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**Title**

Emotion regulation and mental representation of attachment in patients with systemic lupus

erythematosus: A study using the Adult Attachment Interview

## **Abstract**

Mental representations of attachment and emotion regulation influence individual patterns of stress-response and vulnerability to illness. The present study investigates the adult attachment states of mind of 40 females with systemic lupus erythematosus (SLE) using the Adult Attachment Interview. We also assessed alexithymia using the Toronto Alexithymia Scale and dissociation using the Dissociative Experiences Scale. The results showed a high prevalence of the Unresolved state of mind (13 patients, 32.5%) and the Entangled state of mind (10 patients, 25%). The alexithymia score also varied significantly as a function of the mental representation of attachment and was modulated by amnesic dissociation. These findings suggest that adult attachment in SLE patients influences the presence of alexithymic features. Moreover, they also indicate that dissociative states mediate the perception of painful memories and feelings, thus contributing to the partial avoidance of emotions as well as the failure to fully experience and recognize them. The clinical implications of these findings are also discussed.

**Keywords:** Systemic Lupus Erythematosus; Adult Attachment Interview; Alexithymia; Dissociation; Emotion Regulation

## Introduction

A central issue in psychosomatic research over the last decades is the hypothesis of an inverse link between emotional awareness and expressiveness with physiological responses to stress (Scheidt et al., 1999). Recently, the diathesis-stress model has conceptualized attachment as a stress regulatory system in which mental representations of attachment and emotion regulation are considered psychological features that influence the susceptibility to stressors and disease risk (Maunder and Hunter, 2001, 2008).

The present study aims to explore the relationship between attachment and emotion regulation in a specific chronic illness, specifically systemic lupus erythematosus (SLE), to deepen the study of the psychosocial aspects of SLE. Although of great importance (Iverson et al., 1992; Wekking et al., 1993), these psychosocial aspects have been underappreciated and poorly understood (Barbosa, 2011b).

SLE is a fairly rare chronic autoimmune disease of unknown etiology that affects the skin, joints, kidneys, heart, and nervous and hematopoietic systems, resulting in inflammation and tissue damage. Although its clinical course is characterized by periods of flare-ups and remissions, SLE interferes with social-role functioning and can affect life expectancy. The disease primarily affects young women—it is eight times more common in women than in men—although the worldwide prevalence varies: 12 out of 100,000 people in Britain, 39 out of 100,000 in Sweden, and 50 out of 100,000 in the United States (Wallace, Hannahs Hahn eds, 2006).

Psychological stresses have been implicated in the development and prognosis of autoimmune diseases (Kiecolt-Glaser et al., 2002a, 2002b). However, it is well known that there exist large differences in individual responses to particular stressful events. Recent works have examined how individual psychological differences in interpreting and responding to stressors play a potentially important role in modulating the widely varying psychobiological responses to stress (Kemeny and Laudenslager, 1999; Kemeny and Schedlowski, 2007). These authors highlight the importance of identifying the stable individual difference factors that constitute stress responses, including individual emotional and cognitive appraisals of threat or the meaning of events. To this end, researchers and clinicians are showing a growing interest in

the relationship between the attachment system and patterns of illness (Ciechanowski et al., 2002; Wearden et al., 2003). Adult attachment is conceptualized as a disposition toward certain perceptions of others and of the self along with preferred strategies in the presence of perceived threats (Bowlby, 1969). It deals with internal representations, called internal working models, of the self and others that are thought to develop from the individual experiences of regulating emotions and distress with caregivers.

Research suggests that the quality of attachment is strongly interrelated with the acquisition and development of emotion-regulation capacities (Schoore, 1994). Notably, it has also been linked with characteristics of alexithymia, a marked difficulty in describing, recognizing, and expressing feelings (Taylor, 2000; Taylor and Bagby, 1988). Previous empirical studies provide some evidence that alexithymia may be strongly associated with functional somatic symptoms and related to an impaired immune response (Taylor, 2000). In addition, clinical research findings support the idea that alexithymia is connected to dissociation, a set of symptoms denoting disturbances in memory, identity, awareness, and cognition (DSM-IV; American Psychiatric Association 2000). Various studies suggest that dissociative tendencies may originate as a defense mechanism to detach oneself from negative situations and thus deal with overwhelming trauma (Spiegel and Carena, 1991). In fact, both alexithymia and dissociation can be described as the failure to integrate perceptions, memory, or emotions into the stream of conscious experience. Both may therefore be considered as coping mechanisms to alleviate painful emotions (Elzinga et al., 2002; Grabe et al., 2000). Of particular relevance to the present research is the fact that both alexithymia and dissociation are induced by perceived parental dysfunction and traumatic experiences, both in childhood and in later life (Berenbaum and James, 1994; Irwin and Melbin-Helberg, 1997).

