

Relationship between Maladjustive Perfectionism and Academic Performance: Mediating role of Maladaptive Cognitive Emotion Regulation

Setareh Haddadi¹, Mohammadreza Tamannaefar^{2*}

¹ Master Student, Department of Psychology, Faculty of Humanities, University of Kashan, Kashan, Iran

² Associate Professor, Department of Psychology, Faculty of Humanities, University of Kashan, Kashan, Iran

* **Corresponding author:** Mohammadreza Tamannaefar, Associate Professor, Department of Psychology, Faculty of Humanities, University of Kashan, Kashan, Iran. Email: tamannai@kashanu.ac.ir

Received 2021 February 03; Accepted 2022 March 24

Abstract:

Background: Academic performance is a very essential criterion for the evaluation of students.

Objectives: Present study aimed at assessment of mediating role of maladaptive cognitive emotion regulation (CER) strategies in the maladjustive perfectionism and academic performance relationship.

Methods: Descriptive-correlational design was the basis of this work. Our statistical population included every high school student in Kashan over the academic year 2019-20. The participants consisted of 329 2nd grade high schools students in Kashan selected by multi-stage random sampling. For data gathering, students' last semester grade point average was used to assess academic performance. The research instruments were Hill Perfectionism Questionnaire (2004) and the Cognitive Emotion Regulation Questionnaire (2001). The data was analyzed in platform of SPSS.22 and AMOS.23 software packages according to mean, standard deviation, Pearson's correlation coefficient, and path analysis.

Results: A significant negative correlation was depicted between academic performance and maladjustive perfectionism ($r=-0.15$; $P<0.01$), as well as maladaptive cognitive emotion regulation strategy ($r=-0.18$; $P<0.01$). The maladjustive perfectionism's overall impact on academic performance was also reported significant ($\beta=-0.15$; $P<0.05$), while the direct effect of maladjustive perfectionism on academic performance was insignificant. Maladaptive CER strategies mediated the relationship between maladjustive perfectionism and academic performance ($\beta=-0.077$; $P=0.39$) (AGFI=.93; RMSEA=.06)

Conclusion: It can be concluded that maladaptive strategies of cognitive regulation are influenced by maladjustive perfectionism, and maladaptive strategies of CER can play a mediating role in the relationship between maladjustive perfectionism and academic performance.

Keywords: Academic performance, Emotional regulation, Perfectionism, Students

Introduction

Academic performance refers to an ability to successfully achieve the planned goals (1). Academic success in adolescence is a major prediction agent of individual and social achievements in the coming years of life (2). In the field of education, academic performance and the factors affecting it have been always among the fundamental and pivotal variables considered by psychologists and researchers since academic performance indicates the success and failure of individuals in learning and conducting their future activities (3). Academic performance is a very important criterion to evaluate the students (4).

Academic performance has a critical role to play in nurturing graduates who constitute a major part of the workforce in charge of a country's social and economic development. Environment, social, psychological/mental, economic, and personal factors affect students' academic performance. Although students' performance is strongly influenced by these factors, they vary from country to country and person to person (5). One of the factors affecting academic performance is perfectionism which is a personality trait which is identified through efforts for being perfect,

setting unrealistically high standards, and overly critical self-evaluations (6).

Recently, the perfectionism is considered as a multi-aspect structure (7); moreover, it is organized in two dimensions: adjustive (healthy) and maladjustive (neurotic). People with the former type of perfectionism enjoy striving to achieve their determined goals and high standards, and in the end, they will be satisfied with their success (7). On the contrary, by setting extremely out-and-outer criteria, people with maladjustive perfectionism are always worried about their performance and if they do not achieve their desired goals, they feel inadequate (8).

Although there is much debate as to whether perfectionism can positively and negatively affect people's performance, higher levels of perfectionism often cause negative consequences (9). Accordingly, perfectionism encompasses three dimensions, including self-centered, other-oriented, and socially-prescribed. Self-centered perfectionism refers to individual attempts to reach high personal standards. Other-oriented perfectionism involves high expectations of the performance of others. Finally, socially-prescribed perfectionism involves meeting the wrong and exaggerated expectations of others in order to satisfy

them (10). Adjustive perfectionism creates an interest in progress and success by motivating and giving meaning to life, as well as not being attached to low-level tasks. On the other hand, maladjustive perfectionism sets unrealistic goals, tends to think all or nothing, and extreme self-assessments, leading to low self-esteem, poor academic performance, and burnout (11).

