

A New Attachment Assessment Tool: Attachment-Based Mental Representation Scale (ABMRS)



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ABSTRACT

Objective: The goal of this study is to develop a new assessment tool to measure attachment.

Method: The study consisted of six stages. Initially, in order to develop an item pool, the current attachment literature and measuring tools were examined. The clarity of the items and the face validity were evaluated with a group of 20 ‘judges’. The draft scale was given to 307 individuals, using the Brief Symptom Inventory as a criterion measure. Selection of the items was completed with factor analyses, and the resulting 33 item scale was named, “Attachment-Based Mental Representation Scale” (ABMRS). Later, with a sample of 407 individuals, the reliability and validity analyses of this 33-item scale were conducted, using different criteria measures namely, Experiences in Close Relationships Inventory, The Parental Bonding Instrument, UCLA Loneliness Scale, Stress Audit Scale. Then, the test-retest reliability was investigated with a new sample of 60 individuals. With the addition of 7 more items, the Scale was administered to 283 people to investigate the psychometric properties. Lastly, the new 40-item Scale, with the items written in a mixed order, was applied to a different sample of 264 participants, and exploratory and confirmatory factor analyses were conducted.

Results: The scale has a six-dimensional structure, and it has been observed that the reliability coefficients of the dimensions vary between 0.72 and 0.86. These sub-dimensions can be grouped together and evaluated as “Secure Attachment” and “Insecure Attachment”.

Conclusion: It can be argued that the ABMRS validly and reliably measures the attachment phenomenon with various dimensions for Turkish culture.

Keywords: Secure/Insecure Attachment, Mental Representation

INTRODUCTION

Attachment is defined in many sources as an emotional bond that develops between the child and the caregiver, and manifests itself with the child’s search for closeness with the caregiver. It becomes evident especially in stressful situations, and has consistency and continuity (Thompson 2002, Kesebir et al. 2011). It is known that attachment begins within the prenatal period, and lasts throughout life, changing in its nature and in the way it is expressed.

John Bowlby conducted his first research on attachment, through animal observations and then extended his ideas to include human beings. He argued that the feeling of trust between the baby and the caregiver constitutes a basic structure

for the child to develop positive models about himself and others and called these, ‘internal working models’ or ‘mental representations’ (Bowlby, 1969, 1973). It is thought that these representations formed by the baby, constitute a prototype (schema) for interpersonal relationships later in adulthood (Tolan 2002). Bowlby (1973) and Ainsworth (1989) stated that, attachment styles are shaped through the parent-child interaction at an early age and suggested that, the quality of this interaction affects the expectations, beliefs, needs, emotion regulation strategies, and other social behaviors of the child in close relationships during the later years.

In a study based on Bowlby’s attachment theory, known as ‘The Strange Situation’ experiment, Ainsworth, Bleher, Waters, and Wall (1978) found that children could be

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classified into three different groups, according to their behavioral responses to separation from and reunification with their mothers. They conceptualized these behavioral responses as 'attachment styles' and named them as 'secure,' 'anxious-ambivalent,' and 'avoidant' attachment.

Hazan and Shaver (1987) conducted several studies in which Ainsworth's triple attachment styles are reflected in romantic relationships in adult life. Researchers argue that even though the behavioral expressions seen in these romantic relationships differ from the attachment styles observed between the infant and the parent, they suggest that they can still be considered as 'secure,' 'anxious-ambivalent,' and 'anxious-avoidant' attachment styles (Cooper et al. 1998).

In subsequent studies, Bartholomew and Horowitz (1991) defined these adult attachment styles within the framework of Bowlby's two mental representations of the 'self' and 'others,' rather than explaining them with strict categories. In this model, known as the 'Four Category Model of Adult Attachment,' they proposed four basic attachment patterns according to whether these representations are positive or negative (Bartholomew and Horowitz 1991).

The Adult Attachment Interview (AAI), developed by Main, Kaplan, and Cassidy (1985), is accepted as the gold standard for clinical measurement of attachment. The aim of this semi-structured interview, which lasts approximately 1 hour, is to examine the role of the infant-parent or child-parent attachment experiences, in terms of their reflections in adulthood, and thus to reveal mental representations of adult attachment. AAI also aims to evaluate attachment projectively, and therefore it also uses techniques such as showing pictures and completing a story (Van Ijzendoorn 1995).

Brennan, Clark, and Shaver (1998) on the other hand, as a result of a statistical analysis they conducted on the frequently used attachment scales, suggested that there are actually two basic attachment dimensions in close relationships during adulthood, namely 'anxious' and 'avoidant' types.

