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# Determining the Mediating Role of Academic Self-Regulation in Predicting Academic Self-Handicapping of Lower Secondary School Students Based on Attachment to Parents, Peers, and Teachers

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## ABSTRACT

**Objective:** The aim of the present study was to determine the mediating role of self-regulation in predicting academic self-handicapping among lower secondary school students based on their attachment to parents, peers, and teachers.

Methods and Materials: This research falls under the category of descriptive-correlational studies, utilizing structural equation modeling. The statistical population consisted of all female lower secondary school students in Tehran. The sample included 384 participants selected through convenience sampling. Data were collected using the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987), Teacher Attachment Scale (Eliot & Mikulincer, 2006), Self-Handicapping Scale (Jones & Rhodewalt, 1982), and the Academic Self-Regulation Questionnaire (Bouffard et al., 1995). Descriptive statistical indices such as mean and standard deviation were used. In the inferential statistics section, structural equation modeling and Pearson correlation methods were employed using SPSS.22 and AMOS.22 software for data analysis.

**Findings:** The findings indicated a significant negative relationship between attachment to parents ( $\beta$  = -0.668, p < 0.01), attachment to peers ( $\beta$  = -0.256, p < 0.01), attachment to teachers ( $\beta$  = -0.051, p < 0.05), and students' academic self-handicapping. Additionally, there was a significant positive relationship between attachment to parents ( $\beta$  = 0.318, p < 0.01), attachment to peers ( $\beta$  = 0.340, p < 0.01), attachment to teachers ( $\beta$  = 0.242, p < 0.01), and students' academic self-regulation. A significant negative relationship was also found between academic self-regulation and students' academic self-handicapping ( $\beta$  = -0.233, p < 0.01). Furthermore, significant negative relationships were observed between attachment to parents ( $\beta$  = -0.074, p < 0.01), attachment to peers ( $\beta$  = -0.079, p < 0.01), attachment to teachers ( $\beta$  = -0.057, p < 0.01), and students' academic self-handicapping.

**Conclusion:** Therefore, it was concluded that academic self-regulation significantly and negatively mediates the relationship between attachment to parents, peers, and teachers, and academic self-handicapping.

Keywords: self-regulation, academic self-handicapping, students, attachment.



## 1. Introduction

dolescence is a transitional stage of physical and psychological development that occurs between childhood and adulthood (Kamarianos et al., 2020). **Emotional** dimensions, interpersonal and social relationships, especially during adolescence, significantly overlap in areas such as making friends, empathy, a sense of belonging, and attachment. Identifying the relationship between changes in each of these dimensions and changes in the others, along with identifying mediating factors, provides a better understanding of this critical period and paves the way for improving their lives through preventive and psychological intervention programs (Hunter & Maunder, 2015).

One of the serious issues during adolescence is selfhandicapping. Self-handicapping is a defensive strategy in which an individual creates obstacles prior to performance to manipulate attributions after the performance (Greaven et al., 2000). Berglas and Jones defined self-handicapping as a behavior or choice of behaviors that allows individuals to attribute failure to external factors and success to internal factors (ANLI, 2019; Jensen & Deemer, 2020). Smith and Meuller (2022), by proposing the self-worth theory, introduced self-handicapping to the educational domain. This model refers to the judgment an individual makes about their self-worth. According to this model, individuals use mechanisms and strategies like self-handicapping to avoid potential failure and looking foolish, employing avoidance strategies to protect their perceived abilities when facing failure (ANLI, 2019; Greaven et al., 2000; Jensen & Deemer, 2020; Want & Kleitman, 2006).

Parent-child relationships are among the important areas that have attracted the attention of scholars and education specialists for years (Kleitman & Moscrop, 2010; Shek et al., 2018). The impact of the family environment on child development is often assessed through the observation of parent-child interactions. In these observations, parental behavioral characteristics are usually evaluated through two dimensions: (a) Acceptance (warmth), which includes support and the nurturing of positive emotions between parents and children, and (b) Control, which includes those parental behaviors that guide the child's behavior, such as guidance and control, inhibitory or facilitative (Hossein Panahi & Goodarzi, 2018; Hosseinkhanzadeh et al., 2014).

