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Academic Motivation and Relevant Predictive Factors in Pharmaceutical Students of Zanjan University of Medical Sciences, Zanjan, Iran in 2016

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Abstract

Background & Objective: The research aimed to determine the level of academic motivation and some of the relevant factors in pharmaceutical students of Zanjan University of Medical Sciences, Zanjan, Iran in 2016.

Materials and Methods: This was an applied research in terms of objectives with a descriptive-correlational design. Study population included all pharmaceutical students of Zanjan University of Medical Sciences (N=290) in the academic year of 2016-2017. In total, 168 subjects were selected using the Cochran formula and stratified random method. Data collection tools included three questionnaires of academic motivation, as well as occupational and individual factors, face and content validity of which was previously confirmed by experts. In addition, reliability of the research tools of academic motivation and occupational and institutional factors was estimated at the Cronbach's alpha of 0.88, 0.71, and 0.76, respectively.

Results: Analysis of the data through descriptive and inferential statistics demonstrated that the mean academic motivation of students was at an acceptable level and higher than the hypothetical mean. Moreover, a significant relationship was observed between academic motivation and variables of economic status of family, grade point average , and occupational factors ($P<0.05$). Results of the regression table also demonstrated that occupational factors and university grade point average determined the significance of academic motivation.

Conclusion: According to the results of the study, university grade point average had an impact on the academic motivation of students and was able to predict this concept to a certain extent.

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Introduction

One of the important duties of any educational system is providing a proper condition for emergence of talents and abilities, which exist in the nature of human beings. Therefore, providing the foundation for flourishing of talents of students is the duty of some units, such as family, university and society. Today, not all of the educational roles must be assigned to school and university due to the excessive distribution of information and advancement of the relevant tools. We need to accept that the family and society play a more effective role in this regard. In other words, the basic characters of children are formed in family, and this role remains significant even after entering school and university (1). Several studies have shown the inefficient enhancement of the academic performance of students and their relevant activities during their academic education period.Studentswith great potentials cannot properly use their abilities. In addition, most of the students lack the scientific spirit and motivation, and make no useofthe educationalfacilities.These individuals mainly think about increasing their academic level instead of their scientific level (2).

This issue might be caused by factors that students bring with themselves to university, which play a constructive role in the advancement of educational goals of these individuals. Originated from society, media and family, these factors form the academic status of students by integrating with some educational factors. However, these factors might not directly affect the academic progress of students and only overshadow other factors, which lead to academic progress or failure in students. In this regard, one of the factors is academic motivation (2). Academic motivation is one of the learning requirements and is something that adds to the intensity of the behavior, helping the learner maintain and sustain this necessity. This type of motivation leads to the necessary motivation of individuals to successfully finish a task, achieve a goal or obtain a certain level of competence in their work and activity so that the necessary success is achieved in learning and academic progress (3).

Levin defines academic motivation as the greatest learning highway, in a way that the higher the motivation of a person to learn, the more activities performed by this individual to achieve the final goal. A high level of academic motivation in a person leads to the proper performing of educational tasks, taking tasks seriously and acquiring information more than what is taught in class. In addition,

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an individual with high academic motivation finds the necessary skills and proper solutions and activities in learning. It is clear that success in learning increases the sense of empowerment and can result in increased interest in the subject of learning (3). Extensive research is required to recognize the important factors involved in the reduction of academic motivation and provide strategies to decrease damages caused by the decline in academic motivation. Regarding educational research, a significant relationship has been observed betweeneconomic concepts and condition, individual and family features, academic facilities, social properties and level of academic motivation, especially in developing countries (4). In general, a set of factors related to each other affect the interest and motivation of learners toward learning.