Studies on attachment, conducted in Turkey, in general include topics like attachment to the parent in infancy and childhood (Atasoy et al. 1997, Uluç and Öktem 2009), parental roles (Güngör 2000, Çamurlu-Keser 2006, Salahur 2010), perceived parental attitudes (Demirli 2012), parenting styles (Özer, 2011), problem solving (Ergin and Dağ 2013, Arslan et al. 2012, İlhan 2012, Türköz 2007, Ergin 2009), social skills (Seven 2006), self-perception (Sümer and Anafarta Şendağ) 2009, Hamarta 2004), various personality characteristics (Onur 2006, Saya 2006, Morsünbül 2014), job satisfaction (Demirkan 2006), close relationships (Büyüksahin 2001, Karakurt 2001, Sümer 2006, Tutarel-Kışlak and Çavuşoğlu 2006, Bahadır 2006, Beştav 2007, Kankotan 2008, Açık 2008, Çakır 2008), social roles (Morsünbül and Tümen 2008, İlhan 2012), psychopathology (Eker 2019, Sabuncuoğlu and

Berkem 2006, Oral 2006, Erdoğan 2007, Çeri 2009, Erdoğan 2010, Pazvantoglu et al. 2013, Dağ ve Gülüm 2013, Erdiman 2010) and psychological discomfort (Sözüğeçer 2011, Ayaz et al. 2012, Batıgün and Büyüksahin 2008, Yaka 2011, Keklik 2011, Gündüz 2013, Türe 2013).

If these findings are generalized, it appears that individuals with secure attachment styles, have healthier communication styles, higher job and life satisfaction, higher self-esteem, better problem-solving skills, and are more assertive (Güngör 2000, Arslan 2008, Morsünbül and Tümen 2008, Büyüksahin 2001, Tutarel-Kışlak and Çavuşoğlu 2006, Bahadır 2006, Ergin and Dağ 2013, Morsünbül 2014). These findings are consistent with the studies conducted abroad.

However, the measurement of the phenomenon of attachment, by its very nature, is quite difficult. Therefore, various measurement tools have been developed from different perspectives, approaching the issue in different ways. The clinical manifestations of each form of attachment are different, in terms of their specific reflections on an individual's life, inner world, bilateral relations, as well as on one's perception of himself, others and the world. Although it is relatively easy to observe this, it is quite difficult to address it objectively (Thompson 2002, Kesebir et al. 2011).

The measurement tools developed for the evaluation of attachment in young adults and adults can be discussed under three headings. These are, observation or interview based methods, behavioral assessment methods, and self-reports (Crowell et al. 2008). 'Adult Attachment Interview (AAI)' (Main et al. 1985) and 'Adult Attachment Projective' (George and West 2001) can be given as two examples for the observation and interview-based methods. The 'Secure Base Scoring System (SSSS)' (Crowell et al 2002), 'Secure Base Scenario' (Waters and Waters, 2006), are examples of behavioral assessment methods. The Parental Bonding Instrument (Parker et al.1979), Attachment History Questionnaire (Pottharst 1990), Inventory of Parent and Peer Attachment (Armsden and Greenberg 1987), the Reciprocal and Avoidant Questionnaire for Adults (West and Sheldon 1992), Attachment Style Questionnaire Three Category Measure (Hazan and Shaver 1987), the Adult Attachment Scale (Collins and Reed 1990; Collins 1996), the Relationship Questionnaire (Bartholomew and Horowitz, 1991), Retrospective Attachment Questionnaire (Parkes 2006), Experiences in Close Relationships (Brennan et al. 1998), Experiences in Close Relationships Revised (Fraley et al. 2000) can be given as examples of the self-report measures.

Some of the scales mentioned above were adapted to better fit the Turkish culture, and validity and reliability studies were conducted. Among these tools are the Relationship Scale for Adults (Sümer and Güngör 1999), the Relationship Scales Questionnaire (Sümer and Güngör 1999), the Experiences in

Close Relationships Inventory-I (Sümer 2006), Experiences in Close Relationships Inventory-II (Günaydın et al. 2005), Attachment Scenario Evaluation Method (Anafarta-Şendağ 2019), and the Parent Attachment Scale (Kapçı and Küçükler 2006).

When we consider the above scales adapted for the Turkish culture, it is seen that only the Attachment Scenario Evaluation Method is a measure that can be used in studies conducted in the clinical arena when doing a behavioral evaluation. The use of self-report measures in clinical studies are limited and they mostly consist of the scales developed in the field of social psychology. Based on the scarcity of these attachment measures specific to clinical studies in Turkey, the main purpose of the current study is to develop a new self-report attachment scale that can be used in clinical psychology research.

METHOD

This scale development study covered a process consisting of 6 stages. The studies that include these stages are discussed separately with their findings below. Ethics committee approval of the study was obtained from the relevant university. In each study, data were collected on a voluntary basis, and informed consent was obtained from each participant. Applications varied between 10-30 minutes in each study. At each stage, the data were analyzed for outliers that violate the assumptions of normal distribution and these outliers were excluded from the data set before the analyses. More detailed information about the scale development process can be obtained from Varlık Ozsoy's (2015) thesis study entitled "Attachment, Anxiety and Information Processing." At each stage of the study discussed below, extreme values according to their Z scores were identified and excluded from the main analyses.