Attachment, as an emotional bond that forms between a child and their parent from birth, plays an important role in shaping the individual's identity and personality (Rahmani et al., 2019; Zhang et al., 2020). Studies show that adolescents who have warm and intimate relationships with their parents possess a deeper sense of self, have more self-confidence, exhibit higher psychological adjustment, engage with problems, and strive to find appropriate solutions (Murray & Zvoch, 2011; Rahmani et al., 2019). Additionally, attachment to peers is a social, interpersonal, and emotional phenomenon that develops based on and follows parental attachment. It can be considered as a complementary aspect of attachment to others in breadth and as a necessary passage in the process of psycho-social development in length (Santona et al., 2019; Sepehrian Azar et al., 2014). The experience of peer attachment can reinforce the quality of attachment to parents and serve as an indicator for predicting the quality of attachments in post-adolescent developmental stages and the quality of emotional-social life thereafter. It appears that the experience of peer attachment can, through enhancing or undermining security, trust, and intimacy, play a mediating role between parental attachment and academic abilities by offering successful or failed practices in seeking independence and social adjustment (Mazloumian & Khazaei, 2021; Murray & Zvoch, 2011; Rahmani et al., 2019; Zhang et al., 2020).

Another dimension of attachment that holds a special place during adolescence is the relationship with teachers (Zhang et al., 2020). The teacher-student relationship acts as an effective contextual-emotional factor in the learner's subsequent learning. The quality of the teacher-student relationship leads to a form of attachment, which includes being understood and supported by teachers. Considering the importance of attachment to teachers in academic achievement and engagement, teachers should support students, establish intimate relationships with them, and trust their students. However, since high school students spend less time with their teachers, attachment to teachers at the high school level has received less attention. Nonetheless, many adolescents have reported that some of their teachers have had a profound impact on their lives (Murray & Zvoch, 2011).

Referring to Bandura's social-cognitive theory (1989), we find that environmental factors interact with individual factors to shape human behavior. Among the individual factors that can be influenced by attachment dimensions is academic self-regulation (Kitsantas et al., 2008). Various research evidence indicates the influential role of family, peers, and teachers in students' academic self-regulation. Accordingly, self-regulated learners take advantage of educational opportunities and mitigate academic adversities



while simultaneously monitoring their actions. In this way, these learners exhibit effective functioning in areas such as impulse control, time management, and coping with the psychological pressure stemming from the educational context (Abdolmaleki et al., 2023). According to socialcognitive theory and studies based on this theory, environmental factors influence individuals' performance through their impact on certain individual factors like selfefficacy or cognitive and motivational strategies. Hence, academic self-regulation, as an individual factor influenced by perceptions of the social environment and as a skill derived from academic support, can be considered one of the important mediators. Particularly, based on research evidence, possessing this skill in students leads to managing and guiding behavior and influences how they cope with stressful academic events (Ragusa et al., 2023; Razeghi & Saberi, 2017). Therefore, this study aims to examine the mechanism of the impact of environmental and individual factors on students' self-handicapping and address whether there is a structural relationship between self-handicapping and attachment to parents, peers, and teachers considering the mediating role of adolescents' academic self-regulation.

#### 2. Methods and Materials

## 2.1. Study Design and Participants

The present study is applied in terms of its goal and descriptive-correlational in terms of data collection methods. The statistical population included all female lower secondary school students in Tehran for the academic year 2020-2021, totaling approximately 1,840,000. Based on the Krejcie and Morgan table, a sample size of 384 students was selected through convenience sampling. The inclusion criteria for the study were being a lower secondary school student, willingness to participate in the study, answering all questions, not having serious medical conditions, not having major psychiatric disorders, and not being dependent on substances. The exclusion criteria included having psychiatric disorders, substance abuse, and not answering all questionnaire items.

