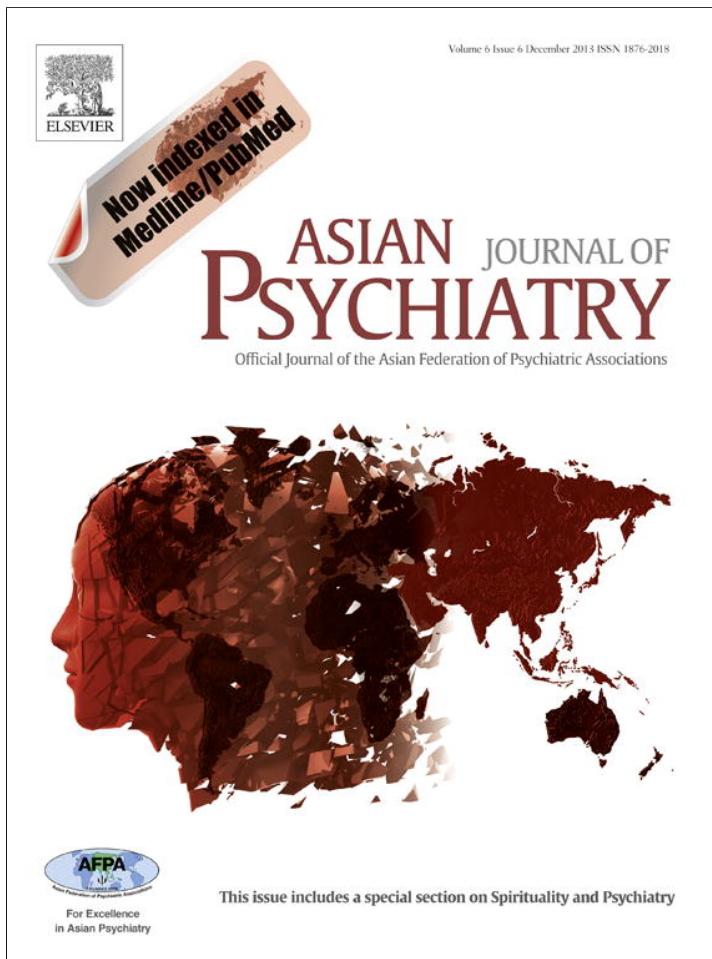


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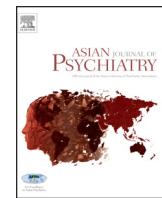
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## The relationship between attachment styles and alexithymia: Mediating role of defense mechanisms<sup>☆</sup>

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## ABSTRACT

This study examined the mediating role of ego defense mechanisms on the relationship between attachment styles and alexithymia. Four hundred and forty-three Iranian high school students (213 boys, 230 girls) participated in this study. Participants completed Defense Styles Questionnaire (DSQ-40), Adult Attachment Inventory (AAI), and Farsi version of the Toronto Alexithymia Scale (FTAS-20). Results showed a significant negative correlation between secure attachment style and alexithymia, while avoidant and ambivalent attachment styles showed significant positive associations with alexithymia. Regression analysis indicated that defense mechanisms have a mediating role between attachment styles and alexithymia. It can be concluded that a mediation role of ego defense mechanisms on the relationship between attachment styles and alexithymia was partial.

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### 1. Introduction

Alexithymia refers to deficit in the ability to recognize and express of emotions, use of concrete speech and thoughts related to external events, and a paucity of fantasy life. It has four main characteristics: (a) disability in distinguishing emotions; (b) disability in describing feelings; (c) constricted imagination; and (d) concrete cognitive style (e.g., Chambers et al., 2009; Kreibig, 2010). It is also described as a difficulty in emotion regulation (e.g., Bermond et al., 2010; Stasiewicz et al., 2012) which is the complex process of interaction between neurophysiological, motor-expresive, and cognitive-experiential systems of emotions. Because of this, alexithymia elicits in different forms such as disabilities to conceptualization of affect, distinguish among emotions, experience of emotions consciously and describe the stress which is displaced to body dysfunctions (Nemiah, 2000). Alexithymia has association with a variety of psychological disorders and physical illnesses (Evren et al., 2012). Therefore, it is important to know more about the developmental background of alexithymia.