The First Two Stages

In the first stage of the scale development study, the studies of Bowlby (1969, 1973, 1988), Harlow, Ainsworth, Bartholomew, and Horowitz, and the theories of Kohut (1971) and Horney (1945) were taken as the basis and, several possible items for assessing adult attachment were generated to create an item pool. Then, assessment tools such as AAI, the gold standard used in research area, were also examined, and items that were thought to be relevant were added to the item pool. Next, the clarity of the items were evaluated in collaboration with 20 faculty members who are experts in their fields and are familiar with the attachment literature. After these procedures, the 'draft form' of the scale was composed of 23 open-ended items and 150 5-point Likert-type items. Brief Symptom Inventory (Derogatis 1992, Şahin and Durak 1994) was used as criterion validity measurement.

For this purpose, a total sample of 311 people consisting of young adults and adult samples was used. Data obtained were subjected to four separate processes and item selection/sorting was carried out. In selection of these processes, the various methods used in scale development studies were used (Erkuş 2016, Erkuş 2007). The procedures are as follows: 1. Item-total correlations, 2. Correlations with the Brief Symptom Inventory, 3. Selection that is made according to the extreme groups created according to the Brief Symptom Inventory, 4. Exploratory factor analysis.

After these four procedures, items that were chosen to be kept were determined, thus the 'candidate scale' which was composed of 150 items, was reduced to 96 items.

A factor analysis was performed on these 96 items using the Principal Component method with Varimax rotation. When the scree plot was examined, it was seen that a six-factor structure was suitable. Items with factor loadings higher than 0.45 were included in the scale.

Since confirmatory factor analysis is also a method used to discern the items in the scale development process (McIntire and Miller, 2000), the factor structure obtained in the initial exploratory factor analysis was subjected to a confirmatory factor analysis. When the results were obtained, and it was seen that some of the items were overlapping. After selecting the most appropriate ones from among them, the scale was simplified and reduced to 40 items.

The Cronbach alpha coefficient of the newly created 40-item 'candidate scale' with five factors (positive self-perception, positive mother-perception, positive father-perception, negative self-perception, negative father-perception), accounting for the 47.70% of the total variance, was found to be 0.80. The reliability coefficients of factor-based subscales, 'positive self-perception,' 'positive father perception,' 'negative self-perception,' 'positive mother perception,' 'negative father perception' were found as 0.86, 0.88, 0.80, 0.75 and 0.76, respectfully. Although it was noteworthy that a 'negative mother perception' factor did not emerge at this stage of the study, we decided to reconsider this issue in the later stages of the study. However, among the possible explanations, we can entertain the inconsistency of the participants, in their endorsement of the items indicating a negative mother perception or their age range. As stated before the sample in the second stage was composed of 311 young adults and adults. It is possible that at this stage, individuals are still struggling or ambivalent with their negative evaluations of their mothers, and this inconsistency may have been reflected in the results of the factor analysis. With this in mind, the plan was to include younger adolescents in the sample of the next study. Detailed explanations related to this issue are discussed in detail, in the first author's doctoral thesis titled "Attachment, Anxiety and Information Processing" (Varlık

Ozsoy 2015). As a result of these analyses, the scale was named "Attachment-Based Mental Representation Scale." The word 'representation' used in this study, refers to the person's perception of 'mother, father, and self (as perceived by oneself, by friends, or by other relatives).' Other researchers have also talked about mother, father, and self-perceptions as 'mental representations' (See Collins 1996). As mentioned in attachment theory, early experiences form the basic schemas which determine the person's perception of events. It is also thought that our behavioral repertoire is shaped by our perceptions. Therefore, instead of early schemas, we believe that the phrase mental representation would be appropriate to use, based on Bowlby's 'internal working models' assumption.

The validity and reliability of this newer version with 40 items, was investigated with a new sample in the third stage.

The Third Stage

The sample of the third stage study consisted of 407 people, ages ranging between 19-66 (mean age 29, $sd=10.41$), living in Ankara, Antalya, and İstanbul and it was randomly determined by snowball sampling method.

Data Collection Tools

For this step, the assessment tools that are mentioned below were chosen with the expectation that they will give some data regarding the concurrent and construct validity of the new, 40-item version of the scale.

Experiences in Close Relationships Inventory-I (ECR-S): ECR-S was developed by Brennan, Clark, and Shaver (1998). It is a 7-point Likert-type 36-item scale, which is thought to measure attachment in adult romantic relationships. Adaptation to Turkish, validity and reliability studies have been carried out, and it was seen that it has a two-factor structure called 'anxiety' and 'avoidance' (Sümer 2006, Sümer and Güngör 1999, Güngör 2000, Karakurt 2001). In the present study, the Cronbach's Alpha internal consistency coefficient was found as 0.84 (0.88 for anxiety, 0.84 for avoidance). This is one of the most frequently used self-report assessment tools to measure adult attachment and it was chosen to supply data on the concurrent validity of the attachment scale being developed in the current study.

