

**ORIGINAL RESEARCH****The relationship between attachment styles and autistic traits: considering the mediating role of empathy**

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**Abstract**

**Introduction:** This purpose of this study is to investigate the relationship between autistic traits and attachment styles, and also the mediating role of empathy.

**Materials and Methods:** 254 students of Tehran's universities were chosen by using cluster-sampling method. After that, the demographic questionnaire, Close Relationship-Revised Questionnaire (ECR-R), Autism Spectrum Quotient-Short (AQ-S), and The Empathy Quotient-Short (EQ-S) forms were distributed amongst them in order to be filled.

**Results:** Pearson product-moment correlation coefficient indicated that there is a significant relationship between the components of autistic traits with empathy, and avoidance and anxiety attachment. Also, there was a significant relationship between empathy and avoidance and anxiety attachment. Chi-square, SRMR, and other indexes indicate that empathy mediates the relationship between the autistic traits with the anxiety and avoidance attachment styles.

**Conclusion:** According to the results, it can be concluded in the way that individuals with high autistic traits have lower empathy. Individuals, who report more anxiety and avoidance attachment, are less likely to have empathy in their relationships. As a final point, the high autistic traits are correlated with anxiety and avoidance attachment through their association with low empathy.

**Keywords:** Autistic traits, Attachment styles, Empathy, Autism spectrum disorder (ASD)

## Introduction

Autistic Spectrum Disorders (ASDs) are kinds of neurodevelopmental disorders, which are signified by deficiencies in communication and social interaction across multiple contexts during the whole life, as well as patterns of restricted and repetitive behaviors and interests (Association, 2013). Although autism has been considered as a distinct disorder traditionally, recent studies have tested it as a range of disorders that goes beyond the traditional diagnosis of DSM. Individuals with ASD get low scores in joint attention (Wong & Kasari, 2012), emotional recognition (Wallace et al., 2011), theory of mind (Lind & Bowler, 2010), and empathy (Simon Baron-Cohen, Wheelwright, Skinner, Martin, & Clubley, 2001). Despite of the high costs that ASDs would impose on individuals and the society (Kogan et al., 2008), these disorders attracted less attention in the world of public health. In the United Kingdom and the United States, the social costs of autism are almost several billion dollars (Ganz, 2007; Knapp, Romeo, & Beecham, 2007). Also, according to the research findings, the prevalence of ASDs will increase by passing every year by year, and have now reached 1% out of the general population (Baxter et al., 2015).

Although, Autism was formerly known as a disorder, but recent evidences recommend that Autism Spectrum Traits are distributed amongst the general population, and it is possible that the general population express autistic traits at sub clinically levels (Constantino & Todd, 2003; Robinson et al., 2011). Broad Autism Phenotype (BAP) is a term used to refer to the milder forms of autism and express the sub clinical symptoms of autism that does not fill in the clinical criteria (Constantino & Todd, 2003; Hurley, Losh, Parlier, Reznick, & Piven, 2007). The BAP was observed by Kanner and Eisenberg (1957). And after that Folstein and Rutter (1977) studied a group of same-sexed twin pairs in which one twin showed infantile autism, and they found mild and similar traits to ASD symptoms in the other pair, too. BAP refers to the mild traits of autism, like pragmatic problems in using their language and communicating, social interactions, visual attention, and sensory perception, and also in the obsessive behaviors, which extend to cognitive, behavioral, and personality areas

(Sucksmith, Roth, & Hoekstra, 2011). Recently, researchers have presented symptoms of autistic traits also appear in some people who have no known hereditary relationships with ASDs (Constantino & Todd, 2003; Ingersoll, 2010; Wainer, Ingersoll, & Hopwood, 2011). Autistic traits Symptoms have found not only in the autistic individuals families, but also found in normal population with normal distribution (Hoekstra, Bartels, Verweij, & Boomsma, 2007; Hurst, Mitchell, Kimbrel, Kwapil, & Nelson-Gray, 2007).