Studies show that childhood experiences with caregivers who do not express their emotions, and use insufficient strategies of responding to children's negative emotions, have a strong effect in emotion regulation in adulthood (e.g., Carrère and Bowie, 2012;

Roque and Veríssimo, 2011). These findings imply that the ability to recognize, describe and regulate emotions is related to child's relationships with attachment figures.

Research on the relationship between attachment styles and alexithymia shows that alexithymia features are more common in the insecure attachment styles (Besharat, 2010). Family studies of alexithymia show that children who grow up in an emotionally and physically insecure environments which prevent them from expressing emotions do not learn successful coping skills for their emotions and consequently feel discomfort when they do experience emotions (e.g., Besharat, 2010). These difficulties, in addition to lack of appropriate patterns for expressing emotions, may lead to anxiety and ambivalence toward expressing emotions (e.g., Karukivi et al., 2011). Individuals with poor maternal care experiences show alexithymia characteristics, especially difficulties in expressing emotions (e.g., Karukivi et al., 2011). Insecure attachment may cause failure in learning how to feel and may pave the way for alexithymia (Wearden et al., 2005). Insecure feelings in attachment relationships anticipate defect and inadequacy in the identification of and expressing of emotions (Dewitte et al., 2010).

Despite these studies, we do not fully understand the mechanisms via which attachment style can affect emotion regulation. Therefore, it is important to assess the variables which have a mediator effect on this relationship. Freud (1923) believed that ego defense style and frequency of using defense mechanisms are the mains factor in the understanding of personality and psychopathology. Mickelson et al. (1997) noted that psychological defense styles may serve as moderators or mediators of early negative relationships and adult psychopathology. Therefore, it can be predicted that defense mechanisms may play an important

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role in the development of alexithymia when attachment style is insecure.

Defense mechanisms are automatic self regulating processes which reduce cognitive discrepancies and minimize sudden changes in external and internal reality by distorting the perception of threatening events (Vaillant, 1994). Andrews et al. (1993) categorized three defense styles based on twenty defense mechanisms suggested by Vaillant (1976). These are named "mature", "neurotic" and "immature". The mature defense style represents normal and adaptive methods of coping whereas the immature and neurotic styles are dysfunctional and maladaptive coping strategies. Defense mechanisms are associated with physical and psychological consequences (Vaillant, 2000) and predict several kinds of psychopathology in adolescents (Besharat and Shahidi, 2011; Kwon and Olson, 2007).

Several studies show that development of defense mechanisms is affected by attachment style (Besharat et al., 2001; McMahon et al., 2005). The way people cope with stressful conditions is influenced by their defense styles, which in turn is determined by their attachment styles (Kobak and Scerry, 1988). On the other hand, it was shown that dysfunctional defense mechanisms are associated with disabilities in recognizing and expressing of affects (Besharat, 2010; Besharat and Shahidi, 2011).

The present study was aimed to examine the mediating role of defense mechanisms on the relationship between attachment styles and alexithymia. By considering theoretical and research findings in this field, there are three hypotheses for this study: (1) there is a negative relationship between secure attachment style and alexithymia; (2) there is a positive relationship between insecure attachment styles and alexithymia; (3) defense mechanisms have a mediating role on the relationship between attachment styles and alexithymia.

