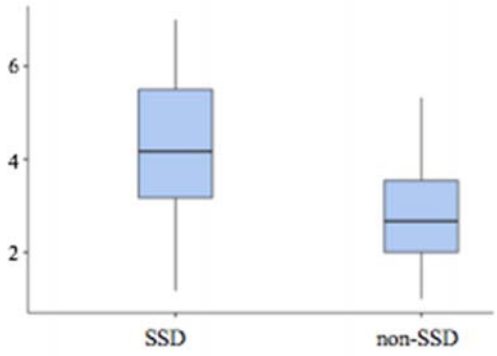
Fig. 2 Number or participants (with SSD vs. control group) who use a certain strategy as the main strategy for emotion regulation

B. Comparisons between Groups, in terms of Attachment and Emotion Regulation Strategies

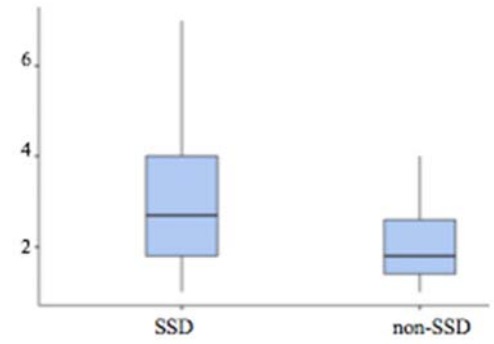
Shapiro-Wilk test is significant, indicating that data are not normally distributed [43]. Therefore, a nonparametric test will be used to compare the samples.

1. Attachment among Adults with SSD vs. Adults without SSD

The Mann-Whitney U test revealed a statistically significant difference in attachment dimensions between adults with SSD versus adults without SSD, $U_{Anxiety} = 388$, $p < 0.001$, effect size = 0.515; $U_{Avoidance} = 475$, $p = 0.002$, effect size = 0.406. People with SSD have higher levels of Anxiety (Median = 4.17) and Avoidance (Median = 2.70), compared to people who do not have SSD ($Median_{Anxiety} = 2.67$, $Median_{Avoidance} = 1.80$).



(a) Anxiety

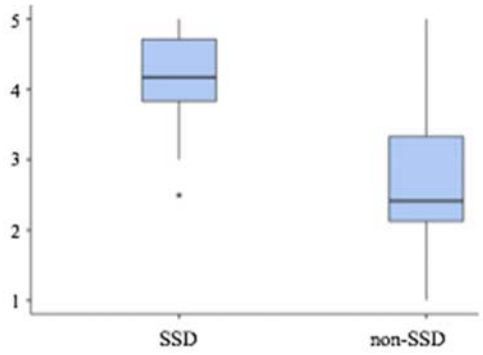


(b) Avoidance

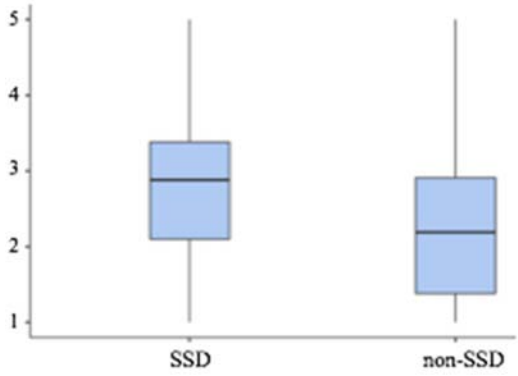
Fig. 3 Comparison between adults with SSD and control group, in terms of attachment

2. Emotion Regulation Strategies among Adults with SSD vs. Adults without SSD

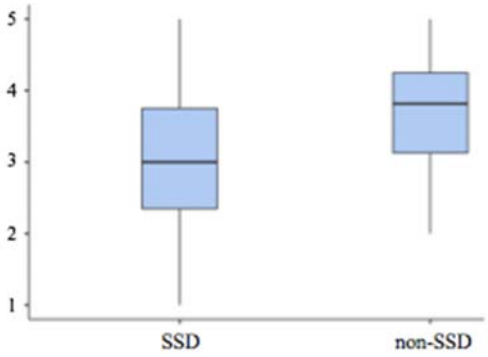
The Mann-Whitney U test revealed a statistically significant difference in Rumination, Suppression and Reappraisal between adults with SSD versus adults without SSD, $U_{Rumination} = 150$, $p < 0.001$, effect size = 0.813; $U_{Suppression} = 527$, $p = 0.009$, effect size = 0.341; $U_{Reappraisal} = 463$, $p = 0.001$, effect size = 0.422. When they feel a negative emotion, people with SSD tend to use more strategies such as Rumination (Median = 4.17) and Suppression (Median = 2.88) and less Reappraisal (Median = 3.00), compared to people who do not have SSD ($Median_{Rumination} = 2.42$, $Median_{Suppression} = 2.19$, $Median_{Reappraisal} = 3.81$).



(a) Rumination



(b) Suppression



(c) Reappraisal

Fig. 4 Comparison between adults with SSD and control group, in terms of emotion regulation strategies

IV. Conclusion

In line with previous studies [12], [13], [24], [27]-[29], the results of this study show that adults with SSD have higher attachment insecurity and use more dysfunctional emotion regulation strategies compared to adults without SSD. These findings suggest that attachment and emotion regulation strategies could play a significant role in the development of SSD, supporting the biopsychosocial model of this disorder [44], [45]. Moreover, results indicate the necessity of a holistic approach to SSD treatment, which integrates, along with medical prescription, also psychotherapy for developing attachment security and improving emotion regulation strategies. In order to reduce the risk of developing SSD, prevention programs for improving emotion regulation skills and enhance attachment security should also be considered.

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