



## **THE RELATIONSHIP OF SELF-REGULATION AND SELF-EFFICACY WITH ACADEMIC STRESS IN UNIVERSITY STUDENTS**

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### *Abstract*

*The present study aims at investigating the relationship of self-regulation and self-efficacy with academic stress in university students. To this aim, 200 students (80 males and 120 females) were selected by cluster sampling from students of six faculties in Tehran Tarbiat Moallem University. The instruments used to serve the purpose of the study include Self-regulated Learning Questionnaire (1995), General Self-efficacy Scale (1981), and Academic Stress Scale (1991). According to the analysis of the results and correlations, while self-regulation, cognition, meta-cognition, and self-efficacy have a positive and significant relationship with each other, they show a negative and significant relationship with academic stress. The results also indicate that self-regulation and self-efficacy affect academic stress directly. The pattern revealed by this study indicates that self-regulation affects academic stress through self-efficacy that acts as a mediator variable.*

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Keywords: self-regulation, self-efficacy, academic stress

## **Introduction**

Stress is called as one of the natural and inevitable aspects of contemporary human beings for which various definitions have been offered. Some of the definitions take stress simply as mental pressure and others consider it as a physiologic response to the threatening environmental stimuli (Lazarus & Folkman, 1984). The point that stress has a physical, cognitive, or affection nature has been a controversial issue among the scholars for quite a long time. Cognitivism, as the dominant approach in the contemporary psychology, considers body, mind, and feeling as the inseparable components of human existence. It also claims that each of the mentioned components is composed of various and interwoven elements and shape the behavior in an interactive network (Lazarus, 1990). The evidence provided by some of the studies show that beliefs and judgments about the amount of control that one could take over the stressful situations and the sense of self-regulation for overcoming the problems and annoying events affect the level of emotional arousal and function in those conditions. These findings suggest that when facing the stressful events, the individuals who maintain a positive perception of themselves and show higher levels of self-regulation, or in other words are self-regulated and self-efficacious, experience less emotional arousal. As a result they encounter less deficiency and inactivity in their function in cognitive tasks (Pekrun, Goetz, & Titz, 2002). The cognitive-emotional theory implies that considering the events as stressful is basically a personal phenomenon and in fact one's interaction with environment and the evaluations of potential events are threatening and challenging. Therefore, this approach assumes that stress is caused when the individuals interpret an event as challenging and difficult or they lack sufficient resources for adapting to the situation (Lazarus, 1990). In this way, the mind acts as the mediator between affective response and the environmental event and the interpretation of the type and intensity of environmental event determines the relevant affective and emotional reactions (Garcia-Linares & Casanova, 2003). As Smith (2005, cited in Ang & Haun, 2006) proposes, academic stress is a psychological state that includes test

anxiety, lack of academic achievement, and lack of goal setting. Academic stress is related to the increasing need for gaining knowledge and at the same time individual's perception of the lack of sufficient time for achieving that knowledge. Moress (1990, cited in Gadzella, 1991) mentions five main stressors: failures, conflicts, pressures, changes, and self-imposition; as well as four types of responses to these elements as: physiological, behavioral, cognitive, and emotional. Academic stress could lead to hatred and fear of education and learning (Misra, McKean, West, & Russo, 2000). There might be different reasons behind academic stress such as weak education, distorted self-concept, parents' negative viewpoints, low self-efficacy and self-regulation. Sturat (2006, cited in Ang & Haun, 2006) claims that the reason for academic stress might be rooted in lack of confidence in facing the academic tasks and, in other words, lack of a sense of self-efficacy and self-regulation in fulfilling an academic task. There has been a growing interest in examining the self-regulated learning by the scholars as well as the teachers (Bandura, 1997; Schunk, Pintrich, & Meece, 2007; Zimmerman, 2008). The scholars suggest that for attaining high levels of academic achievement, learners need to learn how to regulate their activities in line with their goals (Pintrich & Zusho, 2007; Schunk et al., 2007). Self-regulated learners would regulate their feelings, thoughts, behaviors, and actions in a way that they would facilitate attaining their goals (Zimmerman, 2002). The majority of learners manage to use the learning strategies successfully and possess high levels of motivation (Bandura, 1997; Zimmerman, 2008). Self-regulation is acquired along with the skills and it could explain the interpersonal differences among the learners. The students who apply self-regulatory and motivational learning strategies in the classroom are characterized by serious attempts for success, enjoying the challenges, using the appropriate strategies, low academic stress, setting goals, and high levels of self-efficacy. On the other hand the students who do not apply these types of learning strategies show characteristics such as low attempt for success, lack of enjoying from challenges, lack of using appropriate strategies, high levels of stress, poor goal-setting and self-efficacy (Schunk, Pintrich, & Meece, 2008; Pintrich & Zusho, 2007). In the same regard, one of the factors that affects one's function and is considerably significant is self-efficacy beliefs. Self-efficacy involves judgments about one's own abilities for fluffing a task successfully (Bandura, 1997; Zimmerman, 2008; Schunk & Ermer, 2000).