## 2. Method

### 2.1. Participants and procedure

Participants included in this study were high school students in Tehran, Iran. Four hundred and seventy students from different academic disciplines in the humanities, experimental sciences and mathematics were included in this study. After the description of the research objectives and the students' consent, Defense Style Questionnaire (DSQ-40; Andrews et al., 1993), Adult Attachment Inventory (AAI; Besharat, 2011), and Farsi version of the Toronto Alexithymia Scale-20 (TAS-20; Bagby et al., 1994) were performed. To encourage students and increase the accuracy of the test answering, participants were asked to write their name and address in order to distribute the results of the study. The average time required to complete the questionnaire was 30 min. In order to control order effects and fatigue in students, scales were presented in different sequences. Twenty seven students were excluded from statistical analysis due to incomplete responses. Hence, 443 students completed the whole study that consisted of 230 girls and 213 boys. The average age of the students was 17.20 (SD = .84, age range: 16–19 years). The average age of boys was 17.30 (SD = .81, age range: 16–19 years), and the average age of girls was 17.13 (SD = .86, age range: 16–19 years).

## 3. Measures

**DSQ-40:** The DSQ-40 (Andrews et al., 1993) is a 40-item self-report questionnaire. Items are rated on a nine-point scale from 1 (completely disagree) to 9 (completely agree) and measure three categories of defense mechanisms including mature, neurotic, and immature styles. The mature defense style includes mechanisms of sublimation, humor, anticipation, and suppression. The neurotic

defense style includes mechanisms of undoing, pseudoaltruism, idealization, and reaction formation. The immature defense style includes mechanisms of projection, passive aggression, acting out, isolation, devaluation, autistic fantasy, denial, displacement, dissociation, splitting, rationalization, and somatization. Each of the defense mechanisms has two items on the DSQ-40. The DSQ-40 has demonstrated good psychometric properties (Andrews et al., 1993). Cronbach's alpha coefficients of the Farsi version of the DSQ-40 ranged from .83 to .94 for mature defense style, .81 to .92 for neurotic defense style, and .79 to .91 for immature defense style (Besharat, 2007a). Test-retest reliability in a sample of 107 patients and 248 normal individuals were calculated in two occasions over a 2–6 week. period. Correlation coefficients ranged from .73 to .87 for mature defense style, .71–.84 for neurotic defense style, and .69–.78 for immature defense style (Besharat, 2007a). All correlation coefficients were significant at  $p < .001$ . These coefficients are indicative of adequate test-retest reliability of the Farsi version of DSQ-40.

**AAI:** The AAI is a 15-item inventory derived from the Attachment Style Questionnaire (Hazan and Shaver, 1987), the Relationship Questionnaire (Bartholomew and Horowitz, 1991), and the Attachment History Questionnaire (Crowell et al., 1999) and validated for Iranian populations (Besharat, 2011). The AAI measures three attachment styles including secure, avoidant, and ambivalent on a five-point Likert scale ranging from 1 (very little) to 5 (very much). Cronbach's alpha coefficients of the AAI were .85, .84, and .85 for secure, avoidant, and ambivalent attachment styles, respectively. Test-retest reliability in a sample of 300 participants was calculated in two occasions over a 4 week. period. Correlation coefficients were .87, .83, and .84. for secure, avoidant, and ambivalent attachment styles, respectively. All correlation coefficients were significant at  $p < .001$  (Besharat, 2011). These coefficients are indicative of adequate test-retest reliability of the AAI. Construct validity of the AAI was confirmed by factor analysis that identified three factors named secure, avoidant and ambivalent attachment styles (Besharat, 2011).

**FTAS-20:** The FTAS-20 is a Farsi version of The Toronto Alexithymia Scale (TAS-20; Bagby et al., 1994) validated for Iranian populations (Besharat, 2007b). The FTAS-20 measures three components of alexithymia including difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The TAS-20 has demonstrated good psychometric properties (e.g., Parker et al., 2003; Thorberg et al., 2010). Adequate psychometric properties of the scale have yielded results for Iranian populations (Besharat, 2007b). Cronbach's alpha coefficients of the FTAS-20 were .85, .82, .75, and .72 for overall alexithymia score and subscales of difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking, respectively. Test-retest reliability in a sample of 67 participants was calculated on two occasions over a 4 week. period. Correlation coefficients ranged from .80 to .87 for the total and subscales scores. All correlation coefficients were significant at  $p < .001$  (Besharat, 2007b).

