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INVESTIGATING THE RELATIONSHIP OF ATTACHMENT STYLES WITH ACHIEVEMENT MOTIVATION AND ACADEMIC PERFORMANCE IN MATHEMATICS AMONG HIGH SCHOOL STUDENTS IN KHASH

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ABSTRACT

The present study aimed to investigate the relationship of attachment styles with achievement motivation and academic performance in math among high school students in Khash. The descriptive-correlational research method was applied. The study population included all high school students in Khash (N=1820). Random sampling was used to select the sample size. According to the Morgan's table, the sample size of a population with 1820 subjects is 320. To collect the necessary data related to the research variables, two standard questionnaires including Hazan and Shaver's attachment styles survey with 15 items, Hermans's (1970) achievement motivation questionnaire with 29 items together with learners' math scores were used. For data analysis, statistical tests relevant to research hypotheses, including Pearson correlation coefficient, one-sample t-test and one way ANOVA were applied. All statistical calculations were performed using SPSS version 21. Findings suggested that there was a significant negative relationship between achievement motivation and math performance with avoidant and preoccupied attachment styles; however, these two had a positive significant relationship with secure attachment style. The results also revealed a positive significant correlation between achievement motivation and mathematics performance. The level of female students' achievement motivation was below average. However, regarding the educational grade, high school female students' achievement motivation did not vary.

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INTRODUCTION

In the modern age, education constitutes an important part of life. The quantity and quality of education plays an important role for the future. Accordingly, it is almost a century that psychologists have widely attempted to identify predictors of academic achievement (Premuzic and Furnham, 2003). Students' progress throughout their education and ultimately achieving higher levels of education will not only provide resources for individuals and their families, but also benefits their country in terms of economic and social improvement. Therefore, it seems that examining some variables affecting students' achievement as well as determining the importance of these factors on students' achievement or lack of achievement are really significant (Chary *et al.*, 2009). Academic achievement in mathematics involves identifying the problems that exist in the way of learning in this area.

It is believed that the difficulties imposed on students to learn mathematics arise from intramathematical and/or extramathematical issues. Extramathematical problems are either intra-individual or extra-individual. Intra-individual problems arise from students' individual traits in terms of mental processing, learning, motivations and attitudes, while extramathematical problems are affected by cross-cultural, educational, teaching issues as well as how teachers teach and behave (Alamolhodaei, 2002). Attachment styles are significant factors that affect the progress of individuals' behavior. Attachment can be defined and described as a pattern of personal thinking, feeling and behaving concerning a close relationship with the caregiver and intimate others (Bottonari *et al.*, 2007; as cited in Hazrati, 2006). Bowlby (1969) examined the concept of attachment from the developmental perspective and based his theory on the grounds that attachment feelings and behaviors, such as crying, laughing, sucking and grasping, close the baby to the mother and distance him from the danger, while his/her separation from the mother adds to the anxiety and frustration.

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Individuals' real experiences about caregivers' sensitivity, responsiveness and active presence, children's temperament and coordination of parent-child relationship form the basis of different attachment styles (secure, anxious and preoccupied) during infancy and childhood. Bowlby (1988) suggests that individuals internalize early experiences with caregivers and form enduring cognitive schemas on self-value. He labels such cognitive schemas "internal working models" and suggests that these models affect the interactions with others and the interpretation of these interactions in lifetime. Hence, attachment and internal models generally and specifically affect individuals' future life. As far as individuals can establish intimate and healthy relationships with other people, their emotional needs are satisfied and they have social support. This study seeks to answer the question that whether the attachment style has any effect on achievement motivation and academic performance and that whether motivation has any impact on academic performance.

In a research study, Shams Esfandabadi *et al.*, (2011) examined the relationship of attachment styles and identity styles with public health and academic achievement of female students in pre-university schools in Qazvin and concluded that there was a significant relationship between the attachment styles and identity styles. They also indicated a significant relationship between these two variables and general health, as well as identity styles and academic achievement. However, no significant relationship was found between attachment styles and academic achievement. Sroufe (1983), in a longitudinal study, showed that secure attachment to the mother during infancy can predict less dependency to teachers and less hostility toward pre-school peers. In another study, Hazan and Shaver (1987) found that individuals with a secure attachment style have higher self-esteem, are more amiable, and report less loneliness compared to those with anxious and preoccupied attachment style. In another study, Bunk (1997) found that the secure attachment was positively associated with the characteristics of superiority and self-esteem.