The research procedure was as follows: After coordination with the Education and Research Deputy of the Tehran Education Department and obtaining the necessary permits and ethical approval from the Islamic Azad University, Sari Branch, the questionnaires were prepared and distributed to the selected participants. Necessary explanations were provided by the researcher on how to complete the questionnaires. Participants were asked to

request additional explanations if they encountered any difficulties during the completion process. After obtaining consent from the participants and guaranteeing the confidentiality of their information, the questionnaires were completed by the students.

#### 2.2. Measures

#### 2.2.1. Parent and Peer Attachment

This inventory, developed by Armsden and Greenberg (1987), contains 24 items. Twelve items pertain to each of the subscales of parental attachment and peer attachment. The scoring method is based on a five-point Likert scale (ranging from strongly agree = 5 to strongly disagree = 1). Items 7 and 19 are reverse scored. The reliability and validity of this questionnaire have been confirmed in numerous studies. In the study by Jokar and Salimi (2012), factor analysis using the principal components method with varimax rotation was used to determine the validity of the questionnaire. The criteria for extracting factors were the scree plot and eigenvalues greater than one, resulting in the extraction of two factors. Items 4, 21, 23, and 24 were excluded due to low factor loadings. The KMO coefficient was 0.86, and Bartlett's test of sphericity was 2985.72. The Cronbach's alpha coefficient for the parental attachment subscale was 0.88 and for the peer attachment subscale was 0.77 (Ahmadi & Moeini, 2015; Armsden & Greenberg, 1987; Laible, 2007).

#### 2.2.2. Teacher Attachment

The Teacher as a Secure Base Scale is a 25-item self-report scale related to various aspects of attachment. The items assess students' perceptions of their teacher as a secure base from both positive (availability, acceptance) and negative (rejection) aspects. The availability/acceptance subscale includes 17 items that refer to the perceived availability of the teacher in times of need. The rejection subscale includes eight items that assess the perceived rejection by the teacher. Students rate how well each item describes their teacher on a seven-point scale (1 = not at all true, 7 = very true). High internal consistency coefficients (Cronbach's alpha) were reported for the scale (availability/acceptance = 0.96; rejection = 0.87) (Rahmani et al., 2019).



## 2.2.3. Academic Self-Handicapping

This 25-item scale was developed by Jones and Rhodewalt (1982). The correlation of this scale with related constructs such as excuse-making and lack of effort in a sample of 245 individuals ranged from 0.27 to 0.60, and its internal consistency ranged from 0.28 to 0.70. The SHS was translated into Persian and its psychometric properties were examined by Heidari and colleagues (2009). Factor analysis showed that 23 items of the SHS loaded on three factors: negative affect, lack of effort (indicating behavioral selfhandicapping), and a combination of negative affect with excuse-making (indicating claimed self-handicapping). Test-retest reliability was 0.86, and internal consistency ranged from 0.60 for the excuse-making subscale to 0.72 for the negative affect subscale. Heidari et al. (2009) reported high and significant correlations for factors, subscales, and the total SHS score, ranging from 0.47 for the effort factor to 0.86 for the total score. Internal consistency for the SHS was reported to be between 0.60 for effort and excusemaking and 0.77 for the total score (Dehghani & Hekmatiyan Fard, 2020).

## 2.2.4. Academic Self-Regulation

To measure the level of academic self-regulation, the questionnaire developed by Bouffard et al. (1995) was used. This questionnaire contains 19 items divided into three categories: cognition, metacognition, and motivation. Seven items pertain to metacognition, nine items to cognition, and three items to motivation. Six items are reverse scored. Each item is rated on a five-point Likert scale (1 = not at all true of me to 5 = very true of me). Bouffard et al. (1995) reported the reliability of this scale using Cronbach's alpha as 0.78 for

cognition, 0.72 for metacognition, and 0.76 for motivation, with an overall alpha coefficient of 0.68. Abdi, Hashemian, and Abolmaali (2015) reported Cronbach's alpha coefficients for cognition, metacognition, and motivation as 0.56, 0.75, and 0.64, respectively. The validity of the questionnaire was assessed by correlating each item with its dimensions, resulting in coefficients of 0.71 to 0.79 for metacognition, 0.61 to 0.68 for cognition, and 0.67 to 0.73 for motivation (Razeghi & Saberi, 2017). In the present study, Cronbach's alpha coefficients were 0.78 for metacognition, 0.77 for cognition, and 0.76 for motivation.

