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Original Article

Education Section

Relationship between Academic Self-efficacy and Motivation among Medical Science Students

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ABSTRACT

Introduction: Academic motivation and its underlying factors have long been the major concern of educational institutions. Self-efficacy has been a key factor contributing to academic motivation, the students' interest, and their academic performance.

Aim: To investigate the relationship between academic self-efficacy and academic motivation among medical science students in Iran.

Materials and Methods: In the present study 264 undergraduate nursing students at Qom University of Medical Sciences, Qom, Iran, were selected through a random sampling method. Data were gathered through academic motivation and academic self-efficacy questionnaires and analysed using multiple regression and descriptive statistical analysis.

Results: The mean score of the academic motivation and self-efficacy of students was 145.30±21.40 and 179.46±47.44, respectively. The results of a stepwise-regression analysis showed out of classroom performance as well as semester level explained 19% of the variance in the motivation.

Conclusion: Based on the findings of the study, confidence in academic performance out of the classroom resulted in students' success. Such performance seems to encourage the student to believe in their abilities and their self-efficacy and be more academically motivated.

Keywords: Academic motivation, Academic performance, Medical education

INTRODUCTION

Internal and external factors contributing to students' academic achievement is referred to academic motivation. Academic motivation is an important factor predicting learning [1]. Understanding the academic motivation and its associated factors help the authorities of educational institutions reason out why some students in the school have a good performance while some cannot complete their education. It is not surprising that a growing body of literature shows that researchers are looking for a way to increase students' motivation and improve their academic performance [2]. Motivation has shown to increase individuals' efficiency and help them better use their ability, talent and feel more satisfied [3]. Compared to unmotivated students, motivated ones are keener to notch up success. For this reason, they put in a lot of efforts to overcome the problems they are facing [4]. A fair amount of success encourages motivated students to work harder while failure makes poorly motivated students feel more discouraged put them at risk of fatigue and its complications [5]. Based on individual's needs, stimulators and external pressures, academic motivation can be divided into two major categories: intrinsic motivation and extrinsic motivation. Those who are intrinsically motivated find the challenges interesting and take pleasure in being involved in activities and in contrast, for those who are externally motivated, achievements and the consequences of individual learning activity are the most top priorities [5].

Previous studies have shown a set of individual, educational and environmental factors such as confidence and self-esteem [6], hope [7], coping styles [8], the quantity and quality of learning programs, activities and learning assignments, teachers' characteristics, and academic environment can influence students' level of interest and increase their motivation [9]. Being self-determined and having an internal locus of control are reported to increase intrinsic motivation [10]. Bernacki ML et al., concluded that self-efficacy belief is an outcome of motivation and if a learner fails to cope with the problems, his self-efficacy is likely to decrease and he will probably lose his motivation to study, and he will fail to achieve academic success [11]. Ghaleb ALB et al., found that the positive and successful experiences attributed to internal factors may increase the efficacy while attributing the success to external factors and unsuccessful experiences may increase the sense of incompetency in a learner [12]. Alaei R et al., found that students with learning disabilities experience low levels of self-efficacy and low progress motivation because of their diminished expectations. Both, progress motivation and self-efficacy encourage the learner to make the maximum use of their potentials. In addition, the feeling of incompetence is reported to reduce the potential performance in achieving learning goals and negatively influence academic performance [4].

Several studies have been conducted on academic motivation [13-15]. However, few studies have investigated the relationship between some academic variables such as motivation and students' self-efficacy [16,17]. Moreover, most of the studies have used general self-efficacy questionnaire rather than academic self-efficacy [18,19]. Therefore, the originality of this study lies in examining the relationship between academic self-efficacy and motivation among Iranian nursing and paramedical students using academic self-efficacy questionnaire.

MATERIALS AND METHODS

Participants and Sampling

Participants in this cross-sectional study were undergraduate medical science students at Qom University of Medical Sciences in Iran. We recruited the participants through a random sampling method. To this purpose, a list of all the undergraduate students in nursing and paramedical schools was prepared; then, the participants were selected randomly from the list. A total of 270 questionnaires were distributed among the participants and only 264 questionnaires

were completed and returned by the respondents (response rate =97.7%). Total sample size was calculated with considering the lowest correlation coefficient between academic motivation and self-efficacy {α=0.05 (two-tailed), β=0.1, r=0.2}. The participants with a history of psychiatric disorder were excluded from the study.

Instruments and data collection: Data were collected through paper-and-pencil self-report questionnaires. Data collection started in February 2014 and ended in April 2014.