Cognitive emotion regulation is another variable related to academic performance. A process of initiating, avoiding, controlling, maintaining, or modifying events is called emotion regulation, as well as regulating the intensity and duration of internal feelings, motivational and behavioral states for social adjustment, or achieving individual goals (12). Emotion regulation promotes a desirable level of interaction with the environment and is of particular importance in creating and maintaining adaptive behavior, as well as reducing anxiety, negative experiences, and maladaptive actions (13).

Furthermore, cognitive emotion regulation strategies point to individuals' endeavors to modify their thoughts in order to regulate their emotions (12). In other words, people who live in poor living conditions use cognitive emotion regulation to control their emotions (14). Two kinds of CEM strategies exist: adaptive and maladaptive. The former encompasses such concepts as acceptance components, refocus on planning, positive refocus, positive re-evaluation, and underestimating stressful events. Besides, the latter includes blaming others, rumination, self-blame, and catastrophic thinking (15).

While cognitive emotion regulation strategies are often classified as adaptive or maladaptive, research has shown that each mode is useful in its own way, and flexibility in utilizing different types of strategies is more important than relying solely on one type. The ability to organize and manage emotions leads to academic success and achievement, and finally, good academic performance among individuals (16). In other words, the students who benefit from emotion regulation skills by controlling and inhibiting negative emotions will decrease the damages incurred to themselves (17).

In addition, cognitive emotion regulation is argued as mediating the perfectionism and anxiety sensitivities relationship. There is a dearth of studies among adolescent girls, where CER mediates the family communication processes and perfectionism relationship (18). Accordingly, in the relationship between maladaptive perfectionism and helplessness, maladaptive CER strategies play a mediating role (19).

The rate of academic achievement and decline is one of the most important criteria for evaluating students and the efficiency of the educational system; therefore, the investigation and study of variables affecting academic performance is of particular importance and a fundamental topic in the education field. In fact, students' good academic performance indicates the success of the educational system in achieving the set goals. As mentioned above, maladjustive perfectionism and maladaptive strategies of CER are among the variables related to students' academic performance.

Due to the fact that previous studies depicted the influence of maladaptive CER strategies on academic performance, as well as the fact that maladaptive CER are influenced by maladaptive perfectionism, it appears that maladjustive perfectionism can play a mediating role in the academic performance and maladaptive CER strategies relationship. Previous studies have investigated the mediating role of maladaptive CER strategies in the relationship of maladjustive perfectionism and various variables.

As a matter of fact, the adjustive aspect of perfectionism is associated with individual criteria and good academic performance, and maladjustive perfectionism has adverse consequences on students' educational status. Moreover, since adolescence is a period of intense emotion, cognitive strategies to deal with emotions when facing adverse life events and the ability of individuals in emotional settings are considered important factors in academic success. Consequently, it is of paramount importance to identify the factors affecting academic performance. Furthermore, since so far, no research has investigated the mediating role of maladaptive strategies of CER in the relationship between maladjustive perfectionism and academic performance, the present study aimed to assess this relationship.

Materials and Methods

An analysis of descriptive correlation was conducted for this study. In the academic year 2019-2020, every high school student in Kashan, Iran, were included. Data were selected using a multistage clustering method. According to the size of the statistical population and based on Krejcie and Morgan's table (20), the valid sample size was estimated at 352 subjects, and finally, due to the dropout of the subjects, 329 questionnaires were analyzed. The inclusion criteria were as follows: the age range of 15-19 years old, studying in the second high-school grade, and the absence of any mental disorders and physical illnesses, while the exclusion criteria were low IQ and unwillingness to take part in the study. As a consequence, the examiner reviewed academic records of participants and the clinical interview played a complementary role in determining inclusion and exclusion criteria. Finally, the questionnaires were submitted individually, and necessary explanations about the objectives of the study and how to complete the questionnaires were provided to the participants.

Data were collected using the following instruments:

Hill Perfectionism Inventory: The inventory, developed by Hill et al. in 2004, encompasses 59 items and 8 subscales (21,22). In this inventory, the subscales of striving for excellence, order and organization, as well as planfulness measure the adaptive dimension of perfectionism, while the subscales of interpersonal sensitivity (range 22-80), perceived parental pressure (range 8-28), and high standards for others (range 11-36) assess the maladaptive dimension of perfectionism (range 48-144). The items are rated on a 4-point Likert

scale, ranging from 1=quite disagree to 4=quite agree.