Several works have highlighted that responses to stressors are highly influenced by individual affect regulation styles. Specifically, Maunder and Hunter (2001, 2008) support the idea that the mental representations of insecure attachment are strongly linked to the regulation of affect and may lead to disease risk by altering stress physiology and playing a role in the initiation (or non-initiation) of a stress cascade along with a modification of its intensity or duration (Maunder and Hunter, 2008).

There is evidence that stressful events are related to immune changes and play a pivotal role in the onset, progress, and exacerbation of autoimmune diseases, including SLE (Adams et al., 1994; Schubert et al., 2003). In particular, recent data suggest that a disturbance in affect regulation may be a key feature in SLE in that it may increase perceived stress and influence the intensity or duration of physiological stress responses (Barbosa et al., 2009; 2011a; 2011b).

In light of these considerations, we investigated (a) the distribution of mental representations of attachment (Free, Dismissing, Entangled, and Unresolved state of mind) found in our SLE sample and compared it with the distribution of Adult Attachment Interview classifications (a nonclinical and not-at-risk (NCNR) group and a clinical and at-risk (CR) group; Bakermans and Van Ijzendoorn, 2009), (b) the presence of alexithymia and the influence of mental representations of attachment on alexithymia, and (c) the presence of dissociative tendencies and their relations with alexithymia in our SLE sample.

We further sought to establish (a) whether there is a majority of insecure/unresolved mental representations in our SLE sample relative to the NCNR group, (b) whether the distribution of attachment representations in our SLE sample is similar to that of the CR group, and (c) whether high degrees of dissociation and alexithymic traits co-occur in these patients as a means of coping with and avoiding trauma-related emotions. SLE patients might present a general incapacity to identify emotions not because they “lack emotions,” but rather because physiological and cognitive responses have become decoupled. Said differently, they may be inclined to dissociate their verbal processes from their emotional processes. Studying the link between adult attachment representation, alexithymia, and dissociation offers a useful theoretical perspective for enlarging current knowledge about the psychosocial aspects of SLE, especially emotional recognition and emotional awareness. The core idea is that painful memories and feelings are suppressed by dissociative states, thus allowing one to regain control by partially avoiding, not fully experiencing, or not recognizing traumatic events.

To date, the interrelationships between mental representations of attachment (as measured by the AAI) and emotion regulation in SLE patients has not been investigated.

## Methods

### *Patients*

Consecutive SLE patients, as defined by the American Rheumatology Association (ARA; Hochberg, 1997) criteria, who were recruited at several meetings of the national SLE patient organization (Gruppo Italiano LES – ONLUS) participated in this study. All participants (N = 40) were women between 26 and 66 years of age (mean age = 44.1; DS = 10.8). The exclusion criteria were severe medical disorders (e.g., autoimmune, neoplastic, cardiac, pulmonary, or endocrine diseases) and severe mental illnesses (e.g., schizophrenia, schizoaffective disorder, bipolar disorder, substance-abuse disorders, or major depression; see Table 1). The participants received a complete explanation of the study before providing their consent.

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Insert Table 1 about here

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### *Measures*

#### *Toronto Alexithymia Scale*

Alexithymia was measured using the validated Italian version (Bressi et al., 1996) of the 20-item Toronto Alexithymia Scale (TAS-20; Bagby et al., 1994a, 1994b). The TAS-20 is a 20-item self-report scale that demonstrates internal consistency and good reliability as well as construct and criteria validity for measuring alexithymia. It has a three-factor structure that is theoretically congruent with the alexithymia construct: the DIF subscale measures the difficulty in identifying feelings, the DDF subscale measures the difficulty in describing feelings to others, and the EOT subscale measures the tendency towards an externally oriented, operative cognitive style.

### *Dissociative Experiences Scale*

The dissociative symptoms were assessed using a validated Italian version of the 28-item self-report Dissociative Experiences Scale (DES; Bernstein and Putnam, 1986; Carlson and Putnam, 1996) developed to measure dissociation in both normal and clinical populations. Each of the 28 items comprising the scale ranges from 0 to 100. The average of all item scores gives an overall score ranging from 0 to 100. In addition to the DES total score, three subscales were computed according to factor analytic studies that have clarified the underlying construct of the scale. These factors are amnesic dissociation, absorption and imaginative involvement, and depersonalization and derealization (Wise et al., 2000).