Early theories described autism as a disorder characterized by an inability to create emotional attachment and emotional bonding with significant others (Volkmar et al., 1987). Based on Bowlby's Attachment Theory, each human being is equipped with behavioral system of caregiving and attachment, inherently. He considered the need for security and closeness as a basic human necessity (Bowlby, 1982). The ability to rely on "safe haven" enhances individual development and growth, and also serves as a healthy emotional and social development predictor (Collins & Feeney, 2000; Murphy, Laible, Augustine, & Robeson, 2015). Furthermore, attachment security serves as a basis for caregiving and compassion (M. Mikulincer, Shaver, Gillath, & Nitzberg, 2005), well-being (Karreman & Vingerhoets, 2012), more resilience in distress (Mario Mikulincer, Ein-Dor, Solomon, & Shaver, 2011), and well-functioning connections with others (Holland, Fraley, & Roisman, 2012). On the contrary, many researchers (Davis & Oathout, 1987; Franzoi, Davis, & Young, 1985) point out that people with insecure attachment have report less empathetic skills, more irrational beliefs, and less satisfaction with their close relationship. Individuals who have a secure attachment, also have more trust in their partners and beloved ones, and as a result they are more satisfied from their romantic relationships (Simpson, 1990). People with high avoidance attachment devote less emotions to others and tend to avoid from distressed and anxious people, and also show little emotion for their interpersonal relationships (Kobak & Sceery, 1988) and they choose to stay away from emotional expressions (Joireman, Needham, & Cummings, 2002). Taylor, Target, and Charman (2008) reported a high prevalence of insecure attachment in ASD individuals

compared to non-clinical samples. In another research Austin (2005) and Ingersoll (2010) established that people with high levels of autistic traits had also high scores in neuroticism, introversion, and low scores in attachment scales. Also, various studies (Bejerot, Eriksson, & Mortberg, 2014; Lampion & Turner, 2014; Taylor et al., 2008; Tureck, Matson, Cervantes, & Konst, 2014; Turner, 2015) indicated a positive relationship between the avoidance and anxiety attachment, and autism-related traits. On the one hand, Gallitto and Leth-Steensen (2015) did not find any significant relationship between autistic traits and anxiety attachment, but they realized a significant relationship with avoidance attachment. Actually, there is some evidence that supports the relationship between autistic traits and attachment style (at least avoidance attachment), but how this relationship is how these two factors affect each other and how attachment styles influence individual differences in autistic traits is still unidentified. Chris Fraley (2002) and also Collins and Feeney (2000) assume that the attachment history of an individual, the effective happenings in childhood between the child and the caregiver, have effects on the adult relationships nature and quality. Attachment security may affect the empathy's development in different ways. Sensitive caregivers construct empathy for their children, which are integrated into internal working models of their children as a response script to others.

Empathy is characterized as the person ability to decode the others intentions, emotions, and beliefs (42). In 1983 Davis (1983) defined empathy as a personality trait or as a sustainable ability, which includes cognitive and affective components. The cognitive aspect of empathy, which is often referred to perspective-taking or the theory of mind, includes the ability of capturing another individual's point of view (Britton & Fuendeling, 2005), and the affective part of empathy involves empathic concerns (Britton & Fuendeling, 2005; Gilin, Maddux, Carpenter, & Galinsky, 2013). Although, affective empathy has some association with cognitive empathy, but they have different correlates (Jolliffe & Farrington, 2006).

Although, many empirical studies have established the relationship between attachment security and empathy (Boag & Carnelley, 2016; Murphy et al., 2015), but the underlying processes that make up this relationship still are not clarified.

On the other hand, it seems that there are some relationships between autistic traits and empathy. Evidences suggest that individuals with autism spectrum disorders (ASDs) have some problems in empathy (Peterson, Garnett, Kelly, & Attwood, 2009). Cognitive empathy deficits have been researched in ASD widely, and results indicate that those with impaired empathy tend to have lower quality of interpersonal relationships (Bauminger et al., 2008; Peterson et al., 2009). Moreover, it is well supported that many people with high autistic traits have weaker empathy skills than control groups (S. Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001; Lampion & Turner, 2014; Miu, Pana, & Avram, 2012; Voracek & Dressler, 2006), which may intensify their problems in friendships establishing and maintaining. What is acknowledged is that people with high autistic traits are more to be expected to have poor social skills (Sasson, Nowlin, & Pinkham, 2013), fewer friendships and shorter friendships (Jobe & White, 2007), lower quality friendships (Losh & Piven, 2007), and feeling more loneliness (Jobe & White, 2007; Wainer et al., 2011). Research in the field of autistic traits has revealed its negative relationship with emotional (aan het Rot & Hogenelst, 2014; Mathersul, McDonald, & Rushby, 2013c) and cognitive (Dziobek et al., 2008; Hoogenhout, 2017; Mazza et al., 2014; Rueda, Fernández-Berrocal, & Schonert-Reichl, 2014) empathy. But Oliver, Neufeld, Dziobek, and Mitchell (2016) took the opposite results.