## 2.3. Data analysis

Upon completion, the questionnaires were collected and scored, and the data were entered into SPSS software for statistical analysis.

## 3. Findings and Results

Among the participants in this study, 26.6% (102 individuals) were in the seventh grade, 35.9% (138 individuals) were in the eighth grade, and 37.5% (144 individuals) were in the ninth grade. The educational level of the fathers of the respondents was as follows: 70 individuals (18.2%) had a high school diploma or less, 68 individuals (17.7%) had an associate degree, 210 individuals (54.7%) had a bachelor's degree, and 36 individuals (9.4%) had a master's degree or higher. The educational level of the mothers of the respondents was as follows: 45 individuals (11.7%) had a high school diploma or less, 65 individuals (16.9%) had an associate degree, 250 individuals (65.1%) had a bachelor's degree, and 24 individuals (6.3%) had a master's degree or higher.

 Table 1

 Descriptive Statistics of Research Variables Based on Mean and Standard Deviation

Variable	Mean	Standard Deviation	Minimum	Maximum
Attachment to Parents	34.81	8.74	16	55
Attachment to Peers	33.47	8.50	15	53
Attachment to Teacher	65.90	14.98	30	98
Academic Self-Regulation - Cognitive	20.69	4.58	10	32
Academic Self-Regulation - Metacognitive	21.57	4.87	11	34
Academic Self-Regulation - Motivational	10.27	2.63	5	21
Total Academic Self-Regulation	52.48	10.56	16	82
Self-Handicapping - Negative Affect	25.48	6.06	11	39
Self-Handicapping - Lack of Effort	21.26	4.07	11	34
Self-Handicapping - Excuse Making	21.12	5.19	10	33
Total Self-Handicapping	67.68	12.72	33	105



According to the results of the correlation matrix in Table 2, there is a significant negative relationship between attachment to parents and academic self-handicapping (r = .71, P < .01), between attachment to peers and academic self-

handicapping (r = -.55, P < .01), and between attachment to the teacher and academic self-handicapping (r = -.27, P < .01).

Table 2

Correlation Matrix Between Research Variables

Variable	1	2	3	4	5	6	7	8	9	10
1. Attachment to Parents	1									
2. Attachment to Peers	.58	1								
3. Acceptance	.22	.22	1							
4. Rejection	.22	.21	.06	1						
5. Total Teacher Attachment	.31	.30	.79	.61	1					
6. Negative Affect	77	53	23	15	27	1				
7. Lack of Effort	47	40	22	.12*	24	.51	1			
8. Excuse Making	43	38	07	17	15	.49	.39	1		
9. Total Self-Handicapping	71	55	20	18	27	.85	.72	.78	1	
10. Academic Self-Regulation	.58	.57	.30	.31	.33	58	49	40	60	1

<sup>\*</sup>P < .05, \*\*P < .01

To examine the role of attachment to parents, peers, and teachers (in terms of acceptance and rejection) in predicting academic self-handicapping, a simultaneous multiple regression test was used. The variance inflation factor (VIF) for all independent variables was less than 10 and within the acceptable range (Attachment to Parents = 6.12, Attachment to Peers = 4.04, Acceptance = 8.32, Rejection = 5.81). The tolerance index for all independent variables was greater than zero, close to one, and within the acceptable range (Attachment to Parents = .26, Attachment to Peers = .88, Acceptance = .33, Rejection = .65). The Durbin-Watson statistic was 1.81, which falls within the range of 1.5 to 2.5, thus confirming the assumption of independence or lack of correlation between errors.