### *The AAI*

The AAI (George et al., 1985) is a semi-structured interview regarding childhood attachment relationships and the meanings that an individual currently ascribes to past experiences. The interviewees are also asked about the loss of loved ones and other traumatic experiences. The AAI is scored from a transcript using scales that reflect the descriptions of childhood experiences, the language used in the interview, and the ability to give an integrated account of experiences and their meanings (Main et al., 2002). Childhood experiences with each parent (including parental substitutes) are measured using five scales: loving, rejecting, neglecting, involving/role reversing, and pressuring to achieve. Other scales assess discourse styles: overall coherence of transcript and mind, idealization, lack of recall, anger, derogation, fear of loss, metacognitive monitoring, and passivity of speech. In the AAI, the language and discourse styles are considered to reflect one's state of mind with respect to attachment. Adults are classified as insecure on the basis of incoherency, that is, when they fail to integrate memories of experience with assessments of the meaning of experience. Thus, the AAI provides researchers with a standardized method to assess adult mental representations of childhood attachment experiences. Scale scores are used to assign the adult to one of three categories: Free (F), Dismissing (D), or Entangled (E). Adults classified as Fs are secure and autonomous and maintain a balanced view of early relationships. They also value attachment relationships



and attachment-related experiences as influential in development. Adults classified as Ds deny or devalue the impact of early attachment relationships, have difficulty recalling specific events, often idealize childhood experiences, and usually describe an early history of rejection. Adults classified as Es display confusion about past experiences. Their current relationships with parents are also marked by active anger or passivity. Individuals may be also classified as Unresolved/disorganized (U) in addition to one of the major classifications. The Unresolved classification is given precedence over the other major classifications in classifying the individual. In fact, these adults report attachment-related traumas that have not been resolved or reconciled, as revealed by lapses in the monitoring of discourse, speech, and behaviors when discussing a loss or an abusive experience. Further, individuals can also be assigned to the Cannot Classify (CC) category when scale scores reflect elements that are usually not seen together in an AAI, for example, high idealization towards one parent and active anger towards the other.

The interviews were tape-recorded. The reports of the AAIs were transcribed verbatim. C.B. administered the AAI to the subjects and coded the interviews together with A.S. Earlier research has demonstrated that interviewing the subjects does not interfere with the coding of their subjects' interviews (Sagi et al., 1994). Both raters (C.B. and A.S.) were certified as reliable by Mary Main and Erik Hesse in the AAI classification system. Inter-rater agreement on the four-way comparisons was 90%.

### *Statistical analysis*

The statistical analysis was done with SPSS 18.0 for Windows (SPSS; Chicago, IL, U.S).

Clinical patient data were compared with normative data (a non-clinical, not-at-risk group (NCNR) and a clinical, at-risk group (CR)) by Bakermans and Van Ijzendoorn (2009) using the chi-square test. An ANOVA was performed to assess if the secure, insecure, and unresolved attachment groups were different on the three factors of the TAS-20 and the TAS-20 total score. Multiple linear regressions were performed to compare TAS-20 scores between the secure group, the insecure group, and the unresolved group. The association between the alexithymia and dissociation scores was examined using Pearson correlation

coefficients. Furthermore, the significant correlations between the TAS-20 and the DES were investigated using linear regression analysis, with the alexithymia score as the outcome variable and dissociation as the predictor.

## Results

SLE patients were classified using the main four-way classification as Free (15 patients; 37.5%), Unresolved (13 patients; 32.5%), and Entangled (10 patients; 25%). Only two (5%) Dismissing classifications were observed; there were no Cannot Classify (CC) classifications in the sample.

On the basis of the TAS-20, 17.5% of the SLE patients scored in the alexithymic range (TAS score  $\geq$  61), whereas 30% scored in the indeterminate alexithymia category. SLE patients scored higher on the first two factors, namely, Difficulty in Identifying Feelings (DIF); mean = 54.02; DS = 20.10) and Difficulty in Describing Feelings (DDF); mean = 51.94; DS = 20.9). External Oriented Thinking (EOT) seemed to be irrelevant for the SLE group (mean = 40.28 DS = 10.45).