Academic self-efficacy refers to the individual beliefs regarding the abilities to succeed in academic tasks such as reading, writing, and math. The self-efficacy theory argues that the students who believe they are able to complete a task are probably more motivated and those who do not hold this belief are not motivated. Gevanimarya and his colleagues (2007; cited in Özgüngör, 2009) conducted a study on multi-dimensional self-efficacy beliefs as predictor for academic stress in students. They conclude that, for students of both genders, academic self-efficacy beliefs could serve as a better predictor for academic stress in comparison to previous academic achievements and peers preferences. According to the theory proposed by Bandura (1997) five main features could be mentioned for self-efficacy: 1) self-judgment, 2) multi-dimensionality, 3) dependence on context, 4) clear criteria, and 5) evaluation before engagement in task.

Zimmerman (2008) believes that self-efficacy has a close and positive relationship with self-regulation, high levels of motivation, as well as academic achievements. Bembenutty (2008) studies the direct and indirect effects of late academic satisfaction, self-efficacy, and self-regulation on academic stress. The results of this study show that late satisfaction influences academic stress as a mediator variable through self-efficacy and self-regulation. Keith and her colleagues (2003) note that while self-efficacy and self-regulation have a positive relationship with stress, they have a negative relationship with academic stress. In a factor analysis by Pintrich and DeGroot (1990), it is revealed that cognition and meta-cognition are considered as two main factors in self-regulation. This study also highlights the specific cognitive and meta-cognitive strategies applied by students. According to the presented discussion, some limitations could be mentioned for the studies in the field of academic stress. The majority of the studies consider academic stress as an independent, rather than dependent variable. As a result, these studies primarily have focused on the educational variables that reduce academic stress such as teacher's behaviors, tasks and etc. but the present study addresses the mental variables that lead to reduction in academic stress. Although some of the preceding studies examined mental variable such as lack of motivation, lack of confidence, and negative attitude, they have followed this aim theoretically and without proposing a specific model. The relationship among these mental variable have been proved in various studies, but their structural relationship

has not been investigated. Therefore, in the present study: 1) academic stress is addressed as a dependent variable, 2) the cultural context is non-Western, 3) latent and complex variables are considered, 4) the motivational and psychological variables that reduce stress are highlighted and, 5) the proposed model is introduced in which self-regulation reduces academic stress considerably and indirectly through the mediator role of self-efficacy. Hence, the main purpose of this study is examining academic stress as a multi-dimensional function of self-regulation and self-efficacy in a structural model.

## **Method**

### *Population, Subjects, and Procedure*

The population for this study included all of the undergraduate students of Tehran Tarbiat Moallem University in educational year of 2009-2010. The subjects chosen for the purpose of study included 200 students (80 male and 120 female) from Tehran Tarbiat Moallem University that were selected through cluster sampling method from six faculties of this university. After random sampling, the questionnaires were distributed among them in their break time. In the instruction for the questionnaires the answering method was explained and it was emphasized that the name and family name are not required. The questionnaire required the respondents to first answer the self-regulation questionnaire, second the self-efficacy scale, and finally the academic stress questionnaire. The obtained data were analyzed using Pearson correlation.