The structural model's fit was evaluated using various indices, which indicated an acceptable fit with the collected data. The chi-square value was 47.47 with 20 degrees of freedom, yielding a chi-square/df ratio of 2.37, which is less than the recommended cutoff of 3. The Goodness of Fit Index (GFI) was .970, above the acceptable threshold of .90. The Adjusted Goodness of Fit Index (AGFI) was .932, exceeding the minimum acceptable value of .85. The Comparative Fit Index (CFI) was .982, higher than the desired value of .90. Finally, the Root Mean Square Error of Approximation (RMSEA) was .065, below the maximum acceptable limit of .08, indicating a good fit of the model to the data.

 Table 3

 Total, Direct, and Indirect Path Coefficients Between Research Variables in the Structural Model

Path	b	S.E	β	sig
Direct				
Attachment to Parents> Academic Self-Regulation	.155	.027	.318	.001
Attachment to Teacher> Academic Self-Regulation	.069	.013	.242	.001
Attachment to Peers> Academic Self-Regulation	.170	.029	.340	.001
Attachment to Parents> Academic Self-Handicapping	368	.059	594	.001
Attachment to Teacher> Academic Self-Handicapping	.002	.019	.006	.931
Attachment to Peers> Academic Self-Handicapping	113	.036	177	.003
Academic Self-Regulation> Academic Self-Handicapping	297	.098	233	.001
Indirect				
Attachment to Parents> Academic Self-Handicapping	046	.014	074	.001
Attachment to Teacher> Academic Self-Handicapping	020	.008	057	.001
Attachment to Peers> Academic Self-Handicapping	050	.022	079	.001
Total				



Attachment to Parents> Academic Self-Handicapping	413	.053	668	.001	
Attachment to Teacher> Academic Self-Handicapping	018	.017	051	.301	
Attachment to Peers> Academic Self-Handicapping	163	.044	256	.001	

Based on the results in Table 3, the total path coefficient between attachment to parents and academic selfhandicapping is negative and significant at the .01 level ( $\beta$  = -.668, P < .01). The total path coefficient between attachment to peers and academic self-handicapping is negative and significant at the .01 level ( $\beta = -.256$ , P < .01). The total path coefficient between attachment to the teacher and academic self-handicapping is not significant at the .05 level ( $\beta$  = -.051, P > .05). The path coefficient between attachment to parents and academic self-regulation is positive and significant at the .01 level ( $\beta = .318$ , P < .01). The path coefficient between attachment to peers and academic self-regulation is positive and significant at the .01 level ( $\beta = .340$ , P < .01). The path coefficient between attachment to the teacher and academic self-regulation is positive and significant at the .01 level ( $\beta$  = .242, P < .01). The path coefficient between academic self-regulation and academic self-handicapping is negative and significant at the .01 level ( $\beta$  = -.233, P < .01). The indirect path coefficient between attachment to parents and academic selfhandicapping is negative and significant at the .01 level ( $\beta$  = -.074, P < .01). The indirect path coefficient between attachment to peers and academic self-handicapping is negative and significant at the .01 level ( $\beta = -.079$ , P < .01). The indirect path coefficient between attachment to the teacher and academic self-handicapping is negative and significant at the .01 level ( $\beta = -.057$ , P < .01).

## 4. Discussion and Conclusion

The aim of the present study was to examine the role of attachment to parents, peers, and teachers in predicting academic self-handicapping among lower secondary school students. According to the findings, it is observed that academic self-regulation negatively and significantly mediates the relationship between attachment to parents and academic self-handicapping. These results are consistent with the prior studies (ANLI, 2019; Dehghani & Hekmatiyan Fard, 2020; Greaven et al., 2000; Jensen & Deemer, 2020; Want & Kleitman, 2006).