Using a DES cut-off score of 15, 47.5% of the SLE patients scored the same as or higher than the cut off.

In line with the meta-analysis by Bakermans and Van Ijzendoorn (2009), we performed a chi-square test to identify differences between the AAI distribution in the NCNR group and the observed distribution in our SLE group. The difference was statistically significant ( $\chi^2_{(3)} = 25.19$   $p < 0.001$ ), with an overrepresentation of those from the Entangled and the Unresolved categories. The percentage of those in the Free and Dismissing categories was also much lower in the SLE group than in the NCNR group. We then performed a chi-square test to identify any differences between the AAI distribution in the CR group and the observed distribution in our SLE group. The difference was again statistically significant ( $\chi^2_{(3)} = 18.98$   $p < 0.001$ ), showing an overrepresentation of those in the Free and the Entangled categories. The percentage of those in the Dismissing category was much lower in the SLE group than in the CR group. For the

Unresolved categorization, the percentage in the SLE sample was nearly comparable to that in the CR sample.

A one-way ANOVA compared scores of alexithymia and its subfactors (DIF, DDF, and EOT) clustered in three groups (secure, insecure, and unresolved attachment). It revealed a significant overall effect of the attachment state of mind on the DDF score ( $F_{(2, 37)} = 4.009$ ;  $p = .027$ ) and on the TAS-20 score ( $F_{(2, 37)} = 3.813$ ;  $p = .031$ ). No significant differences were found regarding the DIF or EOT scores (see Table 2).

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Insert Table 2 about here

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Having tested the overall significance of the attachment classification, focused contrasts through multiple linear regressions were performed to compare TAS-20 scores between the secure group and the insecure and disorganized groups. Significantly higher scores of alexithymia (TAS-20) were predicted by insecure (Entangled and Dismissing) and Unresolved attachment states of mind as compared with the secure ones ( $R^2 = 0.18$ ; see Table 3).

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Insert Table 3 about here

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In the SLE group, we found a significant positive correlation between alexithymia and dissociation ( $r = 0.652$ ,  $p < 0.001$ ). More specifically, we found a significant positive correlation between the three factors of the TAS-20 and dissociation (DIF:  $r = 0.621$ ,  $p < 0.001$ ; DDF:  $r = 0.536$ ,  $p < 0.001$ ; EOT:  $r = 0.379$ ,  $p = .016$ ).

In order to examine whether alexithymia is modulated by dissociation and, if so, by which DES subfactors (amnesic dissociation, absorption and imaginative involvement, or depersonalization and derealization), these significant correlations were then further investigated by linear regression analysis with TAS-20 score as the outcome variable and dissociation as the predictor ( $R^2 = 0.42$ ). In addition, another linear regression analysis with TAS-20 score as the outcome variable and the DES subfactors as the predictors was performed. Amnesic dissociation was selected as the best predictor of alexithymia, explaining 38% of the variance ( $R^2 = 0.38$ ).

## **Discussion**

We first wished to describe the mental representation of attachment using the AAI. We observed that the distribution for the Free category in our SLE patients was between the distribution in the CR and NCNR groups, while the Dismissing and Entangled categories were underrepresented and overrepresented, respectively, compared to the CR and NCNR groups. The Unresolved category was highly overrepresented in comparison to the NCNR sample but similar to the distribution of the CR sample.

The majority of the SLE patients showed insecure mental representations of attachment, as represented by the Unresolved and Entangled states of mind. The subjects with an Unresolved state of mind in our SLE sample showed mental disorganization and disorientation as well as psychologically confused contents and states of mind that were rarely monitored. These were also accompanied by sometimes frightening ideation. Traumatic experiences in these patients appear to be encoded as more or less complex sensorimotor and affective experiences which remain relatively unintegrated and thus unavailable for normal information processing. The descriptions of early parenting experiences provided by those with an Entangled state of mind in our SLE sample were generally unfavorable, though it is somewhat difficult to specify and detail the negativity of their experiences. These patients appear to be highly dependent on acceptance and affirmation from others. Yet, because of their negative expectations, they also avoid intimacy to avert the pain of loss and rejection. In particular, they show a certain deficiency in

the modulation of emotions as reflected in rapid changes in emotions, intense and unmodified forms of emotional expression, and/or the overwhelming of reason by emotion. In fact, our patients with Entangled states of mind appear to be characterized by a great sensitivity to emotional stimuli and high emotional intensity as well as a difficulty in recognizing, differentiating, and integrating emotions. They also have difficulty processing the display of emotionally-laden representations of the self and significant others.