The Parental Bonding Instrument-PBI: The next assessment tool to measure concurrent validity was the PBI. PBI was developed by Parker, Tubling, Brown, et al. (1979) to measure the child-parent attachment patterns based on Bowlby's (1969, 1973) attachment theory. The scale consists of two separate forms (mother and father), and includes 'interest' and 'control' dimensions. Adaptation to Turkish culture and reliability and validity studies were conducted by Kapçı and Küçüker (2006) with university students. In the current study, the Cronbach's alpha internal consistency coefficient of

the scale was found as 0.86 for the Mother form and 0.89 for the Father form.

UCLA Loneliness Scale- UCLA-LS: Since, loneliness is a phenomenon which is related to the attachment styles of the individual (DiTomasso et al. 2003), UCLA Loneliness Scale was used to investigate the construct validity of the attachment scale being developed in the current study. UCLA Loneliness Scale, which is a Likert-type self-assessment scale consisting of 20 questions to determine the general level of loneliness of the individual, 10 of which do not contain loneliness semantically, and the other 10 items are aimed at measuring loneliness semantically (Russell et al. 1980). Higher scores indicate that individuals experience more loneliness. The validity and reliability studies of the scale in our country were carried out by Demir (1989). In the current study, the Cronbach's alpha internal consistency coefficient of the scale was calculated as 0.86.

Stress Audit Scale- SAS (Stress Audit 4.2-OS): In related literature, it was already shown that stress is another variable related to the attachment styles of individuals (Mikulincer and Florian 1998). Therefore The Stress Audit 4.2-OS, was one of the other scales chosen for this phase of our current study. It was chosen both with the intention to give information on the construct validity of the instrument and also on its usability in clinical psychology research. SAS is a 1-5 Likert-type scale consisting of 70 items developed by Miller, Smith, and Mahler (1988). It is thought that as the score obtained from the scale increases, the symptoms of stress experienced also increase. Turkish adaptation and validity and reliability studies of the scale were carried out (Şahin and Batıgün 1997, Şahin et al. 2009). In the current study, the total reliability coefficient of SAS was found to be quite high as $\alpha= 0.96$.

Personal Information Form: This form includes 24 questions about demographic qualities of the participants, such as age, gender, education level; some questions related to their life satisfaction level, and some questions about the parents/caregivers of the participants.

RESULTS

Construct Validity (Factor analysis)

Attachment-Based Mental Representations Scale was evaluated at this stage with another confirmatory factor analysis. To achieve better fit indices, items with overlaps and items with item factor loadings below 0.30 were removed from the scale. As a result, the scale was reduced to 33 items, with acceptable fit indices (chi-square value, CFI, GFI and RMSA values). The total variance explained by the five factors was found to be 53% (See Table 1).

'Positive Father Perception,' 'Positive Mother Perception' and 'Positive Self Perception' subscales of the Attachment-Based

Table 1. Structure of the 33-item Attachment-Based Mental Representation Scale

Items of the Attachment-Based Mental Representation Scale	Factor 1 Negative Father Perception	Factor 2 Positive Father Perception	Factor 3 Negative Self- Perception	Factor 4 Positive Mother Perception	Factor 5 Positive Self- Perception
7. My father is (was) a pessimistic person	.76				
8. My father is (was) an angry person	.71				
9. When I was a child, I would not care at all if my father left me on my own even when I needed him	.38				
10. My father used to insult me when I was a child	.56				
11. When I was a child I loved to play or do homework with my father		.73			
12. I feel (felt) secure even if my father is (was) not physically near me		.68			
13. I know (knew) my father will (would) approve of me		.82			
14. I feel happy when I am (was) with my father		.79			
15. I trust(ed) my father		.23			
16. My life's goals are (were) determine(d) by my father's expectations of me		.61			
20. I take things personally			.56		
26. I cry when I am stressed			.57		
27. I panick when I am faced with a problem I can not solve			.63		
28. When I face a problem, I constantly keep thinking how I will cope with it			.59		
29. There are times I exaggerate very small hassles.			.71		
30. My emotional state changes very abruptly			.55		
31. I am a pessimistic person			.67		
32. I am constantly in fear of losing the person I have become attached to			.52		
33. In my life, I constantly need to be attached to someone			.51		
1. My mother is (was) a person with good intentions				.52	
2. When I was a child I loved to play or do homework with my mother				.68	
3. When I am (was) in trouble, I feel (felt) confident that I can (could) find a safe haven near my mother				.78	
4. I know (knew) my mother will (would) approve of me				.67	
5. I trust(ed) my mother				.62	
6. My life's goals are (were) determine(d) by my mother's expectations of me				.72	
17. My friends describe me as a pleasant person					.43
18. I am perceived as a capable and talented person by my friends					.66
19. My friends are people with good intentions					.56
21. There are many things in this world that excite me and I would like to explore.					.50
22. I am a happy person					.49
23. I am an adaptive person					.72
24. I am a trustworthy person					.31
25. I am a loveable person					.37
Variance Explained by Each Factor	%21	%11	%10	%6	%5
Total Variance Explained			%53		
Cronbach's Alpha Value	.70	.80	.78	.81	.76