### *Instruments*

*Self-regulated Questionnaire*: this questionnaire includes 14 items proposed by Boufard (1998) and was standardized by Kadivar (2001). The general reliability coefficient for this questionnaire was .71 through Cronbach's alpha. The reliability coefficient for the two sub-scales of cognitive strategies and meta-cognitive strategies were .70 and .68 respectively. The reliability coefficient for this questionnaire was offered by various studies. For example, the Arabzadeh and his colleagues (2011) reports it to be .69. In order to determine the construct, the results of factor analysis show that the correlation

coefficient among the items is acceptable and the instrument includes two factors. The value for the factors is acceptable and this instrument is able to explain 52% of self-regulation variance. The validity of the construct is also reported to be acceptable (Kadivar, 2001). In this questionnaire the answers are arranged on a 5-level likert scale that includes totally agree, agree, no idea, disagree, and totally disagree which rate from 1 to 5 respectively. The scoring system for the items 5, 13, and 14 are vice versa. The general reliability coefficient for this questionnaire was .60 according to the Cronbach's alpha.

*General Self-efficacy Scale.* In order to evaluate the self-efficacy of students the 10-item General Self-efficacy Scale proposed by Nezami, Schwartz, and Jerusalem (1996) was used. The original version of this questionnaire included 20 items which was reduced to 10 in later revisions (Nezami, Schwartz, & Jerusalem, 1986, 1992; cited in Kadivar, 2001). The value of items and the partial correlation coefficient of this instrument were acceptable and this instrument was able to explain 45% of self-efficacy variance. Kadivar (2001) reports .80 for the internal consistency coefficient of items through Cronbach's alpha. According to the fact that the answers to the items were on a five-level Likert scale, the maximum score for this questionnaire is 50. The general reliability coefficient calculated for this questionnaire was .74 according to Cronbach's alpha.

*Academic Stress Questionnaire (SLSI).* Gadzella and Baloglu (2001) propose this questionnaire with the aim of examining the stressors in students' life and their reactions toward these factors. This questionnaire is a self-report instrument which includes 51 items in 9 categories. This instrument is based on the theoretical model explained by Moriss (1990; cited in Gadzella, Stacks, & Stephens, 2004). The mentioned model evaluates five types (categories) of stressors (failure, conflict, pressure, change, and self-imposition) and four types (categories) of reactions towards these stressors (physiological, behavioral, cognitive, and emotional). This questionnaire includes five sub-scales for each stressor and the numbers of items for each sub-scale are as follows: seven items for failure, three items for conflict, three items for change, four items for pressure, and six items for self-imposition. In each sub-scale, the scores for items are added up to calculate the general score. Higher scores indicate to more academic stress and more reaction to the stressors. Misra et al. (2001) report the Cronbach's alpha for the sub-scales of failure, conflict, pressure,

change, and self-imposition as .65, .63, .71, .75, and .63 respectively. In the reactions section of this questionnaire the numbers of items for each reaction are as follows: 14 items for physiological, 4 items for emotional, 8 items for behavioral, and 2 items for cognitive reactions. Misra et al. (2001) report Cronbach's alpha for physiological, emotional, behavioral, and cognitive subscale to be .78, .81, .68, .85 respectively. The reliability coefficients calculated for failure, conflict, pressure, change, and self-imposition sub-scales in the present study are .61, .63, .56, .79, and .76 respectively. The reliability coefficients calculated for physiological, emotional, behavioral, and cognitive sub-scales are .64, .85, .73, .69 respectively.

## Results

Table 1 summarizes the means and standard deviations of the scores for self-regulation, self-efficacy, and academic stress scales.

Table 1. Means and standard deviations for scores on self-regulation, self-efficacy, and academic stress scales

Variable	Gender group	Number	M	SD
Self-regulation	Male	80	47.70	6.46
	Female	120	58.59	5.80
	Total	200	53.64	6.08
Cognition	Male	80	22	2.31
	Female	120	28	2.47
	Total	200	25	2.34
Meta-cognition	Male	80	27	2.60
	Female	120	31	4.20
	Total	200	29	2.90
Self-efficacy	Male	80	26.27	2.32
	Female	120	18.19	2.14
	Total	200	24.25	2.27
Academic stress	Male	80	57.16	5.53
	Female	120	48	6.60
	Total	200	52.58	6.06

Table 2 presents the correlation matrix for the variable under study.

Table 2. Correlation matrix of the variables

Variable	1	2	3	4	5
Self-regulation	1				
Cognition	.810 (**)	1			
Meta-cognition	.795 (**)	.742 (**)	1		
Self-efficacy	.499 (**)	.384 (**)	.471 (**)	1	
Academic stress	-.252 (**)	-.127 (*)	-.187 (*)	-.232	1

The general pattern obtained from the results of this study reveals that while self-regulation, cognition, meta-cognition, and self-efficacy have positive and significant relationship with each other, they have a negative and significant relationship with academic stress.