Secure individuals had higher self-esteem than those who had avoidant or preoccupied attachment style. Narimani, Agha Mohammadian, and Ghaffari (2008) investigated the relationship of attachment style and self-efficacy beliefs with conflict resolution styles among sports coaches in Ardebil and found that the authoritarian-avoidant conflict resolution style had a positive correlation with insecure-avoidant attachment style. Using path analysis, Pajares (1997) examined the effect of math self-concept, previous math experience, math anxiety, math outcome expectations and math self-efficacy as well as gender on problem-solving performance of 350 students. The results showed that compared to other variables under the study, self-efficacy was the best predictor for solving mathematical problems. In addition, self-efficacy mediated the effects of other variables on problem-solving performance (Pajares, 1997). Fakhari Nejad (2006) found that insecure attachment styles are associated with aggression, loneliness, social withdrawal, anxiety, somatic symptoms and low self-confidence. Moreover, such styles are considered as risk factors for the onset of disorders and mental problems among adolescents or young adults. The results of Asghar Nejad's (2004) study revealed that there was a significant relationship between general self-efficacy and academic achievement, locus of control attribution and academic achievement, as well as general self-efficacy and

locus of control attribution. Moreover, male students, in comparison to female students, have higher control attribution. However, this difference is not significant in terms of general self-efficacy. The mathematics group, comparing with other academic groups, has external control attribution. However, no significant difference was found between the two groups in terms of general self-efficacy.

MATERIALS AND METHODS

Considering the purpose and theme of the present study aiming to investigate the relationship of attachment styles with achievement motivation and academic performance in math among high school students in Khash, the descriptive-correlational research method was applied. The study population included all high school students in Khash (N=1820), among which 320 students were selected randomly according to the Morgan's table. For data collection, two standard questionnaires were used.

Attachment Styles Questionnaire: The Adults Attachment Styles Scale developed with Hazan and Shaver's attachment styles questionnaires items which was standardized on students of University of Tehran is a 15-item inventory that measures three attachment styles including secure, avoidant and preoccupied on a 5-point Likert's scale (very low, low, medium, high, very high). Minimum and maximum scores of the subscales are 5 and 25, respectively. In this study, the reliability coefficient of all subscales was calculated using the Cronbach's alpha. The following coefficients were obtained respectively for avoidant attachment, secure attachment and preoccupied attachment, 0.80, 0.85, and 0.79.

Academic Achievement Motivation Questionnaire: To measure the motivation for academic achievement, Hermans's (1970) achievement motivation, which is widely used, was applied. The inventory has 29 four-option items. Lower scores suggest low achievement and high scores show high achievement motivation. In the current study, the Cronbach's alpha coefficient of the scale was 0.87.

Mathematics Performance: Students' math scores in the current semester were used. For data analysis, statistical tests relevant to research hypotheses, including Pearson correlation coefficient, one-sample t-test and one way ANOVA were applied. All statistical calculations were performed using SPSS version 21.

RESULTS

Hypothesis: There is a significant relationship between attachment styles and achievement motivation among female high school students in Khash. Pearson correlation coefficient was used to analyze the hypothesis. The results are provided in the following table. The results indicate that the correlation coefficient between achievement motivation and avoidant attachment style ($r = -0.32$) and the correlation coefficient between achievement motivation and preoccupied attachment style ($r = 0.58$) are negative and significant on 99% confidence level ($P < 0.01$). Moreover, correlation coefficient between achievement motivation and secure attachment ($r = 0.64$) is significant and positive on 99% confidence level.

Table 1. Results of Pearson correlation coefficient of achievement motivation and the attachment styles

Variables		Avoidant attachment	Secure attachment	Preoccupied attachment
Achievement motivation	r	-0.32**	0.64**	0.58**
	sig	0.000	0.000	0.000

Table 2. Results of Pearson correlation coefficient of achievement motivation and mathematics performance

Variables		Mathematics performance
Achievement motivation	r	0.49**
	Sig	0.000

Table 3. Results of Pearson correlation coefficient of attachment styles and mathematics performance

Variables		Avoidant attachment	Secure attachment	Preoccupied attachment
mathematics performance	r	-0.19**	0.39**	0.23**
	sig	0.000	0.000	0.000

Table 4. Results of one-sample t test in terms of the degree of achievement motivation

Variable	N	M	SD	Test Value	t	df	Sig
Achievement motivation	320	52.53	5.30	58	-9.25	319	0.000

Table 5. Results of descriptive statistics of achievement motivation in terms of educational grade

grade	Mean	SD	frequency
first	51.20	6.30	152
second	54.10	5.20	75
third	52.30	3.12	93

Table 6. Results of one way ANOVA on achievement motivation in terms of educational grade

Variable	Group	Degrees of freedom	Sum of squares	Mean square	F	Sig
Achievement motivation	Between-group	2	50.60	25.30	0.591	0.49
	Within-group	317	16613.97	52.41		

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Hypothesis: There is a significant relationship between attachment styles and mathematics performance among female high school students in Khash. Pearson correlation coefficient was used to analyze the hypothesis. The results are provided in the following tables. The results indicate that the correlation coefficient between avoidant attachment styles and mathematics performance ($r = -0.19$) and the correlation coefficient between preoccupied attachment styles and mathematics performance ($r = -0.23$) are negatively significant on 99% confidence level ($P < 0.01$). Moreover, the correlation coefficient between secure attachment styles and mathematics performance ($r = 0.39$) is significant and positive on 99% confidence level.