Although, various studies (Dozier, Cue, & Barnett, 1994; Hazan & Shaver, 1987; Mario Mikulincer et al., 2001; Obegi & Berant, 2010; Rubino, Barker, Roth, & Fearon, 2000; Schore & Schore, 2008; Ward et al., 2009) have established the relationship between empathy, and the anxiety and avoidance attachment, but Cotler (2012) has reached to the opposing results. Thus, there are various theoretical and empirical reasons that attachment style and cognitive or affective empathy may be related

to the autistic traits. Though, to the best of our knowledge, still no research has investigated the basic relationship between all these three concepts. In this research, we examined the relationship between these three components, and whether empathy can act as a mediator variable between the style of attachment and the autistic traits.

In 2004, S. Baron-Cohen and Wheelwright (2004) indicated that autistic persons have weaker empathy skills. It is also shown that the components of empathy are correlated with attachment styles (Britton & Fuendeling, 2005; Joireman et al., 2002; Trusty, Ng, & Watts, 2005). This study links the previous results by measuring the relationship between attachment, autistic traits and empathy. It was assumed that autistic traits are associated with insecure attachment and this relationship is mediated by the effect of empathy.

## Materials and Methods

### Participants

Two hundred and fifty-four, of whom 131 were female and 123 were male. Also, 24 were married and 230 were single, ranging from 18 to 50 years old who are studying in Tehran's universities were chosen using cluster sampling method and then took part in this survey. At first an informed consent was obtained from all of the individual participants. Then, the sample group filled demographic questionnaire and Experience in Close Relationship – Revised Questionnaire (ECR-R), Autism Spectrum Quotient–Short (AQ-S), and The Empathy Quotient-Short (EQ-S). They were also asked to write their email in the questionnaire if they wanted to know the results. The participants' demographic characteristics are presented in Table 1.

Table 1. The participants' demographic characteristics

sex	f(%)	Marital status	f(%)	age	f(%)	Level Education	of f(%)
female	131 (51.6)	single	230 (90.6)	20<	27 (10.6)	Bachelor	137 (53.9)
male	123 (48.4)	married	24 (9.4)	20-30	184 (72.4)	Master	87 (34.3)
Total	254 (100.0)	Total	254 (100.0)	25-30	39 (15.4)	PHD	11 (4.3)
				30-35	4 (1.6)	Professional Doctorate	19 (7.5)

### Experience in Close Relationship – Revised Questionnaire (ECR-R)

An Experience in Close Relationship questionnaire is a self-report, which consists of 36 items and two subscales was created in order to measure the attachment avoidance

(e.g., “My partner only seems to notice me when I’m angry.”), and anxiety (e.g., “I often worry that my partner doesn't really love me.”). Participants rate each item. The Likert type scale ranging from 1 (strongly opposed) to 7 (strongly agree). This questionnaire was designed in 1998 by Brennan, Clark, and Shaver (1998). Brennan et al. (1998) reported acceptable Cronbach's alpha value for avoidance and anxiety scale. Fraley, Waller, and Brennan (2000) revised this questionnaire in 2000 by using the IRT theory and developed the ECR-R questionnaire. In the study by Alonso-arbiol, Balluerka, and Shaver (2007) the questionnaire factor structure was approved. Fraley et al. (2000) by using the test-retest method reported a reliability coefficient of 0.94 for the anxiety scale and a reliability coefficient of 0.95 for the avoidance scale. Fairchild and Finney (2006) indicated that each of the anxiety and avoidance scales has good internal consistency, so that the Cronbach's alpha coefficient for the anxiety scale was calculated as 0.917, and for the avoidance scale as 0.927.

### Autism Spectrum Quotient–Short (AQ-S)

AQ-S is an abridged and 28-item version of the self-report Autism-spectrum quotient, which is a 50-item scale assessing autistic traits (Simon Baron-Cohen et al., 2001; Hoekstra et al., 2011). The original items were categorized to 5 subdomains measuring Communication, Social skills, Attention to detail, Imagination, and Attention switching (Simon Baron-Cohen et al., 2001). AQ-S items assigned to five defined factors which assess: 1) deficiency of social skills, 2) a preference for routine, 3) imagination difficulties, 4) difficulties with attention switching, 5) a fascination for numbers/patterns (Hoekstra et al., 2011). The original version of AQ internal consistency was reported by Simon Baron-Cohen et al. (2001) as following: communication (0.65), social skills (0.77), attention to detail (0.63), Attention switching (0.67), and imagination (0.65). The test-retest reliability of the questionnaire in Iran, with three-week interval was as 0.82, and Cronbach's alpha for all items internal consistency was as 0.76 and total score was as 0.79 (Nejati Safa, Kazemi, & Alaghband Rad, 2003). Different studies have examined the psychometric properties of the Autism Spectrum Quotient–Short (AQ-S) and were

