



A Model to Determine Effective Factors on Pharmacy Major Selection (A Case Study: Students of Zabol University of Medical Sciences)

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Authors' contributions

This work was carried out in collaboration between all authors. Authors ME and AA designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Authors ZM, RR and AR managed the analyses of the study, literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Background: Annually, a large number of students tend to study pharmacy. Students enthusiastically begin their studies; however, they lose their tendency over time. This study addresses motives and effective factors on pharmacy major selection as well as factors which discourage students in continuing their field of study.

Materials and Methods: This was a descriptive-analytic study which recruited 120 pharmacy students of Zabol University of Medical Sciences randomly and period of this study was four months. This study was conducted in 2016 on 120 students in Zabol University of Medical Sciences and all the students with Personal satisfaction take part in this choose. Participants included 71

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female and 49 male students; moreover, 107 students were single and 13 students were married. These students were native (66.7%) or non-native (33.3%).

Results: Data was collected by questionnaire measuring demographic variables and effective factors on major selection. The questionnaire was developed on a Likert scale. Subjects were asked to fill the questionnaire. The collected data was analyzed by using an independent t-test, Chi-square test and other relevant tests. Analysis of data showed a significant relationship between Pharm.D degree, social status and suitable income ($P < 0.05$); these factors are the most important factors effective on pharmacy major selection. Moreover, the results showed that good career prospect was the most important factor in discouraging students to continue their major. This study found no significant relationship between native students (those born in the city of education) and discouragement. Moreover, Chi-square test showed no significant relationship between gender, marital status, parental education and maternal education and encouragement or discouragement ($P > 0.05$). So As found by the relevant questionnaire, the most important factor which motivates students is good job prospect.

Discussion and Conclusion: according to findings, most students were satisfied with their major. People who selected pharmacy based on their personal interest still believed that they would achieve their predetermined goals. Thus, lack of attention to this problem will influence pharmacy profession in the near future.

Keywords: Motive; major selection; pharmacy students; pharmacy.

1. INTRODUCTION

By specializing sciences, various sub-disciplines of natural sciences, humanities, engineering sciences, medical sciences and other disciplines have emerged over the last hundred years.

Major selection is one of the effective choices on one's life. This choice can change all activities of human being by which one's job is determined in future. Today, due to the intense competition among the students to achieve academic education, people select different fields with different motivations but they are not aware of their selecting fields. This leads to the loss of time and costs. These people change their field due to their dissatisfaction and continued in another field or they continued their major without any interest. Thus, the major should be consistent with the personality traits and one's opportunities.

The first step in major selection is to understand various disciplines in different subgroups. Annually, 20-30% of freshmen and sophomore students tend to change their major [1,2,3]. Thus, identification of factors involved in major selection as well as effective factors on academic achievement of students is a step towards sustainable development [4], because selection of a major which conflicts one's interest, taste, talent and ability will be followed by long-term and adverse psychological, social and economic effects.

Motivation is the reason and main factor of behavior. Whether resulting from current situation of the environment or inferred from behavioral, physiological and self-reporting manifestations, motivation can be defined as directing cause of behavior [5,6]. Psychologists have highlighted motivation in education due to its effective relationship with new learning, skills, strategies and behaviors [7]. One of primary constructs proposed to explain this motivation is major selection.

Another study reported motives of students from different genders [8]. For example, a study found that male students considered income more than female students, while female students considered family recommendations in their major selection more than male students [9]. On the other hand, scientists consider low life expectancy, low self-esteem, low quality of educational factors and low family income as major causes of reduction in academic motives [10].

Academic performance and academic attitudes are strongly influenced by social key sources such as friends, family, classmates and teachers. Effect of these important and influential people has been studied by self-determination theory (SDT) of Deci and Ryan [11,12], particularly a theory derived from SDT called as cognitive evaluation theory [11,12]. Self-efficacy refers to individual judgments about abilities, capacities and capabilities to perform special assignments [13]. In a study conducted by Johnson and Jones

in Scotland, stresses related to academic education included dissatisfaction with major, incoordination of theoretical and clinical education, exams, inappropriate methods of study, a large amount of tasks, lack of time, and fear of failure in passing the course, etc. [14]. Factors such as lack of social support, unfamiliarity of students entering university, family detached, disinterested academic discipline, conflicts with other people in dormitories and insufficient welfare and economic facilities can cause mental disorders, threaten mental health and lead to academic failure [15]. On the other hand, some studies suggest that satisfaction with major influences mental health and even academic achievement of students [16].