This set of factors might include the properties of learners, educational curriculums (in terms of quality and quantity), characteristics of teachers, conditions and features of academic environment, activities and tasks of learning and other environmental factors (5). Over the past few decades, psychologists have aimed to evaluate and detect the factors affecting academic motivation due to the significant impact of this issue on the success of students. Results of studies conducted in this regard have revealed a relationship between personal, family, academic and social variables and this structure (2). In this respect, a research demonstrated that personality variables of students (generally) and self-esteem and academic motivation (specifically) had an intrinsic effect on learning and academic progress. Other studies have been performed on the integration of rational empowerment, learning style, personality and academic motivation as the predictors of academic success in higher education (6). Results of various studies have confirmed an association between academic motivation and individual and social factors, all of which are indicative of the significant impact of the mentioned factors on academic motivation.

According to these results, a relationship was observed between the structure of academic motivation and variables of family, academic and social personalities. In a research on effective factors for academic motivation of students in Ardabil University of Medical Sciences, Ardabil, Iran, some of the factors affecting academic motivation were introduced to be family income, having hope toward the future and level of self-esteem. Meanwhile, gender, death of parents, emotional family atmosphere and physical-

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mental health had no significant impact on educational motivation. Another report has been presented on the apparent effect of job insecurity and fear of career future on academic motivation of pharmaceutical students. Evaluation of academic motivation of medical students of Isfahan, Iran revealed a direct and significant relationship between academic motivation and progress. In this regard, the three components of competitiveness, endeavor and social interest had a positive correlation with the grade point average of students (2). Occupational and institutional factors are different in each field of study and university, in a way that students of different fields and universities have various attitudes toward the jobs relevant to their fields. Moreover, institutional factors, such as physical space of classes and educational and laboratory equipment, are different in each university, which leads to different levels of academic motivation in students. On the other hand, no similar research has been conducted on pharmaceutical students across the country, and just the relationship between these factors has been assessed in most of the studies with no addressing of the effectiveness of these factors. Therefore, it is essential to evaluate the academic motivation and determine the level of relationship and effectiveness of each of the mentioned factors on the academic motivation of pharmaceutical students in order to change or modify the mentioned factors, so that the motivational level of students could be improved. With this background in mind, this research aimed to determine the relationship and effect of occupational and institutional factors on the academic motivation of pharmaceutical students.

Materials and Methods

This study was a correlational and descriptive with an applied design. Sample population included all pharmaceutical students of Zanjan University of Medical Sciences in the academic year of 2016-2017, which was equal to 290 individuals according to the statistics of the education department of school of pharmacy. However, a total of 168 individuals was selected with 5% error level using Cochran formula. Subjects were selected through stratified random sampling based on the enrolment year of students. In this regard, a list of students, who enrolled in the university during 2011-2016, was provided as the framework of sampling, followed by the sampling of the participants using random number table and based on the sample size. It should be noted that the sample size was estimated according to the principles of

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stratified sampling based on observing the proportion of population in each category and entrance year of students to the university.

Research tools included a four-section questionnaire: the first section included individual properties of responders, such as gender, marital status, university grade point average, high school grade point average, occupational status of parents, level of education of parents, age, economic condition of family and place of residence. The second section of the tool contained 26 items to evaluate the academic motivation, which was designed with the use of the standard questionnaire on the academic motivation of students and according to the theory presented by Deci and Ryan (7). Moreover, the third part of the questionnaire encompassed four items on occupational factors, designed based on the occupational satisfaction and motivation questionnaire by Oldham & Hackman. The fourth and final section of the research tool contained eight items on institutional factors, designed based on content review, opinion of experts and condition of the school.

The academic motivation questionnaire included 26 items, each being scored on a five-point Likert scale (never=1 to always=5). Mean scores above the hypothetical mean of academic motivation was considered favorable, whereas mean score below the mentioned level was unfavorable (8). Validity of the research was determined using content validity. The questionnaire was given to 15 faculty members, who were experts in the fields of psychology and pharmacy, to obtain their opinion about the research tool after selecting and determining the items by the research team, who were all graduates of psychology and mental health. After receiving the opinions of these individuals, modificationswereappliedonthe questionnaire, most of which were related to the correction of grammaratical and editing errors.