Instruments

The questionnaire consisted of the following three sections:

1. **Demographic characteristics:** It comprised basic information regarding age, gender, marital status and housing types.
2. **Academic motivation:** Vallerand RJ et al., academic motivation questionnaire [20] was used to assess the academic motivation of the participants. This questionnaire consists 28 items measuring the academic motivation on three subscales of intrinsic motivation, extrinsic motivation, and a motivation. Respondents were asked to rate their responses on a 7-points Likert scale ranging from strongly agree to strongly disagree. The range of total scores varies from 28 to 196 and higher scores indicate higher academic motivation of respondent. This questionnaire has shown satisfactory validity and reliability in Iranian context. Internal consistency was calculated by Cronbach's alpha was 0.88 for total scale in Bahrani M et al., study and intra-rater the reliability of the instrument which was examined by test-retest method after two weeks was reported (r=0.73) [21].
3. **Academic self-efficacy:** The academic self-efficacy scale developed by Zajacova A was used. [22]. This new version of academic self-efficacy questionnaire was developed based academic Milestones scale [23] and Solberg college self-efficacy list [24]. In the study done by Zajacova A et al., academic self-efficacy scale, self-efficacy is measured through college-related tasks. Participants were asked to rate their confidence in the successful completion of each task on a 10-point Likert scale from very not confident (0) to extremely confident (10) [22]. In study done by Zajacova A et al., the results of confirmatory factor analysis showed that four factors; Students' confidence in their ability to do homework in the classroom, Students' confidence in their ability to perform tasks outside of the classroom, Students' confidence in their ability to manage work, family and school, and confidently interact with others on campus. In previous study, using the Persian version of the academic self-efficacy indicated good reliability and validity [25].

Ethical Considerations

The study was approved ethically by the Ethics Committees of University of Social Welfare and Rehabilitation Sciences. The aim of the study were explained to the participants, and they were assured that their responses would be anonymous and confidential. All students were informed of the objective of the study and gave written consent before inclusion in the study.

STATISTICAL ANALYSIS

Data were analysed using SPSS version 18.0. The demographics characters of the participants were expressed as the mean±SD and percentages. Pearson coefficient correlation was used to the strength of the relationships between two variables. Univariate and multivariate regression (ENTER) were carried out to determine the association of academic motivation and self-efficacy. The significance level for all tests was p<0.05.

RESULTS

Out of 264 students who participated in the study, 54.5% (144) were female and 45.5% (120) were male and, 79.5% (210) were single and 20.5% (54) were married. The mean (±SD) age of the participants was 22.30 (±2.14) years. The mean (±SD) total average score of the students in the last semesters was 16.57±1.38. Demographic characteristics of participants are detailed in [Table/Fig-1]. The Self-efficacy and academic motivation of the students was 179.46±47.44 and 145.30±21.40, respectively.

About 24.5% (59) of student had a high level of motivation, 49.8% (128) of them had moderate motivation and 25.7% (62) of them had a low level of motivation. In addition, self-efficacy in 25.7% (59) of students was low, 50% (115) of them had moderate self-efficacy.

Univariate regression analysis, showed achievement score at the end of each semester and all scores on the self-efficacy subscales were significantly associated with academic motivation (p<0.05), while there was no significant correlation between some demographic factors {e.g., age, gender, education (in semesters), and employment status} and academic motivation (p>0.05) [Table/Fig-2]. The results of the multivariate stepwise-regression showed that the out of class performance subscale of self-efficacy predicted 16% of variance changes of academic motivation in the first model. In the second model, when some semester-associated variables were added to performance subscale and outside of the class, the variance rose from 16% to 19% the total of 41% of the variance

Variable	Grouping	Number	Percent
Residing	Residing in dormitory	63	23.9%
	Not Residing in dormitory	198	75%
	Information missing	3	1.2%
Employment status	Employed	192	72.7%
	Unemployed	65	24.6%
	Information missing	7	2.7%
Semester	Semester one	54	20.5%
	Semester two	15	5.7%
	Semester three	56	21.2%
	Semester four	28	10.6%
	Semester five	37	14%
	Semester six	20	7.6%
	Semester Seven	24	9.1%
	Semester eight	29	11%
	Information missing	1	0.3%
Field of study	Nursing student	63	23.9%
	Operating room student	74	28%
	Anaesthetist student	78	29.5%
	Medical emergency student	49	18.6%
	Information missing	0	0%

[Table/Fig-1]: Demographic characteristics of the student.

Variable	Unstandardised coefficients		Standardised coefficients	t	p-value
	Std. Error	B	Beta		
Sex	2.78	1.46	0.03	0.52	0.60
Age	0.41	0.41	0.065	1	0.318
Semester	0.57	-1.63	-0.18	-2.82	0.005
Occupation	1.32	-1.99	-0.09	-1.50	0.13
Inside of performance	0.08	0.46	0.35	5.83	<0.001
Out of class performance	0.09	0.53	0.34	5.65	<0.001
Interaction with others	0.11	0.62	0.33	5.48	<0.001
Job/Family management	0.17	0.97	0.34	5.555	<0.001

[Table/Fig-2]: Univariable regression in predicting motivation among medical science student.

of academic motivation was explained by academic semester and performance out of class. Beta coefficient of the confidence in performance out of class was 0.39 and for semester variable was -0.17. This showed that confidence in performance out of class had higher reliability. In addition, due to the negative beta coefficient for semester variable, it can be concluded that students in higher semesters would have a low level of academic motivation. Positive beta coefficient variance shows that students with high confidence in performance out of class had a high level of academic motivation [Table/Fig-3].