Table 2. Correlation Coefficients of ABMRS Sub-Dimensions with Criterion Variables (n=407)

ABMRS Sub Dimensions	UCLA-LS- Total Score	ECRS Avoidant Dimension	ECRS Anxiety Dimension	PBI-Mother Care/control	PBI - Mother Overprotection	PBI - Father Care/control	PBI - Father Overprotection	SAS Total Score
ABMRS Negative Father Perception	.16**	-.08	.09	-.08	-.02	-.49**	.02	.16**
ABMRS Positive Father Perception	-.26**	.01	-.06	.18**	.08	.63**	-.05	-.16**
ABMRS Negative Self Perception	.28**	.13**	.50**	-.02	-.33**	-.12**	-.26**	.46**
ABMRS Positive Mother Perception	-.08	.10*	.09	.44**	-.09	.12**	-.09	.14**
ABMRS Positive Self Perception	-.40**	-.20**	-.10*	.13**	.06	.19**	.01	-.13*

** p<.01, *p<.05

Mental Representation Scale were conceptualized as the dimension of secure attachment; ‘Negative Self Perception’ and ‘Negative Father Perception’ subscales were conceptualized as the dimension of insecure attachment. The Cronbach alpha coefficients of these basic dimensions of the scale were $\alpha = 0.86$ for ‘Secure Attachment’; $\alpha = 0.77$ for ‘Insecure Attachment.’ The reliability coefficients of the subscales are as follows: ‘Positive Mother Perception’ (6 items; $\alpha = 0.81$), ‘Negative Father Perception’ (4 items; $\alpha = 0.70$); ‘Positive Father Perception’ (6 items; $\alpha = 0.80$); ‘Positive Self-Perception’ (8 items; $\alpha = 0.76$), and ‘Negative Self-Perception’ (9 items; $\alpha = 0.78$).

Criterion Validity

In order to evaluate the validity of the scale, its relationship with a series of criterion measurements was examined. The scales determined as criteria are Experiences in Close Relationships Inventory-I ECR-S, Parental Bonding Instrument-PBI, UCLA Loneliness Scale-UCLA-LS, and Stress Audit Scale-SAS, which were adapted into Turkish.

Initially, the relationship of ‘Secure attachment’ and ‘Insecure attachment’ dimensions of the ABMRS with these scales was examined. As expected, the ABMRS -Secure Attachment dimension was found to be negatively and significantly correlated with the UCLA-Loneliness Scale ($r = -0.34$, $p < 0.01$). Although its correlations with ECRS-Anxiety, PBI-Father overprotection, and Stress Symptoms Scale (SDI) were negative, they were not significant. On the other hand, ABMRS-Secure attachment dimension was positively and significantly correlated with PBI-Mother care/control ($r = 0.32$, $p < 0.01$) and PBI-Father care/control subscales ($r = 0.44$, $p < 0.01$).

On the other hand, as expected the ABMRS-Insecure attachment dimension was positively and significantly correlated with UCLA Loneliness ($r = 0.30$, $p < 0.01$), ECR-S Anxiety ($r = 0.43$, $p < 0.01$), and SAS ($r = 0.43$, $p < 0.01$).

Correlations with PBI-Mother overprotection ($r = -0.27$, $p < 0.01$), PBI-Father overprotection ($r = -0.20$, $p < 0.01$) and PBI-Father care/control ($r = -0.32$, $p < 0.01$) were also negative and significant.

The correlations between the five sub-dimensions of the ABMRS and the aforementioned criterion variables were also in the expected direction (See Table 2). As seen in Table 2, the correlation coefficients of the scales that were related to each other varied between 0.10 and 0.63.

The Fourth Stage

In order to calculate the test-retest reliability of the ABMRS, the scale was re-administered to 63 university students at Akdeniz University in the classroom environment, at three-week intervals. After the data cleaning process, the sample size was 60. The age of the sample ranges between 18-29 years, with a mean age of 20. Among these participants, 81.7% were female and 18.3% were male. In terms of test-retest reliability, the necessity of homogeneity of the distribution was not taken into consideration, since only one scale was administered to the same people, with three-week intervals and no comparison was made regarding gender.

In a three-week test-retest study, the correlation coefficient between the two applications was found to be $r = 0.85$ ($p < 0.01$) for the total sample. In terms of its sub-dimensions, the test-retest correlation coefficients were $r = 0.68$ for ABMRS-Negative Father; $r = 0.85$ for ABMRS -Positive Father; $r = 0.80$ for ABMRS -Negative Self; $r = 0.77$ for ABMRS -Positive Mother; and $r = 0.79$ for ABMRS - Positive Self.