## 4. Results

**Table 1** shows mean and standard deviations for alexithymia, defense styles and attachment styles scores for boys, girls, and the total sample.

Pearson correlation coefficients between defense styles, attachment styles, and alexithymia scores are shown in **Table 2**. As can be seen from the table, secure and insecure attachment styles showed significant negative and positive correlations with alexithymia, respectively. These results confirm the first two hypotheses.

**Table 1**

Mean and standard deviations for defense mechanisms, attachment styles, and alexithymia, for boys, girls, and the total sample.

Variable/scale	Boys		Girls		Total	
	M	SD	M	SD	M	SD
Mature defense style	5.82	1.65	5.58	1.30	5.70	1.48
Neurotic defense style	4.22	1.31	4.44	1.17	4.33	1.24
Immature defense style	3.66	1.66	3.90	1.50	3.78	1.58
Secure attachment style	15.94	4.04	15.26	3.61	15.59	3.83
Avoidant attachment style	12.23	6.73	12.64	5.86	12.45	6.30
Ambivalent attachment style	44.29	14.14	44.83	11.26	44.57	12.70
Alexithymia	95.06	19.90	94.71	18.42	94.88	19.12

**Table 2**

Zero order correlations between attachment styles, defense mechanisms, and alexithymia for the total sample (N=443).

Variable	1	2	3	4	5	6
1. Mature defense style	1					
2. Neurotic defense style	-.61	1				
3. Immature defense style	-.56	.73	1			
4. Secure attachment style	.63	-.54	-.51	1		
5. Avoidant attachment style	-.64	.53	.54	-.79	1	
6. Ambivalent attachment style	-.53	.44	.46	-.72	.65	1
7. Alexithymia	-.61	.54	.51	-.82	.73	.61

Note. All p values &lt;.001.

To assess the mediating role of defense styles, hierarchical multiple regression analysis was used with alexithymia as the dependent variable and each of the attachment styles as independent variable in the first step, then mature defense style entered into the regression equation as the mediating variable. The results are presented in Table 3. When mature defense style was added to the equation, absolute value of the standardized coefficient ( $\beta$ ) for secure attachment style decreased from  $-.82$  to  $-.73$ . The Sobel test showed that this difference is significant ( $t = -4.22, p < .001$ ) while secure attachment style also remained significant ( $t = -21.66, p < .001$ ). Results were repeated for insecure attachment styles and verified the partial mediating role of mature defense style between insecure attachment styles and alexithymia (see Table 3).

A series of hierarchical multiple regression analyses were also conducted in order to examine the mediating role of neurotic defense style on the relationship between attachment styles and alexithymia. The results of these analyses are shown in Table 4. When neurotic defense style was added to the equation, absolute value of the standardized coefficient ( $\beta$ ) for secure attachment style decreased from  $-.82$  to  $-.75$ . The Sobel test showed that this

difference is significant ( $t = 4.21, p < .001$ ) while secure attachment style also remained significant ( $t = -24.18, p < .001$ ). Results repeated for insecure attachment styles and verified the partial mediating role of neurotic defense style between insecure attachment styles and alexithymia (see Table 4).

Similar analyses revealed that when immature defense style was entered in the regression equation as a mediating variable, absolute value of the standardized coefficient ( $\beta$ ) for secure attachment style decreased from  $-.82$  to  $-.76$ . The Sobel test showed that this difference is significant ( $t = 3.81, p < .001$ ) while secure attachment style also remained significant ( $t = -24.95, p < .001$ ). Results repeated for insecure attachment styles and verified the partial mediating role of immature defense style between insecure attachment styles and alexithymia (see Table 5).

## 5. Discussion

The main objective of the present study was to examine the mediating role of defense mechanisms on the relationship between attachment styles and alexithymia. Secure and insecure attachment styles were significantly associated with alexithymia

**Table 3**

Summary of regression analyses for mediating role of mature defense style between attachment styles and alexithymia.