In addition to the use of corrective comments of experts, a pilot study was performed on 30 individuals of the evaluated society in order to ensure the reliability of the questionnaire. After collecting the questionnaires, the reliability of academic motivation, as well as occupational and institutional factors was determined at the Cronbach's alpha of 0.88, 0.71 and 0.76, respectively. Data analysis was performed in SPSS version 22 using descriptive or qualitative statistics (frequency, percentage, tables and diagrams) inferential or quantitative statistics, Kolmogorov-Smirnov test (to evaluate the normal distribution of data), central tendency and dispersion index

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(to analyze the data), and correlation, regression and one-sample t-test (for testing of the hypothesis and answers of items). In addition, the participants were ensured of the confidentiality terms regarding their personal information. Furthermore, participation in the research was voluntarily and subjects were allowed to withdraw from the research at any time. Eventually, the project was approved by the ethics committee of Zanjan University of Medical Sciences with the ethical code of ZUMS.REC.1395.118.

Results

In this research, 168 pharmaceutical students of Zanjan University of Medical Sciences participated. From 165 individuals, who completed the questionnaire, 47 (28.5%) were male and 118 (71.5%) were female. In addition, the highest age frequency was related to the age range of 18-21 years. Demographic characteristics of the subjects are presented in Table 1.

Table 1: Frequency distribution (number) in terms of demographic variables of study

variable		**Frequency**	**Frequency percentage**	**actual percentage**	**cumulative percentage**
Gender	Girl	47	28.0	28.5	28.5
	Boy	118	70.2	71.5	100.0
	Total	165	98.2	100.0	
	No response	3	1.8		
Total		168	100.0		
Age	18-21 years	119	70.8	70.8	70.8
	21-24 years old	37	22.0	22.0	92.9
	24-30 years	9	5.4	5.4	98.2
	Older than 30 years	3	1.8	1.8	100.0
Total		168	100.0	100.0	
Type of accommodation	Native	36	21.4	21.8	21.8
	Non-native	129	76.8	78.2	100.0
	Total	165	98.2	100.0	
	No response	3	1.8		
Total		168	100.0		

Continue table 1: Frequency distribution (number) in terms of demographic variables of study

Family income	Less than 1 million	7	4.2	4.5	4.5
	1 million to 1.5 million	12	7.1	7.7	12.2
	1.5-1.2 million	31	18.5	19.9	32.1
	2 to 3 million	36	21.4	23.1	55.1
	Above 3 million	70	41.7	44.9	100.0
	Total	156	92.9	100.0	
	No response	12	7.1		
Total		168	100.0		
Diploma Grade Point Average	Less than 12	5	3.0	3.1	3.1
	12 to 15	6	3.6	3.7	6.7
	15 to 17	152	90.5	93.3	100.0
	Total	163	97.0	100.0	
	No response	5	3.0		
Total		168	100.0		
Total University Grades	Less than 12	12	19.0	23.3	33.3
	12 to 15	43	25.6	34.8	58.1
	15 to 17	77	34	41.9	100.0
	Total	132	78.6	100.0	
	No response	36	21.5		
Total		168	100.0		

Descriptive information related to the variables is shown in Table 2. As observed, mean of academic motivation of students, as well as occupational and physical and institutional factors was 89.05, 15.47, and 24.31, respectively.

Table 2: Descriptive indexes of research variables

Variable	number of samples	Minimum	Maximum	Mean	Std. Deviation
educational motivation	168	55.00	126.00	89.055	10.828
Occupational factors	168	10.00	20.00	15.472	2.301
Factors school	168	12.00	36.00	24.319	5.014

According to Table 3, a significant difference was observed between the obtained and hypothetical means in all of the mentioned factors. In other words, mean academic motivation of students was higher than the hypothetical mean.

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Table 3 :Results of the t-test of single-group t student's academic motivation

educational motivation	Hypothetical average	main mean	Difference of meanings	t	df	Significance level
	78	89.05	11.05	8.66	167	0.001

As observed inTable 4,theassociation between institutional factors and academic motivation was not confirmed in the present study with regard to the level of significance (P>0.05).