The Fifth Stage

After the four stages described above, as planned previously, the ‘negative mother perception’ sub-dimension was reconsidered and a new study was conducted. With this purpose in mind, those 7 items that were removed from the scale according to certain criteria in the first stage, were reviewed, revised and a

Table 3. Factor Structure of the 40-item ABMRS

Items of the Attachment-Based Mental Representation Scale	Factor 1 Negative Self-Perception	Factor 2 Positive Father Perception	Factor 3 Negative Mother Perception	Factor 4 Positive Mother Perception	Factor 5 Positive Self-Perception	Factor 6 Positive Father Perception
29. There are times I exaggerate very small hassles.	.73					
27. When I am faced with a problem I can't solve, I get panicky	.70					
28. When I face a problem, I constantly keep thinking how I will cope with it	.68					
30. My emotional state changes very abruptly	.64					
32. I am constantly in fear of losing the person I have become attached to	.61					
33. In my life, I constantly need to be attached to someone	.57					
20. I take things personally	.57					
26. I cry when I am under stressed	.55					
31. I am a pessimistic person	.50					
14. I feel happy when I am (was) with my father		.77				
15. I trust(ed) my father		.76				
16. My life's goals are (were) determine(d) by my father's expectations of me		.73				
13. I know (knew) my father will (would) approve of me		.71				
12. I feel (felt) secure even if my father is (was) not physically near me		.68				
11. When I was a child I loved to play or do homework with my father		.65				
38. Whenever she would get angry, my mother would threaten me with abandoning/leaving me			.80			
37. My mother used to insult me when I was a child			.74			
39. When I was a child, if my mother was upset with me she would leave me alone			.71			
40. When my mother was angry with me, she used to say I would be responsible if something happened to her			.67			
35. My mother is (was) an angry person			.66			
34. My mother is (was) a pessimistic person			.50			
36. When I was a child, I would not care at all if my mother left me on my own even when I needed her			.32			
3. When I am (was) in trouble, I feel (felt) confident that I can (could) find a safe haven near my mother				.79		
4. I know (knew) my mother will (would) approve of me				.77		
5. I trust(ed) my mother				.72		
2. When I was a child I loved to play or do homework with my mother				.71		
6. My life's goals are (were) determine(d) by my mother's expectations of me				.43		
1. My mother is (was) a person with good intentions				.36		
25. I am a loveable person					.72	
23. I am an adaptive person					.71	
22. I am a happy person					.62	
24. I am a trustworthy person					.57	
18. I am perceived as a capable and talented person by my friends					.55	
17. My friends describe me as a pleasant person					.53	
21. There are many things in this world that excite me and I would like to explore.					.34	
19. My friends are people with good intentions					.31	
8. My father is (was) an angry person						.71
9. When I was a child, I would not care at all if my father left me on my own even when I needed him						.70
10. My father used to insult me when I was a child						.69
7. My father is (was) a pessimistic person						.66
Variance Explained by Each Factor	%9.76	%9.67	%8.66	%8.57	%7.33	%7.20
Total Variance Explained			%51.19			
Cronbach's Alpha Value	.81	.86	.83	.81	.72	.79

total of 7 items were added back to the scale. This new 40-item scale, was given to a new, more heterogeneous sample (N= 283) consisting of adolescents and young adults, and a new factor analysis was performed. The age of the sample in question ranged from 18-29, with a mean age of 21, and, 76.3% of the sample was female and 23.4% is male.

A principal components analysis with varimax rotation was performed on the forty (40)-items. The scree plot solution indicated a six factor solution producing higher explained variances. Factor loadings above 0.32 were taken as an item selection criteria. The variances explained by the six factors are given in Table 3 (See Table 3).

As a result of this analysis, these newly added 7 items were loaded on the same factor and formed the 'negative mother perception' sub-dimension.

The Cronbach's alpha coefficients of the two dimensions in this 40-item form of ABMRS were $\alpha = 0.85$ for 'Secure Attachment' and $\alpha = 0.83$ for 'Insecure Attachment.' The reliability coefficients of the subscales, positive mother perception, negative mother perception, positive self-perception, negative father perception, positive father perception, negative self-perception were 0.81, 0.83, 0.72, 0.79, 0.86 and 0.81, respectfully.

The Sixth Stage

The five stages of our study mentioned so far, was based on the initial version of the ABMRS, where the items were written in order, clustering into the subscales of the scale. Considering the limitation this might bring to the study related to a response bias of the participants, the items in this last version of the ABMRS were written in a mixed order. It was administered to a new sample of adolescent-young adults consisting of 264 people. The Submissive Acts Scale developed by Gilbert and Allan (1984) and translated into Turkish, by Şahin and Şahin (1992) was also used as criterion measure. The age of the sample varied between 18-31, with a mean age of 21. In this new sample 78.8% was female and 21.2% was male. The Cronbach's alpha coefficients of the basic dimensions of the 40-item mixed-ordered ABMRS were $\alpha = 0.85$ for 'Secure Attachment,' $\alpha = 0.83$ for 'Insecure Attachment.' The reliability coefficients of the subscales (dimensions) are as follows: Positive mother perception 0.81, negative mother perception 0.83, negative father perception 0.79, positive father perception 0.86, positive self-perception 0.71, negative self-perception 0.81.