		R <sup>2</sup>	ΔR <sup>2</sup>	B	SE B	β	t
1.	Step 1	.66					
	Secure attachment style			-2.76	.089	-.828	-31.03
	Step 2	.69	.03	-2.45	.113	-.737	-21.66
2.	Secure attachment style			-1.03	.244	-.144	-4.22
	Mature defense style						
	Step 1	.53					
2.	Avoidant attachment style			2.17	.095	.737	22.90
	Step 2	.57	.04	1.72	.119	.584	14.44
	Avoidant attachment style			-1.71	.289	-.239	-5.92
3.	Mature defense style						
	Step 1	.37					
	Ambivalent attachment style			2.16	.133	.612	16.24
3.	Step 2	.48	.11	1.40	.143	.397	9.80
	Ambivalent attachment style			-2.86	.290	-.400	-9.88
	Mature defense style						

Note. All p values &lt;.001.

**Table 4**

Summary of regression analyses for mediating role of neurotic defense style between attachment styles and alexithymia.

		R <sup>2</sup>	ΔR <sup>2</sup>	B	SE B	β	t
1.	Step 1 Secure attachment style	.66					
	Step 2 Secure attachment style	.69	.03	−2.76	.089	−.828	−31.03
	Neurotic defense style			−2.52 1.34	.104 .320	−.756 .132	−24.18 4.21
2.	Step 1 Avoidant attachment style	.53					
	Step 2 Avoidant attachment style	.57	.04	2.17 1.83 2.19	.095 .108 .374	.737 .623 .214	22.90 17.02 5.85
3.	Step 1 Ambivalent attachment style	.36					
	Step 2 Ambivalent attachment style	.46	.10	2.16 1.62 3.84	.133 .137 .397	.612 .461 .341	16.24 11.87 8.78
	Neurotic defense style						

Note. All p values &lt;.001.

in opposite directions. Confirming the first and second research hypotheses, the results of the present study are in line with the findings of previous research (Besharat, 2010; Lång, 2010; Thorberg et al., 2011). These results could be explained in terms of several possibilities.

The mothers of securely attached children engage in open affect-related discussions with their children and allow them to express their positive and negative emotional states (Leibowitz et al., 2002). According to Cassidy (1994), securely attached children expect that their emotion signals will be responded to, thus they openly express their emotions. This early experience plays an important role in the development of narrative abilities and emotional understanding. Indeed, secure children have an understanding of mental states in themselves and in others and identify and speak comfortably about their emotions (McQuaid et al., 2008). Therefore, mothers who are sensitive and responsive promote children's understanding, acceptance, and regulation of difficult emotions while teaching their children that their emotions are valid and providing the supportive context for expressing their feelings (Erickson and Lowe, 2008; Lowe et al., 2012). In contrast, mothers of insecurely attached children speak about external events rather than their child's emotional states (McQuaid et al., 2008) that lead to difficulty in recognizing and expressing emotions. Also, these children attempt to prevent negative emotional expressions and try to appear happy to avoid their caregiver becoming angry (Crittenden, 1992).

The results of the present study showed that defense mechanisms have a partial mediating role on the relationship between attachment styles and alexithymia. Therefore, it is possible to conclude that part of the relationship between attachment styles and alexithymia could be explained by defense mechanisms. Consistent with former studies that showed defense mechanisms are determined by attachment styles (Besharat et al., 2001; McMahon et al., 2005) and are associated with alexithymia (Besharat, 2010; Besharat and Shahidi, 2011; Lång, 2010; Thorberg et al., 2011), these results could be clarified by several possible explanations.