reported good validity and reliability (Hurst et al., 2007; Kurita, Koyama, & Osada, 2005; Lau et al., 2013), But up to now it has not been studied in the Iranian sample. The Cronbach's alpha coefficient for the whole scale of Autism Spectrum Quotient–Short (AQ-S) in the current sample was as 0.95, and for the subdomains of social skills (92.0), routine (0.48), imagination (0.94), attention switching (0.58), and the pattern of numbers (0.89) presented good internal reliability.

**The Empathy Quotient-Short (EQ-S)**

The short form of empathy (EQ-S) is created in order to measure one person ability to relate to the others' emotions (Wakabayashi et al., 2006). The EQ-S was arranged by using a sample of 1761 undergraduate students by analyzing the main components of the Baron-Cohen 60-item empathy scale (S. Baron-Cohen & Wheelwright, 2004), The Cronbach's alpha for the current sample of EQ-S was as 0.87. Earlier studies examined the psychometric properties, validity, and reliability of the Empathy Quotient-Short (EQ-S), and established its validity and reliability (Dimitrijević, Hanak, Vukosavljević-Gvozden, & Opačić, 2012; Guan, Jin, & Qian, 2012; Parker, Keefer, & Wood, 2011). Dimitrijević et al. (2012) obtained Cronbach's alpha of 0.78 for this scale, while it has not been studied for the Iranian sample. In the present research, Cronbach's alpha for the empathy scale (short form) was as 0.73.

**Results**

SPSS software version 24 were used for Pearson product and moment correlation, and LISREL software version 8.8, were used for Structural Equation Modeling to conduct analysis. The maximum likelihood method was performed in order to estimate the considered parameters. The Chi-square index, The Root Mean Square Error of Approximation (RMSEA), The Standardized Root Mean Square Residual (SRMR), The Goodness of Fit Index (GFI), The Comparative Fit Index (CFI), The Normed Fit Index (NFI) And the Incremental Fit Index (IFI) were used to evaluate the fit model.

The Mean, the standard deviation, and the correlation matrix of the research variables are reported in Table 2. The correlation between variables' result showed that the correlation

between variables ( $0.22 \leq p \leq 0.63$ ) was significant; anxiety attachment had the highest correlation with empathy ( $p = 0.63$ ), and there was the lowest correlation coefficient ( $p=0.22$ ) between avoidance attachment and autistic traits. Also, there was a significant negative relationship between empathy and autistic traits and between anxiety and avoidance attachment. All correlations between variables were significant at 0.001 level.

Table 2. Correlation matrix, mean and standard deviation of research variables (n = 254)

Raw	Variables	1	2	3	4
1	Autistic traits	9.70 (3.43)			
2	Empathy	-0.572**	21.76 (6.75)		
3	Anxiety attachment	0.367**	-0.634**	60.69 (19.22)	
4	Avoidance attachment	0.224**	-0.582**	0.399**	59.58 (18.63)

The measurement model for the Experience in Close Relationship – Revised Questionnaire (ECR-R), the Autism Spectrum Quotient–Short (AQ-S) and The Empathy Quotient-Short (EQ-S) was tested, and the results Recommends a good fit for the model of any scale measurement. Then, the conceptual model of the measurement model and the fitness indexes, which were reported in Table 3, indicated the fitting of the data according to the conceptual model.

Table 3. Fitness index of Conceptual model of research

Fit Index					
Chi-Square	38.66	GFI	0.96	NFI	0.97
df	13	AGFI	0.90	IFI	0.98
RMSEA	0.095	CFI	0.98	SRMR	0.045

As presented in Fig. 1, autistic traits as an exogenous variable with the standard coefficient of -0.31 affects empathy, and after that empathy affects the attachment with a coefficient of -0.62, and all the coefficients are significant in the level of 0.001. The autistic traits indirect effect on the attachment was as 0.36, which is significant at the level of 0.001.