Hill et al. (2004) reported Cronbach's alpha reliability coefficients of 0.83 to 0.91 for different dimensions of the perfectionism scale, and the validity coefficient for different dimensions was reported to be from 0.71 to 0.91 (22). The Persian version of this questionnaire has been validated and standardized with 58 items and 6 subscales in an Iranian sample. For this questionnaire, a test-retest coefficient of 0.926 and a reliability coefficient of 0.736 were reported (23). In the present study, overall Cronbach's alpha coefficient was found to be 0.94, and for each of the subscales of interpersonal sensitivity, perceived parental pressure, order and organization, planfulness, striving for excellence, and high standards for others were respectively as follows: 0.92, 0.81, 0.77, 0.82, 0.73, and 0.71. In this study, the maladjustive dimension of perfectionism was examined.

Cognitive Emotion Regulation Questionnaire (CERQ). The purpose of the questionnaire was to measure an individual's CER strategies while coping with negative and daunting life events. It was developed by Garnefski and Kraaij in 2001 (24). This questionnaire has 36 questions and 9 subscales. The items are rated on a five-point Likert scale, ranging from 1 (never) to 5 (always) (24). In this questionnaire, CER strategies are divided into two general groups: adaptive and maladaptive strategies. The subscales of position assessment, refocus on planning, vision development, positive refocus, and acceptance of the situation constitute the adaptive strategies, while the subscales of self-blame, blaming others, rumination, and catastrophic thinking include maladaptive strategies (25). For the measurement of reliability of this questionnaire, a Cronbach's alpha coefficient of 0.91 was obtained. Moreover, in Iranian culture, after examining the correlation between the total score of the questionnaire and the scores of the subscales, the validity of the test was reported to be in the range of 0.40-0.68 with an

Higher scores indicate high perfectionism and vice versa. average of 0.56, and a Cronbach's alpha of 0.82 was reported as its reliability for all scales (26). The Cronbach's alpha coefficients of 0.82 and 0.76 were obtained for this questionnaire in the studies by Abdi (27) and Salehian and Qadiri (28), respectively. Here, Cronbach's alpha coefficients of the subscales of this questionnaire were reported to be in the range of 0.60-0.83. It is worth noting that here, maladaptive CER strategies were used to measure emotion regulation. The questionnaires were studied separately and the necessary explanations about the objectives of the study and how to complete the questionnaires were provided to them. As a result of collecting the completed questionnaires, data were analyzed using SPSS.22 and AMOS.23 software packages by calculating mean, standard deviation, Pearson's correlation coefficient, and path analysis by bootstrapping based on 5,000 subjects with a 95% confidence level. Kolmogorov-Smirnov test was used to evaluate the normality of data. To determine the significance of paths, the bootstrap method was used in the platform of AMOS Software. The fit indicators of the revised model include: the ratio of chi-square ratio to the degree of freedom (χ^2 / df), Good Fit Index (GFI), Adjusted Good Fit Index (AGFI), Incremental Fitness Index (IFI), Tucker Lewis Fitness Index (TLI), Comparative Fit Index (CFI), Normalized Fitness Index (NFI), and Root Mean Square Error of Approximation (RMSEA).

Results

As evidenced by the findings, the students' mean age was 17.25 ± 1.06 . In terms of gender, 55% and 45% of them were female and male, respectively. In addition, their mean grade point average was 18.43 ± 1.44 . The participants' demographic specifications are provided in Table 1.

Table 1. Participants' demographic specifications

		Frequency	Percentage
Gender	Female	205	53.8
	Male	176	46.2
Field of Study	Math	94	24.7
	Experimental Sciences	64	16.8
	Human Sciences	217	57
	Technical and Vocational	6	1.6
Grade	10 th	103	27
	11 th	112	29.4
	12 th	166	43.6
Age	15	11	2.9
	16	84	22
	17	143	37.6
	18	109	28.6
	19	34	8.9

Before performing the final analysis, the necessary assumptions were examined as a prerequisite for

performing the analysis, including a sample size of at least 10 people per parameter, distance scale for

variables, data normality, the existence of a linear relationship between predictor variables and the criterion regarded as the sample group. All variables were assessed using a distance scale. The level of Kolmogorov-Smirnov test statistic for research variables was higher than 0.05, indicating a normal data

variable, and the absence of multiple alignments. In this study, for each parameter, more than 10 subjects were distribution. Moreover, the relationship between variables is linear with no multiple alignments. Table 2 displays the mean, standard deviation (SD), and correlation coefficients of the studied variables.