Hypothesis: Female high school students in Khash have higher levels of achievement motivation. One sample t-test was used to analyze the hypothesis. The results are provided in the following table. As the table shows, the variable of achievement motivation with mean and SD of 52.53 and 5.30 is lower than the test value (58). The difference is significant on 99% confidence level ($t = -9.25$, $df = 319$, $P < 0.000$). Since the variable mean is lower than the assumed mean (test value), therefore, it can be concluded that female high school students' achievement motivation in Khash is lower than the average.

Hypothesis: There is a significant relationship between female high school students' achievement motivation in terms of their educational grade. The following table indicates the results of one-way analysis of variance (f) in relation to achievement motivation in terms of educational grade. The results show that 1st grade female high school students in Khash have mean and standard deviation of 51.20 and 6.30, 2nd grade female high school students in Khash have the mean and standard deviation of 54.10 and 5.20, and 3rd graders have mean and standard deviation of 52.30 and 3.12. The above table indicates that calculated f (0.59), with $df = 2$ and 317, is not significant on 95% confidence level ($p > 0.05$). That is the level of achievement motivation among female high school students in Khash is the same.

DISCUSSION AND CONCLUSIONS

Considering the first hypothesis, the results indicated that the correlation coefficient between achievement motivation and avoidant attachment style ($r = -0.32$) and the correlation coefficient between achievement motivation and preoccupied attachment style ($r = 0.58$) were negative and significant on 99% confidence level ($P < 0.01$). Moreover, correlation coefficient between achievement motivation and secure attachment ($r = 0.64$) was significant and positive on 99% confidence level. The finding is consistent with the findings of Sroufe (1983), Hazan and Shaver (1987) and Narimani, Agha Mohammadian and Ghaffari (2008) and it is also inconsistent with the results of Shams Esfanabadi *et al.*, (2011). Regarding the second

hypothesis, the results indicated that the correlation coefficient between achievement motivation and mathematics performance ($r = 0.49$) was positive and significant on 99% confidence level ($P < 0.01$) and there was a positive significant relationship between achievement motivation and mathematics performance. The finding is consistent with the results obtained by Sheikhi fini (1993). Sheikhi Fini (1993), in a research study entitled "An Investigation into the Relationship of Achievement Motivation, Locus of Control and Academic Achievement among High School Students in Bandar Abbas", performed Rotter's locus of control questionnaire and achievement motivation questionnaire together with students' average scores of the first and second semesters as the criterion of academic achievement among 211 students, concluded that there was a statistically positive significant relationship between high achievement motivation and academic achievement. Regarding the relationship of achievement motivation and academic achievement, it was concluded that since achievement motivation is defined as the desire for supremacy, it is evident that a person with such a motivation moves for achievement and progress. One of the areas that an individual can develop his or her motivation is the academic performance.

The analysis of the third hypothesis indicated that the correlation coefficient between avoidant attachment styles and mathematics performance ($r = -0.19$) and the correlation coefficient between preoccupied attachment styles and mathematics performance ($r = -0.23$) were negatively significant on 99% confidence level ($P < 0.01$). Moreover, the correlation coefficient between secure attachment styles and mathematics performance ($r = 0.39$) was significant and positive on 99% confidence level. The finding is consistent with the results of the previously conducted studies carried out by Sroufe (1983), Hazan and Shaver (1987) and Narimani, Agha Mohammadian and Ghaffari (2008) and it is inconsistent with the results of Shams Esfanabadi, et al. (2011). The analysis of the fourth hypothesis indicated that female high school students' achievement motivation was lower than the average in Khash.

The results of one-way ANOVA on academic achievement in terms of educational grade revealed that the level of achievement motivation among different female high school graders was the same. As various studies have shown, children with insecure attachment to their mothers have more behavior problems than children with secure attachment. One of the reasons of this significant difference between the academic achievement of students with secure and insecure attachment styles may be disorders which underlie educational slump. Therefore, it can be argued that the influence of attachment styles on academic achievement occurs through a series of intermediate variables. One of the explanations offered by the current study is the influence of establishment of a special attachment style on the underlying characteristics and factors of academic achievement. Attachment styles affect features such as self-esteem and self-concept. One of the minor components of self-concept is academic self-concept. Therefore, it is expected that students with secure attachment style establish a positive academic self-concept according to their characteristics, while students with avoidant and preoccupied

attachment styles are expected to develop a negative academic self-concept. This provides the difference in individuals' academic performance with different attachment styles.

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