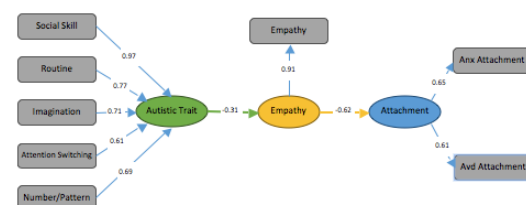


Fig. 1 Standardized regression coefficients of the model

Rendering to the results of the model, empathy and autistic traits can explain as 0.31 of attachment variance and the autistic traits can explain as 0.16 of empathy variance.

## Discussion

In the present study, the relationship between autistic traits, empathy and attachment was researched in a sample of Tehran's Universities students. Earlier researches have presented that there is a lack of empathy in autistic people (S. Baron-Cohen & Wheelwright, 2004). It is also shown that the components of empathy are correlated with attachment dimensions (Britton & Fuendeling, 2005; Joireman et al., 2002; Trusty et al., 2005). Purpose of this study is to investigate the relationship between autistic traits and attachment styles with empathy mediation.

Results indicated that there is a significant and negative correlation between autistic traits and empathy. Generally, people with a high score in autistic traits show lack of empathy, perspective taking, empathic concern, less imagination, and more personal anxiety. Earlier researchers also have established a negative relationship between the autistic traits and empathy (S. Baron-Cohen & Wheelwright, 2004; S. Baron-Cohen et al., 2001; Miu et al., 2012; Voracek & Dressler, 2006). Some other studies have determined that people with autism spectrum disorders have some deficiency in affective empathy (Mathersul, McDonald, & Rushby, 2013a, 2013b; Mathersul et al., 2013c; Pfabigan et al., 2015) however, the findings of a research by Oliver et al. (2016) are inconsistent with this study results. These results are remarkable, because they suggest that the tendency toward less empathy is associated with the increase of autistic traits. This tendency includes both cognitive (imagination and perspective taking) and affective components (empathic concern and personal anxiety) of empathy. These results also indicate that people who have a high score in autistic traits, think they cannot understand the others feelings, predict their emotions, and respond to their emotional states appropriately. Also, they seem to experience more personal distress than those who has less score on autistic traits. Theoretically, the combination of increasing personal distress with reducing the ability to detect and appropriate respond to the others feelings can be problematic. These people may have little ability to learn from their affective environments, which in turn makes it difficult to create appropriate emotional responses. As a result, they may avoid from interactions in

some situations that empathy is required and it makes them away from their ability to learn affective information. Generally, this study indicated that individuals with autistic traits show empathy deficits, and this empathy deficit can be more in cognitive empathy and in the perception of others' perspective.

The results also showed that avoidance attachment has a negative and significant relationship with empathy, which means that by increasing avoidance attachment, empathy decreases. Also, the results showed that by increasing anxiety attachment, the ability of a person to empathy decreases. Results from earlier studies represent that people who have insecure attachment tend to have less empathy with other people (Rubino et al., 2000), and people who have a secure attachment style are more likely to have a high level empathy with their partners (Hazan & Shaver, 1987; Obegi & Berant, 2010; Schore & Schore, 2008; Ward et al., 2009) and also with those who are not intimate with them (Mario Mikulincer et al., 2001). This study's results also supported and approved these findings that people with a secure attachment show a high level of empathy. This finding was inconsistent with Cotler's (2012) research, and they described this contrary finding by the ECR questionnaire limitations for measuring the secure attachment by the two dimensions interaction of anxiety and avoidance attachment as a reason of this contrary result. According to the expectations, those with a secure attachment experience higher levels of empathic concern and perspective taking that facilitate their interpersonal relationships. On the contrary, those with insecure attachment are weak in empathic concern and perspective taking (e.g., (Davis & Oathout, 1987, 1992; Franzoi et al., 1985)). This hypothesis is consistent with this research literature that has shown that people with insecure attachment has weak empathy, since those who have high anxiety attachment feel that empathy with negative emotions of others is threatening, while those with a high avoidance attachment, have less emotional investment to others and tend to avoid distressed and anxious people (Feeney, 1999). Furthermore, anxiety and avoidance attachment are expected to have an independent effect on empathic factors regarding to the existing attachment styles and the way of emotion regulation. It is expected

that anxiety attachment, can predict personal agitation and distress. In contrast, the avoidance attachment is expected to predict low perspective taking and totally empathy scores. For people with anxiety attachment, empathy deficits may be due to the inability of these individuals to identify between personal concerns and empathic concerns as well as reactions to others with severe anxiety and distress because they have a hyperactivating style of emotion regulation, limited mentalization skills and ambiguous boundaries between themselves and others. Future studies should measure social utility as well as various components of empathy in the relationship between empathy and attachment in order to better understanding of the relationship between anxiety attachment and empathy. In the case of avoidance attachment, the results indicated that avoidance attachment is inversely related to empathy. This finding is consistent with earlier studies showing that people with anxiety attachment indicate little emotion in interpersonal relationships (Kobak & Sceery, 1988) and emotion consider the invitation for participation in interpersonal relationships as a threat, and therefore avoid emotional expression (Joireman et al., 2002). Generally, avoidance attachment predicts the limited empathic response capacity. Future studies should consider the relationship between avoidance attachment and empathy factors and components.