As a result of the confirmatory factor analysis, the ratio of the chi-square statistics of the scale to the degrees of freedom (χ^2/df) 1.77 ($\chi^2=1286.64$, $df=725$); root mean square approximation error (RMSEA=0.05); Tucker-Lewis index (TLI=0.80) which is the equivalent of the non-normed fit index (NNFI) in the AMOS program; comparative fit

index (CFI=0.81); the goodness-fit index (GFI=0.80) were found to be at acceptable levels. In summary, the 6-factor structure that emerged during the exploratory factor analysis applied during the previous stages of this scale development study was confirmed one more time in the sixth study. In the final version of the scale, the first factor (negative self-perception) consisted of 9 items (2,6,9,19,21,30,32,35,37), the second factor (positive self-perception) consisted of 8 items (1,3,5,14,17,24,29,39), the third factor (positive father perception) consisted of 6 items (7,13,16,20,27,40), the fourth factor (negative father perception) consisted of 4 items (4,10,22,36), the fifth factor (positive mother perception) consisted of 6 items (11,23,25,26,28,33) and the sixth factor (negative mother perception) consisted of 7 items (8,12,15,18,31,34,38).

DISCUSSION

In the current study, the aim was to develop a self-report scale that is new, original and that can be used in the clinical psychology research. The aim was to develop a new measurement tool based on Bowlby's (1969) conceptualization of attachment and internal representations. Consequently, the focus was on the individual's perception or 'mental representations' of themselves and their primary caregivers. In this respect, ABMRS differs from other scales.

Another motivation for developing this scale is to introduce a new measurement to the relevant literature that can be used in clinical research. As a result, it has been observed that the dimensions of the scale overlap with the schemas and mental processes that play a fundamental role in clinical psychology literature.

The subscales of the Attachment-Based Mental Representation Scale, positive father perception, positive mother perception, and positive self-perception, together were conceptualized as the basic dimension of secure attachment. The other three subscales, negative mother, negative self and negative father perceptions, were conceptualized as the insecure attachment dimension.

The confirmatory factor analysis conducted to investigate the construct validity of the scale revealed a 6 factor-structure, explaining 51% of the variance. The subscales had satisfactory reliability values. In various studies, it has been observed that the reliability coefficients of the secure and insecure attachment dimensions vary between 0.72 and 0.86. Compared with the coefficients of other attachment and parent scales used in the field, the reliability coefficients of ABMRS are satisfactory. As a result of the analyses performed at three-week intervals, the test-retest correlation coefficient of the ABMRS was also found to be satisfactory.

In addition, for both basic dimension (safe/insecure) and sub-dimension, correlations with other scales used for criterion validity (UCLA-Loneliness Scale, ECRS-I, PBI, and SAS) were significant and in the expected direction. For example, the 'Secure Attachment' basic dimension of ABMRS was negatively correlated with the UCLA Loneliness Scale total score. It is consistent with the relevant literature that suggest individuals who are securely connected feel less lonely (Morsünbül 2014, Demirli 2012, İlhan 2012, Büyükşahin 2001). It is also expected that secure attachment is positively correlated with the PBI 'Mother's attention and control' and 'Father's attention and control' sub-dimensions. It can be said that individuals who receive sufficient attention, warmth, and control from their mothers and fathers have higher secure attachment scores (Sümer and Anafarta Şendağ 2009, Sümer 2006). When we look at the basic insecure attachment dimension, it was observed that this dimension showed a positive and high correlation with the UCLA Loneliness Scale scores and the SAS total score. Insecurely attached individuals evaluate themselves as lonelier and show more stress symptoms in parallel with the results of the studies in literature (Şirvanlı Özen and Aktan 2011, Türköz 2007). In this respect, the fact that these correlations are in the expected direction and significant can be considered as evidence for the validity of the scale.

Another contribution of ABMRS can be considered as its emphasis on the importance of bonding with the father. The predominance of sub-dimensions representing positive and negative perceptions of father attachment in both the first 33-item and the last 40-item forms of the scale, seem to be consistent with the father and attachment literature in recent years. As it is known, attachment is an important psychological phenomenon that has an impact on the whole life of the individual. It is often said that attachment first occurs between mother and the baby. However, the importance of the father factor in attachment is also revealed by recent studies, and the interest in this subject is increasing day by day (Hisli Şahin et al. 2017, Belsky and Fearon 2008, Soysal et al. 2005, Grossmann et al. 2002, Sümer and Anafarta Şendağ 2009). The presence and significance of two major factors, such as positive father perception and negative father perception, are remarkable in the ABMRS. In a sense, the feeling of trust seems to be related to the presence, love, attention, control and protection of the father. In other words, in addition to the bond formed with the mother, secure attachment can be predicted by the close relationship and the bond established with the father. In this sense, the finding related to the sub-dimensions related to attachment with the father as well as the mother, is also consistent with relevant literature (Soysal et al. 2000, Biller 1993, Dodson 1995).