If we look at the overall current state of mind of SLE patients, some features stand out. The first is a high incidence of unresolved traumatic experience. The second is a general difficulty keeping mental and conversational coherence when discussing these experiences. The third is an inchoate representation of negative personal experiences which are incoherent and contradictory. The final feature is an anxious seeking of acceptance and validation from others. In other words, these patients present a hypervigilant style, displaying excessive care seeking and a fear of loss. Our findings suggest that SLE patients tend to under-regulate their emotions due to an impaired ability to use blends of emotion for coping with emotional experience. They also seem to feel dominated and overwhelmed by such experiences.

Bakermans and Van Ijzendoorn (2008) provide a possible interpretation of the deviant distribution pattern we found in our SLE sample compared to the NCNR sample. The authors specifically noted, "Only psychological problems and disorders seem to be associated with deviant attachment distributions" (Bakermans and Van Ijzendoorn, 2008, p. 87). Thus, we hypothesize the presence of a psychosocial component in SLE, which requires a deeper and more extended investigation involving a larger sample and a non-SLE comparison group.

There are two possible sources of the deviant distribution we found when comparing the SLE group with the CR group. First, there may have been a selection bias in the sample because subjects were recruited from a patient organization (see also Limitations below). In addition, the specific characteristics of the attachment distribution in our SLE sample might also have been unique to these patients. They are significantly different from a normal group and present some peculiar features in comparison to the clinical

sample. They are, however, quite similar to the clinical group with respect to the distribution of the Unresolved state of mind. Clearly, this area requires further investigation.

Second, we also wished to determine the prevalence of alexithymia and to evaluate how alexithymia is linked to adult attachment representation. We found a moderately high prevalence of alexithymia: 17.5% of our patients showed symptoms of clinically significant alexithymia. This percentage is high in comparison to nonclinical populations (e.g., 5.2% alexithymia in female subjects; Kokkonen et al., 2001). Furthermore, our findings are consistent with the literature suggesting that attachment relationships impact the use of emotion regulation. In our SLE patients, alexithymia may be considered a coping mechanism for protecting the self against emotional distress, thereby influencing the capacity to recognize, differentiate, and integrate emotions.

Third, we also sought to address the relationship between alexithymia and dissociation. Our findings support the hypothesis that dissociative symptomatology is associated with alexithymia and particularly with the DIF and DDF subfactors. Furthermore, our analysis indicated that there is a significant overlap between the dissociative and the alexithymic dimensions. Our sample is characterized by a specific type of dissociation, dissociative amnesia, which is defined by a deficit in the ability to deliberately control processes or actions that would normally be amenable to such control. This deficit influences ongoing emotion, cognition, and action, and is attributed to a retrieval deficit that prevents the intentional recollection of stored information (Holmes et al., 2005). In accordance with previously cited studies (Grabe et al, 2000; Elzinga et al., 2002), our findings support the idea that painful memories and feelings are suppressed by dissociative states in order to regain control.

Our results seem to confirm theories originating from psychoanalytic foundations (Fonagy et al., 2002). The analysis of adult attachment classification using the AAI coding system evaluated what may be reasonably considered an attachment *pattern*—something more enduring—rather than an attachment *behavior* that can be elicited by the stress of disease. Our findings may therefore be read in the light of a directional relationship from attachment to disease vulnerability. Thus, an intriguing hypothesis might be

formulated as follows: the mental representation of attachment may be identified as a psychological dimension that is independent of the activity, damage, and disease duration, and may influence the vulnerability to stress and the progression of SLE (Berry and Pennebaker, 1993; Luecken and Lemery, 2004; Pennebaker et al., 1989; 1987; Porcelli et al., 1996).

Regarding emotion regulation, our results are consistent with other studies investigating the prevalence of alexithymia in an illness population (Porcelli et al, 1996; Taylor et al, 1996). The implications of a high prevalence of alexithymia in patients suffering from physical illness are not yet clearly understood. To the best of our knowledge, recent data suggest that alexithymia is a rather stable psychological trait and relatively independent of the illness itself (Porcelli et al., 1996). It may thus be considered as a predisposing factor with a possible impact on immunological changes and potentially multisystemic repercussions. Accordingly, empirical studies have clearly underlined that a marked difficulty in emotion expression may exacerbate physiological activation in response to stress, thereby preventing individuals from coping effectively with stressful events and resulting in prolonged and elevated autonomic activity (Friedlander et al, 1997; Luecken and Lemery, 2004; Wehmer et al, 1995). The significant overlap between the alexithymic and dissociative dimensions we found may be considered a key feature in the emotion regulation of these patients and may influence either the exacerbation of physiological activation in response to stress or “somatization” by focusing SLE patient perceptions on physical symptoms rather than on mental processes.