Another result of the present study is that the autistic traits are more associated with more anxiety attachment and avoidance attachment. Although, this fact is interesting itself, maybe the most important point that comes from this result is that individuals who get high scores in autistic traits report less secure attachment. In addition, safe attachment to important persons in individuals with autistic traits (e.g. impairment in social skills, routine, imagination, attention switching, and the pattern of numbers) different from those who don't have these traits significantly and Particularly, at the same time feel jealous, lonely, distressed, clingy, emotionally distant, and distrustful of their partner (Hazan & Shaver, 1987). Additionally, these people are likely to experience fewer secure attachment implications. In adulthood, secure attachment is associated with positive outcomes of mental

and physical health. People who have secure attachment have more trust to their partners and relatives, they experience more positive emotions in their relationships and are more satisfied with their romantic relationships (Simpson, 1990). In fact, autistic traits have a strong correlation with insecure attachment (anxiety and avoidance), which means that these individuals experience fewer positive outcomes of relationship. Those who have insecure attachment have more irrational beliefs and less satisfaction with their relationships (Stackert & Bursik, 2003).

The main hypothesis of this study was to examine the mediator role of empathy in the relationship between autistic traits and attachment style. The results presented that empathy mediates the relationship between autistic traits and anxiety and avoidance attachment. In the other word, the high autistic traits are correlated with anxiety and avoidance attachment throughout its association with low empathy. People who have reported low empathy may be uninterested in others' feelings or feel inadequate to understand and react to the others' emotions. In both cases, they are likely to have avoidance behaviors in their romantic relationships. On the other hand, anxiety attachment is correlated with high autistic traits with empathy mediation.

The social motivation theory suggests that people with ASD (which can be generalized to individuals with autistic traits) have less social motivation, which deprives them of developing strong empathy skills, because they are not exposed sufficiently to conditions that require empathy (Chevallier, Kohls, Troiani, Brodtkin, & Schultz, 2012). Poor empathy, in turn, can also affect relationships with important others and lead them to insecure attachment (anxiety and avoidance), that can be spread to relationships in adulthood and lead to problems in the relationship with the partner, Colleagues, and friends. The social motivation theory provides a reason to support the time order, which autistic traits precedes low empathy and insecure attachment, and autistic traits can lead to low empathy, which in turn, causes damage to Attachment and develop insecure attachment.

In this study, autistic traits were evaluated as a continuum rather than identifying a variety of

autism spectrum disorders. The grades of autistic traits should be considered as personality traits and not as the genetic effect indicative associated with autism spectrum disorder. However, the study sample (students with high autistic traits) is a very real part of society. The fact that autistic traits negatively correlate with the relationship outcomes suggests that these individuals are more likely to be exposed into the relationship distress and less satisfaction in their relationships.

While the results of this study are informative, also they are limited by the nature of the data correlation. However, the data clearly do not specify the cause and effect relationship between variables, it can provide the basis for it. Additional longitudinal studies can examine the relationship between personality traits of autism with attachment over a lifetime. In addition, because the measurements are based on self-reporting, the data results are limited, and the results may be affected by the participants' mental perspectives towards themselves and how they are related to the others. It should be kept in mind that the results of current research were based on a sample of university students who had

consented to participate in the research; so generalizing of these results should be done with precaution.

Despite of these limitations, this study results provide interesting information about the relationship between the autistic traits, empathy, and attachment style. There is strong evidence that the autistic traits in individuals are associated with lower empathy, greater anxiety, and avoidance attachment. Regarding to the importance of romantic relationships amongst young people, these results provide efforts to support the development of healthy relationships amongst the young people. Future research should expand research into high-functioning autistic individuals. Although, research on high-functioning autistic individuals is generalizable to the general population slightly, it provides a clearer picture of the relationship between autistic traits with empathy and attachment.

#### **Conflict of interest**

Authors declare no conflict of interest.



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