Table 2. Mean, standard deviation, and correlation coefficients of the variables

Variable	Mean	SD	1	2	3
Maladjustive perfectionism	94.59	18.91	1		
Maladaptive strategy of cognitive emotion regulation	46.97	11.19	0.57*	1	
Academic performance	18.38	1.52	-0.15**	-0.18**	1

** $P < 0.01$, * $P < 0.05$

Table 2 illustrates a significant negative correlation between maladjustive perfectionism and academic performance ($r = -0.15$; $P < 0.01$). There is also a significant negative correlation between the maladaptive strategy of CER and academic performance ($r = -0.18$;

$P < 0.01$). Furthermore, a significant positive correlation is observed between maladjustive perfectionism and maladaptive CER strategy ($r = 0.57$; $P < 0.01$).

Table 3. Results of evaluating the overall, direct, and indirect paths

	Paths	Effect	Standard error	Significance level	Confidence level
Overall	Maladjustive perfectionism → academic performance	-0.152	0.045	0.001	(-0.24) (-0.064)
Direct	Maladjustive perfectionism → academic performance	-0.075	0.053	0.14	(-0.181) (0.027)
	Maladjustive perfectionism → maladaptive strategy of CER	0.566	0.043	0.001	(0.48) (0.644)
	Maladaptive strategy of CER → academic performance	-0.136	0.053	0.013	(-0.234) (-0.026)
Indirect	Maladjustive perfectionism → maladaptive strategy of CER → academic performance	0.077	0.032	0.011	(-0.142) (-0.015)

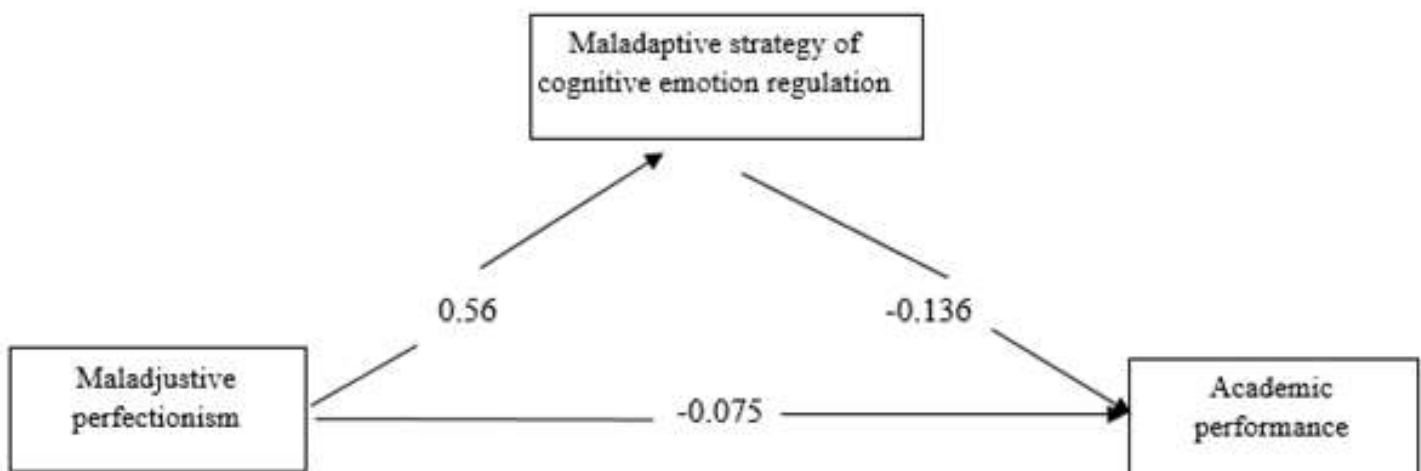


Figure 1. Direct and Indirect relationships of the variables

The conceptual model of the present study indicates the existence of direct and indirect (mediating) paths. To determine the significance of these paths, the bootstrap subjects with a confidence level of 95%. As illustrated, the direct effect of maladaptive perfectionism on the maladaptive strategy of CER ($\beta=0.566$; $P<0.05$) and that of the maladaptive strategy of CER on academic performance are significant ($\beta=0.136$; $P<0.05$). In addition, the overall effect of maladaptive perfectionism on academic performance is significant ($\beta=-0.15$; $P<0.05$), while the direct effect of maladaptive perfectionism on academic performance is insignificant ($\beta=-0.075$; $P=0.053$). When the maladaptive strategy of CER is represented as a mediator in the relationship between maladaptive perfectionism and academic performance, the indirect effect of the maladaptive