Table 4: The Relationship between School Factors and School Motivation in Students Using Pearson Correlation Test

Factors	educational motivation	
School Agents (Total Score)	The correlation coefficient	0.191
	Significance level	0.109
	number of samples	168
School Library Accountability to Student Need	The correlation coefficient	0.066
	Significance level	0.583
	number of samples	168
Accountability of college labs to student needs	The correlation coefficient	0.043
	Significance level	0.727
	number of samples	168
The ability of professors to answer scientific questions	The correlation coefficient	0.189
	Significance level	0.112
	number of samples	168
Conducting scientific and research conferences	The correlation coefficient	0/167
	Significance level	0/163
	number of samples	168
Holding workshops	The correlation coefficient	0.049
	Significance level	0.688
	number of samples	168
Responsiveness of the content of textbooks to student needs	The correlation coefficient	0.181
	Significance level	0.137
	number of samples	168
Doing scientific visits	The correlation coefficient	0.145
	Significance level	0.224
	number of samples	168
Use of new technologies in the education process	The correlation coefficient	0.184
	Significance level	0.122
	number of samples	168

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The relationship between occupational factors (separately) and the academic motivation of students is presented in Table 5. With regard to the obtained level of significance (P<0.01 and P<0.06), the association between occupational factors and academic motivation of students was confirmed in the current research. It should be noted that this relationship was direct and positive in all sections.

Table 5: The Relationship between Job Factors and Academic Motivation in Students Using Pearson Correlation Test

Factors	**Educational Motivation**	
Occupational factors (total score)	The correlation coefficient	0.440**
	Significance level	0.001
	number of samples	168
Flexibility of the job at the completion of work	The correlation coefficient	0.359**
	Significance level	0.002
	number of samples	168
Flexibility of the job to be done	The correlation coefficient	0.343**
	Significance level	0.004
	number of samples	168
Flexibility of the job at work	The correlation coefficient	0.257*
	Significance level	0.029
	number of samples	168
Relationship of the job with the technology	The correlation coefficient	0.275*
	Significance level	0.020
	number of samples	168

**** Level of significance=0.05 and ** Level of significance=0.01***

In terms of individual factors observed in Table 6, a significant association was observed for only two factors of monthly family income and university grade point average. Moreover, a negative and reverse relationship was observed between monthly family income and academic motivation, whereas there was a positive and direct correlation between academic motivation and university grade point average.

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Table 6: The relationship between individual factors and academic motivation in students using Pearson correlation test

Factors	Educational Motivation	
Sex	The correlation coefficient	-0.059
	Significance level	0.623
	number of samples	168
Age	The correlation coefficient	0.086
	Significance level	0.474
	number of samples	168
Accommodation status	The correlation coefficient	-0.032
	Significance level	0.793
	number of samples	168
Family income	The correlation coefficient	-0.241
	Significance level	0.032*
	number of samples	168
Diploma grade point average	The correlation coefficient	-0.055
	Significance level	0.651
	number of samples	168
University average	The correlation coefficient	0.256
	Significance level	0.025*
	number of samples	168

Finally, results of regression test demonstrated the significant role of occupational factors and university grade point average in the prediction of academic motivation, in a way that the occupational factors and university grade point average were able to prevent academic motivation by 48.9% and 32.9%, respectively.

Table 7: Linear regression test in step-by-step method for the motivation variable

Variable	Standard coefficients	Non-standard coefficients		T-value	Significance level
	Beta coeff	standard error	B		
Constant	-	12.091	42.317	3.500	0.001
Occupational factors	0.489	0.628	2.146	3.416	0.002
University average	0.329	1.995	4.582	2.297	0.028

Discussion

According to the results of the current research, mean academic motivation of students was higher than the hypothetical mean and at a favorable level. In addition, results of testing the hypothesis demonstrated a significant difference in mean academic motivation of students and hypothetical mean. Evaluation of the relationship between individual factors and academic motivation of

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students showed that only the association between academic motivation and variables of economic status and high school grade point average was significant. Meanwhile, there was a negative and reverse relationship between economic status and academic motivation of participants, in a way that improvement of economic status was associated with reduced academic motivation of students. In this regard, our findings are in line with the results obtained by Caraguvin, Teymouri and Naeeni.