People with insecure attachment styles experience lower levels of positive emotions and higher levels of negative emotions than those with secure attachment style (Gresham and Gullone, 2012). Positive emotions provide securely attached people with the use of more mature defense mechanisms, while negative emotions make insecure people susceptible to using more neurotic and immature defense mechanisms. Positive emotions may function as strengthening ego in the service of using mature defense mechanisms, whereas negative emotions may function as conflict flaming preventing ego from using mature defense mechanisms. It is also suggested that secure attachment style play an important role in reducing anxiety (Besharat et al., 2001; Feeney and Kirkpatrick, 1996). Similar to positive emotions, this anxiety reduction functioning also helps people with secure attachment style to use mature defense mechanisms more

**Table 5**

Summary of regression analyses for mediating role of immature defense style between attachment styles and alexithymia.

		R <sup>2</sup>	ΔR <sup>2</sup>	B	SE B	β	t
1.	Step 1 Secure attachment style	.67					
	Step 2 Secure attachment style	.69	.02	−2.76 −2.55 .943	.089 .103 .247	−.828 −.767 .117	−31.03 −24.95 3.81
	Immature defense style						
2.	Step 1 Avoidant attachment style	.53					
	Step 2 Avoidant attachment style	.56	.03	2.17 1.91 1.31	.095 .111 .302	.737 .648 .164	22.90 17.26 4.36
	Immature defense style						
3.	Step 1 Ambivalent attachment style	.36					
	Step 2 Ambivalent attachment style	.45	.09	2.16 1.68 2.37	.133 .142 .322	.612 .475 .296	16.24 11.85 7.38
	Immature defense style						

Note. All p values &lt;.001.

frequently. The mechanisms of using either mature or immature/neurotic defense mechanisms here is the same as positive/negative emotions. Again, while anxiety challenges ego in using effective defense mechanisms, anxiety reduction may help ego to use more mature defenses in stressful situations.

Several studies have supported the important role that early caregiver's sensitivity and responsiveness, as the main components of secure attachment, have in development of emotion regulation both in childhood (Bowlby, 1969; Hershenberg et al., 2011) and adulthood (e.g., Carrère and Bowie, 2012). This property assists the individual in developing functional defense mechanisms. Conversely, in the case of insecure attachment, individuals use immature and neurotic defense mechanisms to act against stress and block conscious awareness of negative emotions. Based on the attachment theory, children with attachment anxiety are different in their coping styles. As mentioned, insecure attachment styles may deprive potential opportunities for learning emotion regulation skills in the context of relations between mother and child and weakens a person's ability to deal effectively with stressful situations. This increases the likelihood of the person using neurotic and immature ego defense styles when faced with stress.

The present study has some limitations in generalizability of the results. Although this study provides evidence for the moderating role of defense mechanisms on the relationship between attachment styles and alexithymia, the cross-sectional design of the study prevents an understanding of the exact nature of the relationships, particularly with respect to causality. It is to be noted that although research on alexithymia has confirmed the validity and stability of the concept (e.g., Picardi et al., 2005; Taylor and Bagby, 2004) indicating that it cannot be reduced to defense mechanisms (e.g., Besharat and Shahidi, 2011), the possibility of overlap between the two concepts needs to be clarified. Also, the method of the present study can give rise to artificially high correlations due to this overlap and shared variance. The present study focused on the moderating role of defense mechanisms. Consequently, it is important that future studies employ different variables which may have potential to play a moderating role, in order to lead to a better understanding of the role of both personal and interpersonal factors in the development and perpetuation of emotional problems.

The present study may have important implications. Results of this study provide a better understanding of the effective factors and correlates of alexithymia. These results support the existing findings and theories concerning emotion regulation and alexithymia, as well as theories related to attachment and defense mechanisms. Furthermore, confirmation of the mediating role of defense mechanisms on the relationship between attachment styles and alexithymia assist integrating attachment and personality theories and psychopathology. The present study also informs clinicians about effective variables in developing and/or maintaining alexithymia. At a practical level, the findings can be a good consideration as empirical basis for developing educational and health programs in the context of mother-child relationship, emotional management interventions and programs aimed at strengthening ego.

## Conflict of interest

There are no conflicts of interest.

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