method was used in the platform of AMOS Software. Table 3 and Figure 1 present the evaluation of direct and indirect paths using the bootstrap method based on 5000 strategy of CER on academic performance is -0.077 , which is significant according to the upper limit and lower limit at the confidence level of 95% ($P=0.39$; $\beta=-0.077$). Therefore, since the direct effect of maladaptive perfectionism on academic performance is insignificant but its indirect effect is significant, the maladaptive strategy of CER mediates the maladaptive perfectionism and academic performance relationship.

In order to evaluate the fitness of the proposed model, a number of fit indicators were used for this purpose. After lifting the two errors, the model initially had a somewhat favorable fit. The results of these indicators are demonstrated in Table 4.

Table 4. Fitness indicators of the proposed model

	χ^2	df	χ^2/df	GFI	AGFI	IFI	TLI	CFI	NFI	RMSEA
Proposed model	78.73	18	4.87	0.93	0.86	0.94	0.91	0.94	0.93	0.1
Revised model	42.68	17	2.5	0.97	0.93	0.98	0.96	0.98	0.96	0.06

As illustrated in Table 4, the values of the fit indicators of the revised model include the followings: χ^2/df : 2.5, GFI: 0.97, AGFI: 0.93, IFI: 0.98, TLI: 0.96, CFI: 0.98, NFI: 0.96, and RMSEA: 0.06. According to Hu and Bentler (29), a model needs at least three indicators to fit well. The TLI, CFI, and IFI are greater than 0.9; moreover, $RMSEA<0.08$ (good), $P<0.05$, and $\chi^2/df<5$; therefore, the proposed model fits well.

Discussion

The present study aimed at assessment of the mediating role of maladaptive CER strategies in the maladaptive perfectionism and academic performance relationship. The findings of the present study pointed out that the overall effect of maladaptive perfectionism on academic performance is negative and significant. The results of this study are consistent with those obtained by Pourseyed et al. (30), Amani and Kiani (31), Gholami and Ghaffari (32), Abbasi et al. (33), Stoeber and Rambow (34), as well as Karatzanos and Zbainos (35). Pourseyed et al. (30) pointed to a positive and significant relationship between maladaptive perfectionism and academic burnout, as well as adaptive perfectionism and academic performance.

In the same context, Amani and Kiani (31) reported that perfectionism has an indirect significant relationship with academic performance through academic self-efficacy and self-regulation. Gholami and Ghaffari (32), found that maladaptive perfectionism has a negative effect on academic performance through the mediating role of information identity styles, avoidance, and identity commitment. Abbasi et al. (33) indicated that maladaptive perfectionism prevented students from

achieving their goals. Stoeber and Rambow (34) reported that maladaptive perfectionism reduces motivation and academic success among students. In a similar vein, Karatzanos and Zbainos (35) indicated that adaptive perfectionism has a positive relationship with academic performance, while the opposite holds true for maladaptive perfectionism.

In explaining the relationship between maladaptive perfectionism and academic performance, it can be stated that perfectionism is considered a personality trait with adaptive and maladaptive dimensions. Both these dimensions of perfectionism include high standards and a constant effort to excel in personal performance. A distinctive feature of maladaptive perfectionism is the intense tendency to negative self-assessments and the prediction of failure to achieve ideal goals (36). Students with maladaptive perfectionism, regardless of their talents and abilities, have unrealistic expectations of themselves, leading to an academic failure (31). Negative self-assessments and failure predictions, as well as failure to achieve determined goals, cause these people to feel uncomfortable and have poor academic performance.

Besides, our findings indicated a negative and significant relationship between maladaptive strategies of CER and academic performance. Our findings are in line with those reported by Dehghanian et al. (37), Roshanzadeh (38), Desi (39), Mikaeili et al. (40), and Seibert et al. (41), while they are not consistent with the results of the studies by Gholamali Lavasani et al. (42), Moghimian (43), and Sayyah Bargard et al. (44). Dehghanian et al. (37) demonstrated a significant relationship between the dimensions of CER and

academic performance. In a similar vein, Roshanzadeh (38) reported that academic performance showed a significant positive and negative association with adaptive CER strategies and maladaptive CER strategies, respectively.