In the research by Caraguvin, a positive and significant relationship was observed between factors, such as family condition and parental level of education, and academic motivation of students. Moreover, in the research by Teymouri, a significant difference was observed in the academic motivation of high school students of Tehran, Iran in terms of family condition. In the mentioned study, students with lower economic level had a higher level of academic performance and motivation, compared to those with better financial condition. Furthermore, results obtained by Naeeni were indicative of a significant relationship between individual factors and academic motivation of subjects (7, 9, 10). In addition to the mentioned studies, a similar research was performed by Turner, who reported a significant association between the academic motivation of students and variables of type of family relationship and parenting style (11). In the research by Teymouri, family condition and emotional atmosphere had a direct effect on the academic motivation of students (10). On the other hand, results obtained by Moghimian demonstrated that the character of students (especially extraversion and dedication) had a direct association with academic motivation (12).

In a study by Vahedi, a significant relationship was reported between motivation and gender of students. In the mentioned research, self-motivation was higher in female students, compared to male individuals (13). Moreover, Motezaker reported a more significant role of external motivation in improvement of academic motivation, compared to internal motivation (2). In another research by Karsookar, a significant correlation was found between gender and academic motivation (14). However, no significant relationship was observed between institutional factors and academic motivation of students. In the current research, the institutional factors were mainly physical and laboratory facilities. Another factor considered in the present study was academic

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level of professors, which had no significant relationship with the academic motivation of students. In this regard, there was a lack of consistency between our findings and results obtained by Caraguvin, who reported a significant relationship between some of the institutional factors (e.g., content presentation method) and academic motivation (9).

In addition to the mentioned studies, Mohammad also reported similar results in terms of the relationship between institutional factors and academic motivation, including a significant relationship between effective teaching methods, a suitable learning environment for participation, self-motivation, encouraging student to constructive discussions in class, small-group works and academic motivation of students. In the present study, a high correlation coefficient was observed between occupational factors and academic motivation. In addition, results of the regression table demonstrated that occupational factors significantly predicted academic motivation. This means that occupational factors predicted 49% of academic motivation of students. Compared to institutional factors, occupational factors had a greater predictive power, which shows the great importance ensuring the career prospects of students. Since the pharmaceutical business market is still not saturated, students can start a relevant job during or after graduation. Therefore, the relationship between occupational factor and academic motivation was higher, compared to other factors. Evaluation of article databases demonstrated that little research has been conducted on the association between occupational factors and academic motivation, as observed in the presented study. However, our findings are in congruence with the results obtained by Story and Aghaei. In the mentioned studies, a significant relationship was reported between academic motivation and future career of students (15, 16).

In the end, it should be pointed out that while reliable results were obtained in the current study, the researcher announced his lack of ability to control intrusive and confounding variables. Therefore, generalization of the results must be carried out with caution. In addition, given the wide range of factors related to motivation, we were unable to compare the results with other studies due to the assessment of different factors. Literature review demonstrated that a small number of studies have been conducted on the relationship between occupational factors and

academic motivation due to the uniqueness of this field of study in terms of future career of students.

Conclusion

While the academic motivation of students was reported at a favorable level, extensive work is required to achieve an acceptable level regarding the academic motivation of students. Results of testing the hypothesis were indicative of a significant difference in mean academic motivation of students and hypothetical mean of the present study. Therefore,recognitionoffactorswith the ability to increase motivation in students can play a rolein increaseand improvement of motivation of students. According to the results of the current research, concerns about the future job situation are of particular importance. In categorization of problems of adolescents and adults, social problems, such as concern about future career, have been pointed out.Necessity ofacademic coordination with jobs required in the society leads to increased importance of future career during studying, which explains the high correlation between occupational factors and academic motivation.

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