When the results of other studies conducted in the Turkey using the ABMRS are examined, the findings are consistent with the findings presented here. For example, in a study

conducted with 490 adolescents using ABMRS, the Cronbach's alpha values of the scale according to the sub-dimensions were, respectively: 0.78 for positive mother perception, 0.72 for negative father perception, 0.84 for positive father perception, 0.77 for positive self-perception, and for negative self-perception 0.81. In the same study, the correlation coefficients between the sub-dimensions of ABMRS and the Adolescence Concern Scale (ACS) ranged from 0.10 ($p \leq 0.05$) to 0.38 ($p \leq 0.01$); and, the correlation coefficients between the sub-dimensions of the Self-Compassion Scale (SCS) were found to vary between 0.11 ($p \leq 0.05$) and 0.62 ($p \leq 0.01$) (Andıç 2013).

In another study, 417 university students were taken as a sample. Other scales used in this study, apart from the ABMRS, are the Brief Symptom Inventory, Satisfaction with Life, and Well-Being. While there were significant negative ($r = -0.28$, $p < 0.01$) relationships in the expected direction between secure attachment and the Brief Symptom Inventory total score, significant relationships were also observed in the expected direction with insecure attachment ($r = 0.54$, $p < 0.01$). In the same study, the relationships between secure-insecure attachment dimensions and life satisfaction and psychological well-being were also examined, and, significant relationships were found in the expected direction. Negative and significant relationships were found between insecure attachment dimension and life satisfaction ($r = -0.32$, $p < 0.01$) and psychological well-being ($r = -0.48$, $p < 0.01$) (Şahin and Örs-Gevrekçi 2017).

In a study conducted by Andıç (2013), the relationships between concerns and attachment styles, self-compassion levels, and psychological symptoms in adolescents were discussed. In this study, it was observed that negative self-perception, negative father perception, positive self-perception, and positive mother perception, which are the sub-dimensions of ABMRS, are among the variables that predict the psychological health symptoms of individuals in adolescence (Andıç 2013).

In another study using ABMRS, the reliability coefficients of the scale were re-evaluated in a sample of 41 participants diagnosed with anxiety disorder and 100 undiagnosed (healthy sample). The Cronbach's alpha coefficient obtained for the secure attachment dimension of ABMRS was 0.86; also found 0.77 for the insecure attachment dimension. In the same study, the correlation coefficients between the sub-dimensions of ABMRS, Trait Anxiety Inventory (TAI), and Brief Symptom Inventory (BSI) were also examined. It was observed that the correlation coefficients of the variables that are related to each other ranged from 0.17 ($p < 0.05$) to 0.67 ($p < 0.01$) (Varlık Özsoy 2015). When groups with low and high anxiety levels were evaluated in the same study, individuals with low anxiety and high anxiety (including the patient group) differed significantly in terms of insecure attachment (Varlık Özsoy 2015). As it is known, the

relationships between psychological symptoms and insecure attachment are striking. The findings of the aforementioned study confirm this relationship. This study is important in terms of the applicability of ABMRS in clinical samples.

It is thought that all these studies contain the first promising findings for the 40-item ABMRS. As a result, it can be said that the ABMRS, which was developed by going through various stages (6 stages) with various samples presented in the current study, is a valid and reliable scale that can be used in research that will address the topic of attachment.

CONCLUSION

Although it is said that the ABMRS can be considered as a valid and reliable scale, it is recommended to re-study its psychometric properties in the future. It is thought that more precise information can be obtained by using the AAI as the criterion measure, which is accepted as the gold standard for the measurement of attachment. In addition, it is thought that repeating these studies with a clinical sample would give better ideas about this claim defended in the current article.

Undoubtedly, it is necessary to mention that there are some limitations in this scale development study. The fact that most of the samples used at each stage are university students living in big cities, may be a limitation in terms of using the developed scale with participants with more diverse characteristics. In addition, since the same sample that was used for the test-retest study was a sample of convenience, the number was limited and there was not much heterogeneity in terms of gender. Therefore, in future studies that would look at the test-retest reliability can use samples where gender comparisons can also be made.

Another limitation in scale development may be the use of only self-assessment measurement tools as validity criteria. Since the prefrontal cortices of people with secure attachment were suggested to be more developed in related literature, in future studies brain imaging methodology can also be considered to investigate if this is indeed observed with participants with higher or lower secure attachment scores.

In summary, after the six-stage evaluations regarding the test-retest reliability, internal consistency, construct, and criterion validity of the newly developed scale, ABMRS was considered as a valid and reliable scale that can be used to measure attachment.

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