Along the same lines, Desi (39) also indicated that maladaptive CER strategies can negatively predict students' academic performance. Mikaeili et al. (40) pointed to the negative and significant relationship of emotion regulation and positive/negative emotions with academic performance and burnout. In the same vein, Seibert et al. (41) reported that emotion regulation has an undesirable relationship with academic performance through the mediating role of school burnout. On the contrary, Gholamali Lavasani et al. (42) showed that CER strategies are not able to predict academic achievement. Moghimian et al. (43) reported that CER training had a significant effect on CER skills and reduction of academic procrastination but did not have a significant effect on students' academic performance. Furthermore, Sayyah Bargard et al. (44) argued that none of the CER strategies have a significant relationship with academic performance.

Understanding the relationship between maladaptive CER strategies and academic performance, it can be stated that emotion regulation has a special and constructive role in problem-solving, information processing, optimal decision making, innovation, and creativity, as well as learning optimization (42). Adaptive emotion regulation increases social competence and academic achievement (45). People who use adaptive CER strategies have a more compatible view of themselves and focus on desirable aspects of situations, leading to positive self-evaluation and providing motivation, success, as well as acceptable academic performance. The use of maladaptive CER strategies, however, leads to inefficient reactions and reinforces negative attitudes towards learning. It also reduces effort, increases anxiety and internal tension, and leads to academic decline as well as poor performance (39).

Furthermore, the findings of this study demonstrated that maladaptive strategies of cognitive regulation are under the influence of maladjustive perfectionism, and maladaptive strategies of CER can play a mediating role in the relationship between maladjustive perfectionism and academic performance. As mentioned earlier, previous studies have investigated the mediating role of maladaptive CER strategies in the relationship between maladjustive perfectionism and various variables. Nonetheless, so far, no research has evaluated the mediating role of maladaptive CER strategies in the relationship between maladjustive perfectionism and academic performance.

In explaining this relationship, it can be stated that perfectionism is considered a personality trait with adjustive and maladjustive dimensions. Both dimensions of perfectionism include high determined standards and a constant effort to excel in personal performance. A distinctive feature of maladjustive perfectionism is an

intense tendency for negative self-assessments and the prediction of failure to achieve ideal goals (42). Those with maladjustive perfectionism experience more negative emotions and therefore use maladaptive coping strategies and maladaptive emotion regulation when faced with psychological distress (46).

Emotion regulation plays a special and constructive role in problem-solving, information processing, optimal decision making, innovation, and creativity, as well as increasing learning (47). Adaptive emotion regulation increases social competence and academic achievement (35). People who use adaptive CER strategies have a more consistent view of themselves and focus on desirable aspects of situations, leading to positive self-esteem, motivation, success, and acceptable academic performance. On the contrary, the use of maladaptive CER strategies causes inefficient reactions, reinforces negative attitudes toward learning, reduces efficiency, increases anxiety and internal tension, and leads to academic decline and poor academic performance in the individual (48).

Maladjustive perfectionists show more severe reactions to failure and success, as compared to other people in facing stressful daily events, and therefore, experience more unpleasant emotions. Poor insights into emotions make it difficult to regulate emotions and use maladaptive emotion regulation strategies. The use of maladaptive CER strategies causes a person to have a negative view of their abilities and successes; therefore, they give up their education after the first failure (49).

Due to the use of self-reporting tools and the investigation of second-grade high school students, the present study has limitations that may lead to bias in response and make effects difficult to generalize. Consequently, it is recommended to pursue studies at other educational levels as well. We can also point to the fact that the sample size of the students in Kashan is relatively small, so caution should be exercised in applying generalizations to all students across Iran.

Additionally, education-specific organizations should provide parents, teachers, and administrators with information about the potential negative effects of maladjusted perfectionism on children and their academic performance, providing important awareness in this regard. As part of improving academic performance, students should be taught how to regulate emotions and solve problems. Due to the relationship between perfectionism and academic performance, it is recommended that experienced counselors be present at schools to provide education and counseling to students in an attempt to modify the perfectionist mood.

Conclusion

Difficulty in regulating emotional states changes a person's attitude towards the school environment and education, reduces academic motivation, and ultimately, leads to academic decline and unacceptable academic performance. On the other hand, the regulation of emotions in an optimal way leads to appropriate interaction with peers and teachers and modulates

emotional states, which in turn, improves learning-related attitudes and behaviors.

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