As part of the procedure of data analysis, the path analysis model was used to examine academic stress as a multi-dimensional function of self-regulation and self-efficacy in a structural model. Figure 1 shows the final model and table 3 summarizes the results.

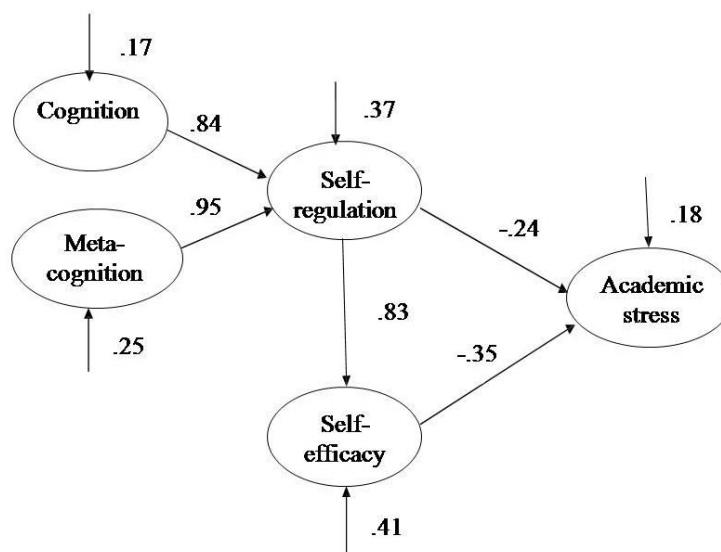


Figure 1. The path analysis model



Table 3. The examined paths in the model

Paths under study	Direct effect ( $\beta$ )	Indirect effect ( $\beta$ )	Total effect ( $\beta$ )
The self-regulation factor on Self-efficacy	.74 **		
Academic stress	-.24 **	-.29 **	-.53 **
The self-efficacy factor on Academic stress	-.35 **		

Note: \*\*  $p < .01$

According to Table 3, self-regulation explains 24% of academic stress variance directly. But it explains 29% of academic stress variance indirectly through self-efficacy that is a motivational variable. In other words, self-regulation could reduce the academic stress through self-efficacy acting as a mediator variable.

### Conclusions

The present study examines the relationship of self-regulation and self-efficacy with academic stress in university students. To this aim, a conceptual model is proposed with regard to the approaches such as cognitive-social theory by Bandura and the body of literature in the same field. The proposed model is evaluated through the path analysis method. The results of path analysis show that the proposed model is consistent with the data obtained by the study. As the results of this study show, self-regulation should be considered as an abstract and hierarchical construct. These findings are of high importance since self-regulation be evaluated through the interaction of cognitive and meta-cognitive strategies and not a real experiment. Therefore, self-regulation has cognitive and meta-cognitive dimensions and these dimensions could facilitate the evaluation of self-regulation. These findings are in agreement with the studies conducted by Pintrich and De Groot (1990). The findings also reveal that while self-regulation and its factors show positive and significant correlation with self-efficacy, it has negative and significant correlation with academic stress. These findings are in line with the findings of the study by Keith and her colleagues (2003). In this study self-regulation is taken as a cognitive variable and self-efficacy is considered as a motivational variable.

The findings show that an increase in self-regulation (cognitive variable) would lead to an increase in self-efficacy (motivational variable) which reduces the academic stress. Bembenutty (2008) also finds the same findings in his study. These findings come true in spite of the fact that each self-regulation and self-efficacy would affect academic stress directly and significantly. The students who apply self-regulatory strategies during fulfilling their academic tasks experience lower academic stress and higher self-efficacy. On the other hand, students who do not use self-regulatory strategies experience higher academic stress and lower self-efficacy. According to the findings of this study, it is recommended that the structure of the educational settings should be designed in a way to lead students in using cognitive, meta-cognitive, and self-regulatory strategies. With regard to the significance of improving the academic achievements of students, it is suggested that the parents, teachers, and educational institutes generate the motivation in students for further activities and endeavours. They should facilitate the factors that lead to the tediousness from study and education. The materials and tasks should also be developed in ways to be attractive, authentic, and applicable to the real life with the aim of raising students' awareness about cognitive and meta-cognitive strategies. The significant and leading role of self-efficacy should not be overlooked in this process.

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