In explaining the above research findings, it can be stated that the quality of attachment to parents provides a background for adolescents that is conducive to the healthy management of negative emotions. This functioning allows the adolescent to better endure potentially stressful situations (such as starting high school) and consequently use behavioral strategies appropriate to these situations (e.g., talking to parents or teachers about their negative feelings). Therefore, the quality of attachment to parents may protect against the development of internalizing and externalizing behavioral problems at school, thereby facilitating motivation and academic performance in adolescents. Attachment to parents is also related to the adolescent's perception and emotional relationships with teachers and academic counselors (Schoeps et al., 2020). Based on this relationship, the perceptions of teacher support will mediate the relationship between attachment and academic self-regulation in students, thus influencing the individual's learning motivation and performance.

Based on the results, it is observed that academic self-regulation negatively and significantly mediates the relationship between attachment to peers and academic self-handicapping. These findings are consistent with the prior (ANLI, 2019; Jensen & Deemer, 2020).

In explaining this finding, it can be said that during adolescence, teenagers place great importance on companionship and friendship with peers and acceptance in peer groups. During these years, friendships solidify and manifest in various forms of companionship, intimacy, a sense of belonging to a group, liveliness, and enthusiasm. If a student lacks a favorable social status and corresponding prestige among peers, their primary function—acquiring knowledge and advancing academically-along with their self-regulation, is disrupted (Jensen & Deemer, 2020). On the other hand, when an individual is not favored or liked by others, they tend to isolate themselves and reduce their social interactions significantly. This state of withdrawal and avoidance of others gradually spreads negative selfperceptions, feelings of inefficacy, and decreased selfesteem, leading the individual to feel incapable of facing problems and solving them, thereby affecting their academic self-regulation (Jensen & Deemer, 2020). Researchers have shown that there is a relationship between mutual friendships and peer acceptance with academic self-regulation and academic achievement. The significant role of peer attachment in students' intellectual development is also emphasized by cognitive development theories. Adolescents with close friendships exhibit better psychological adjustment (ANLI, 2019; Jensen & Deemer, 2020).



Based on the results, it is observed that academic self-regulation negatively and significantly mediates the relationship between attachment to teachers and academic self-handicapping. These findings are consistent with the prior studies (Lim, 2020; Mazloumian & Khazaei, 2021; Zhang et al., 2020).

In explaining this finding, it can be said that attachment to teachers and the quality of this attachment lead to extensive environmental changes in the educational environment. This means that students with good attachment quality to their teachers describe the educational environment as democratic and report the role of teachers in moderating the negative emotions of learning as very effective and strong. These students also reported positive attachment quality to their parents (Zhang et al., 2020). Students who cannot manage their emotions in special educational conditions will not be able to perform well academically. Therefore, the role of the teacher as a guide in the educational environment is also a determinant of students' self-regulation. Teachers, as educational and training models, can play a role in shaping students' psychological characteristics. Teachers who manage their classrooms flexibly and based on teacher-student and student-student participation create a safe emotional and educational environment. In this educational environment, students can respond calmly to questions or test their answers without prejudice and criticism (Lim, 2020; Mazloumian & Khazaei, 2021).

#### 5. Limitations & Suggestions

This research was conducted only among adolescent populations in Tehran. Care must be taken when generalizing the results to other age groups and cultural differences. The only instrument used in this research was a questionnaire, and it was not possible to use other tools such as observation or interviews. The study group only included lower secondary school girls and did not encompass other groups; therefore, caution should be exercised when generalizing the findings. It is recommended that this research be conducted in other cities to compare the findings with those of this study. It is also suggested that this research be conducted in other educational levels and the results compared with this study. Considering the role of negative life stressors in future research is recommended, as it can help understand the different pathways leading to quality of life within the stress-vulnerability model framework.

Additionally, qualitative research in this field is also suggested.

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#### Declaration of Interest

The authors of this article declared no conflict of interest.

### **Ethical Considerations**

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

## Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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## **Authors' Contributions**

All authors equally contributed in this article.

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