Variable	Unstandardised coefficients		Standardised coefficient	t	p-value	R	R2
	Std Error	B	Beta				
Model 1	-	-	-	-	-	0.40	0.16
Fix	6.19	108.24	-	17.47	0.000	-	-
Out of class performance	0.10	0.68	0.40	6.25	-	-	-
Model 2	-	-	-	-	-	0.43	0.19
Fix	6.59	114.96	-	17.43	<0.001	-	-
Out of class performance	0.10	0.67	0.39	6.27	<0.001	-	-
Semester	0.57	-1.55	-0.17	-2.68	0.008	-	-

[Table/Fig-3]: Stepwise-regression analysis in predicting motivation among medical science students.

DISCUSSION

The results showed that academic self-efficacy has a significant association with academic motivation. In other words, by increasing the self-efficacy score, academic motivation will also increase. Multivariate regression analysis showed that students' performance out of class is important factor predicting the academic motivation.

The results of the present study were consistent with previous findings [26,27]. Abbasianfard M et al., investigated the relationship between self-efficacy and progress motivation among pre-university students and concluded that four subscales of self-efficacy, self-guidance, self-regulation, self-excitement, and self-esteem were related to progress motivation however, self-assessment subscale was not associated with progress motivation [28]. The findings of Ghaleb ALB et al., were in contrast with the present results, although metacognitive awareness was the most important factor for predicting academic motivation, self-efficacy however academic performance goals were not good predictors of academic motivation. The researcher believed that a high correlation between predictor variables of academic motivation variables could explain such relations [12]. Available theories about human motivation posit that individuals' perception of their competency is an important factor influencing motivational behaviour and encouraging them to do their tasks [29,30]. If learners perceive themselves as competent and self-efficient in performing academic tasks, they will better realise their potentials and invest more efforts to achieve their goals and complete their tasks; thus, they will succeed in education. In addition, they feel more satisfied with their learning. In fact, when learners believe in themselves and having assignments in their area of control, their intrinsic motivation for academic tasks will increase [31]. The results of this study showed that, except the academic semester, other demographic variables are not associated with academic motivation. The students in higher semesters reported a lower level of motivation. The results of this study were consistent with the findings of Vahedi S et al., and Oudi D et al., who reported that students in the second semester were more academically motivated than the ones in the seventh and eighth semester [32,33]. Numerous factors can explain the decrease in the level of academic among medical sciences students. One of the factors is the gap between theory and clinical practice in hospitals. Students in higher semesters will feel the gap more. This inconsistency between theory and practice can reduce the academic motivation of individuals [34]. It seems that the provision of appropriate educational programs and decreasing the gap between theory and practice can help students to better prepare themselves for the clinical course and make them more motivated to participate in educational courses. Assigning some patient care to students and asking students to help health workers could have negative motivational effects on undergraduate students socially and culturally [33]. The inappropriate interaction of physicians with nurses and nursing students is another factor that reduces the academic motivation of students in higher semesters. As the relation between physicians and nurses is usually hierarchical and is characterised as the boss and subordinate, students are expected to obey their bosses. Such obedience negatively influences their self-esteem and academic motivation [34]. If the students are not satisfied and confident about their future, they will lose their motivation and fail to succeed. In a study conducted in 2011, Roohi G et al., found that job prospects could be effective in motivating students [35]. Confidence in academic performance out of classroom increases students' academic motivation. The learner who feels much confident about his ability in doing assignments out of class on his own; he is more likely to attribute his success to internal factors and his/her own effort. According to "documents in motivation theory", people with internal locus of control have a high level of self-efficacy and motivation because they attribute their success to internal factors, while people with external locus of control attribute have low level of self-efficacy and motivation because they attribute their success to external factors and others [12]. Schunk DH et al., believe that although those teachers who help students during the educational process can improve their students' learning skills. However, they should be aware that students may attribute their success to them and students lose their confidence in their own abilities and feel unsuccessful [36].

LIMITATION

In the present study, the cross-sectional nature of the study did not allow to identify the causal effect relation in this study. Therefore, we can overcome these challenges and limitations using experimental and longitudinal studies. The present study was conducted on students of Qom University of Medical Sciences. Therefore, the results of this population can not be generalised.

CONCLUSION

Based on the study, out of class performance has been found to predict academic motivation. Also, given the fact that with the increase of the academic year and as time goes on, students lose their motivation. Therefore, it is essential that educational centres, considering the factors affecting academic motivation improve the academic performance of the students by planning and policy making.

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