### *Clinical implications*

Although our results are preliminary, they nonetheless provide some directions for treatment implications and for future research.

There is a growing body of literature that suggests that psychological variables may indeed influence disease activity and related physical adjustment variables, such as pain and disability (de Ridder et al., 2008). It has been emphasized that psychological adjustment to chronic diseases is more successful if the patients can acknowledge and express emotions in a way that allows them to take control of their lives.

Thus, we assume that therapies that focus on emotional regulation of stressors and stress management may prove to be important adjuncts to traditional pharmacotherapy interventions for SLE patients. Such approaches would be useful in helping patients to develop strategies for regulating the emotional expression of individual stress responses. This would in turn enable them to better regulate the intensity or duration of the physiological stress response and to decrease their vulnerability to stressors. The ultimate outcome would be the prevention of stress-related immune imbalances. In fact, emerging evidence shows that emotion regulation in terms of actively processing and expressing emotions is likely to promote positive adjustment in patients with chronic disease. Future research should test interventions that change emotional processing and expression. Unlike hereditary and genetic etiological factors that cannot be changed, many psychological and environmental factors may be modified to enable better management of autoimmune diseases. It would be worthwhile to focus in the future on the need for multidisciplinary interventions that target both the environmental-psychological and the symptomatic aspects of SLE.

### *Limitation*

Although the present research provides a number of important new insights, there are nevertheless some limitations that need to be addressed. First, we used a convenience sample; moreover, the sample was not large enough to reach a decisive conclusion. In fact, the majority of the participants were members of the Italian SLE Association who volunteered as unpaid participants. Our patients might therefore reflect a selection bias, for example, in personality characteristics such as social orientation. The non-random nature of this selection process implies that this study cannot be assumed to be representative of all people affected by SLE. Our quantitative findings should therefore be interpreted with caution. **It is important to note that the selection biases may also have affected the estimation of the prevalence of alexithymia, although this dimension was not a primary focus of our study. The typology of the sample (advocacy/self-help group) does not allow us to estimate the prevalence of this dimension without some form of bias.**



Second, our study focused preliminarily on the relationship between the mental representation of attachment and emotion regulation in SLE patients. Further studies need to correct such a limitation by adding clinical measures of SLE-related physical symptoms, which may affect participant responses and experiences. This would provide a strong confirmation of our findings. Clinical measures would be quite useful for verifying the hypothesized diathesis-stress model, thus providing for the analysis of the possible influence of the activity and severity of the disease on the deviant attachment distribution found in our sample. In fact, mental representations of attachment may be modified by the impact of the illness, which may then trigger attachment behaviors as well as emotion regulation (Weinfield et al., 2000). Obviously, this question cannot be answered by a cross-sectional study which cannot allow us to support either of the two hypotheses: the first, from attachment to disease vulnerability, and the second, from chronic illness to modification of the attachment system in SLE patients. It would be certainly worthwhile for future studies to clarify this point, with a more in-depth focus on the relationship between the attachment distribution and the clinical measures of the disease. Among the known clinical variables such as illness severity, damage, and activity, we think it would be important to also include the duration of the disease in future studies. This would allow one to verify whether a different period of illness (e.g. 1,5,10, or 20 years) leads to an activation of the attachment system and therefore to a gradual change and modification of the internal working models over time in SLE patients (Fonagy, 2010, personal communication).

Nevertheless, some empirical evidence from the recent literature is consistent with the direction of the hypothesis emphasizing a movement from emotion dysregulation to disease vulnerability. The works of Barbosa and colleagues (2009; 2011a, 2011b) investigating the relationship between alexithymia and clinical variables in a sample of SLE patients failed to find any significant correlation. We have confirmed the same result in a recent study (Barbasio et al., 2011) which showed an absence of correlations among disease activity, cumulative damage, and alexithymia in SLE patients. Thus, we hypothesize that the difficulty in emotion recognition and emotional awareness measured in our study by the alexithymia scale cannot be ascribed, to a great extent, to the impact of the disease (its unpredictable recurrence, which

leads, in most cases, to a state of tension and anguish), but to a state of psychological vulnerability to stress.

Third, we should acknowledge the potential confounding influence of Post-Traumatic Stress Disorder (PTSD) on our findings. The high percentage of Unresolved states of mind is consistent with the diathesis-stress model, although most of our measures may have been influenced by PTSD symptoms, especially the dissociative dimension. This may be a concern given the self-selection bias of our sample in which people with SLE who join the association and attend meetings may be more likely to have traumatic experiences and PTSD than people with SLE who do not.

Conversely, regarding the exploration of mental representations of attachment, the use of a semi-structured interview instead of self-report measures is, in our opinion, an important methodological strength of the present study. To our knowledge, this is the first research combining the AAI with a sample of SLE patients. The AAI has a powerful coding system and a complex structure with different levels of analyses, which offer essential information on the presence of unresolved trauma and a constellation of factors characterizing the main attachment categories. Our analysis of 40 complete AAIs of SLE patients allows us to present a more detailed picture of emotion regulation and arrive at more robust conclusions by reducing the potential limitations inherent in attachment style self-report assessments.

## **Conclusions**

The findings of this study show that in our SLE sample, alexithymia is mediated by attachment mental representations and that dissociation is related to alexithymic features, specifically difficulty in identifying and describing feelings. The insecure and disorganized individual attachment representations and emotion dysregulation may be considered a defense from the pain of psychic trauma in SLE patients. The difficulty in expressing and reporting emotional responses in these patients appears to be mediated by dissociative proneness, which highlights the difficulty of these subjects in defining and acknowledging feelings; the verbal processes tend to be dissociated from the emotional processes.

The emotional vulnerability we found in these patients may lead to situations of great distress that cannot be developed through emotion regulation, thus resulting in somatic disturbances that enhance the experience of physical symptoms. Therefore, it may be worthwhile to focus SLE psychological interventions on raising emotional awareness and adaptive expression while guarding against oversensitivity to emotions.

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## **Conflicts of Interest**

Both the authors of the present paper declare that they have no conflicts of interest.

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**Table 1**

Demographic characteristics of the SLE sample (n = 40)

Demographic characteristics	SLE patients (n = 40)
<b>Age</b>	
Mean $\pm$ SD	44.1 $\pm$ 10.8
Limits	26-66
<b>Gender (%)</b>	
Female	100%
<b>Marital status (%)</b>	
Single	17.5%
Married	55%
Widowed	0%
Divorced	2.5%
Living Together	25%
<b>General State (%)</b>	
Working	85%
Unemployed	2.5%
Retired	2.5%
Sick Leave	0%
Other	10%
<b>Education (%)</b>	
up to 8 years	15%
up to 11 years	32.5%
High school	32.5%
University	20%

**Onset**Mean  $\pm$ SD31.05 $\pm$ 10.21

SLE = Systemic Lupus Erythematosus

**Table 2**

ANOVA between attachment mental representations and alexithymia and its subfactors

	<b>Secure</b>	<b>Insecure</b>	<b>Disorganized</b>	<b>F</b>	<b>p</b>
<b>TAS</b> (Mean, SD)	41.2 (8.83)	51.25 (14.86)	53.69 (13.78)	3.948	.028
<b>DIF</b> (Mean, SD)	45.52 (15.44)	57.14 (22.98)	62.41 (19.04)	2.852	.070
<b>DDF</b> (Mean, SD)	41.86 (12.72)	55.00 (21.44)	61.23 (22.41)	3.817	.031
<b>EOT</b> (Mean, SD)	37.00 (9.78)	43.75 (10.57)	41.34 (12.77)	1.350	.272

TAS = Toronto Alexithymia Scale; DIF = Difficulty in Identifying Feelings; DDF = Difficulty in Describing Feelings; EOT = Externally Oriented Thinking.

**Table 3**

Regression model explaining TAS-20 on the basis of adult attachment representations

<b>y = TAS</b>	<b>B</b>	<b>SE</b>	<b><math>\beta</math></b>	<b>p</b>
<b>Reference group (Secure attachment)</b>	-	-	-	-
<b>Insecure attachment group</b>	10.05	4.851	.347	0.45
<b>Disorganized attachment group</b>	12.49	4.746	.441	.012

TAS = Toronto Alexithymia Scale