Job satisfaction refers to a collection of adaptive and maladaptive feelings toward work and leads to increased efficiency and satisfaction of students. Job satisfaction results from factors such as working conditions, organizational systems, working relations as well as cultural factors [17]. Therefore, job satisfaction is a psychological sense influenced by social factors. Continued employment would be tedious and even impossible for someone who is not interested in his job [18,19]. This can lead to loss of material and spiritual capitals [20]. Continued efficient employment, job motivation and job success are interrelated [19]. Positive attitude toward future career will be followed by job motivation which will lead to job success [21].

Job motivation is essential for continued efficient employment. Continued employment is tedious and even impossible for someone who is not interested in his job. Therefore, there is a mutual relationship between job motivation and job success [21]. The concept of interest means willingness to work and to engage in work [22]. Disinterest in major may reduce or eliminate academic achievement motivation.

Studies indicate some facts about poor state of academic disciplines in Iran and other countries which are faced with many problems. One of these problems is academic problems of students and their attitudes on their fields of study, which significantly influences scientific quality and success of students. Review of these problems can provide a good opportunity of students of different majors to discover their weaknesses and shortcomings.

Students are influenced by many factors in their orientations to select field of study. However, the important thing is mutual effects of different factors; in other words, it is essential to determine factors which influence students more or less and their plans to get into a university. To address this, it is essential to determine orientation of students in selecting major and university [23].

Mostafavi et al. [24] studied effective factors in selecting pharmacy as a major and lack of motivation to continue the major. Pharmacy is an attractive major; however, students experience many problems during the course which may disinterest them. A reason of these problems is that students do not select their major based on their interests. In this study, social status is the first and the most important motive for selecting pharmacy as the major. In general, most people who select pharmacy are satisfied with their major and think they will achieve their goals by studying in this field [24].

Hashemipour [25] suggests that career choice is one of the most important choices in life. Since changing major causes many problems, it is essential to be more cautious before major selection. Hashemipour [25] finds that public relation is the most important factor in selecting dentistry as a major. Male students are more interested in income and female students are more interested in family recommendations.

Keshishian [26] evaluated effective factors in selecting pharmacy as a major and its relationship with social status. Many factors are effective on major selection; one of these factors is the relationship between major selection and current social status. Keshishian [26] found many difference between male and female students as the most important factor. Female students select pharmacy as their major because they can help others. European students considered PhD as an important factor in major selection more than Asian students.

Assessing career aspirations of pharmacy students, Mark et al. [27] found that aspiration is one of the important factors in major selection. They found that 2.3% of people selected pharmacy based on their aspirations. They selected pharmacy to help the society. Academic experiences and job commitment were main factors of their aspiration.

Correct selection of field of study plays an undeniable role in academic, career and life prospects of people. Public university entrance exam is one of the most important academic events in Iran. Annually, many applicants prepare themselves to take this exam. This exam has gradually become very complicated, which requires accurate notices for applicants in different stages [28].

For a good selection, it is required to achieve the complete information about the field and the major should be selected with the review of the field and its working future and in this way, he can continue with high interest and motivation. Pharmacology has received much attention in recent years. There are various effective factors on selection of major by the students as relative good income, high social status of the graduates, good job future, etc. One of the reasons of reduced motivation is the lack of adequate awareness in pharmacology.

Therefore, it is essential to evaluate effective factors on major selection and attitude of students towards their job prospects. Few studies have been conducted on pharmacy students. Considering the importance of major selection as an important factor in learning, skill acquisition and success of students, it can be helpful to conduct national and regional studies to assess students in different aspects.

So in this study we try to find the logical solution for this question and matter that consider and assessing the Pharmacy Students' Reasons for Choosing Pharmacy as a Career and Changes in Their Motivation during the Course Zabol university of medical science the student.

2. MATERIALS AND METHODS

This was a descriptive analytic survey. The studied population included 120 pharmacy students in Zabol University of Medical Sciences in 2016 during months September to November. Due to the small number of participants, census was used.

This study was conducted on 120 students in Zabol University of Medical Sciences. Participants included 71 female and 49 male students; moreover, 107 students were single and 13 students were married. These students were native (66.7%) or non-native (33.3%) and the sampling method is random.

Once the proposal was approved according to the same research done, two questionnaires were developed; one of these questionnaires measured effective factors on pharmacy major selection. This questionnaire contained 11 questions on a 5-point scale (strongly agree, agree, neither agree nor disagree, strongly disagree). The other questionnaire measured factors which discourage students in 19 questions on a 5-point scale (strongly agree, agree, neither agree nor disagree, strongly disagree). The questionnaires were distributed among subjects. The filled questionnaires were finally analyzed. The collected data was analyzed in SPSS²⁰ using descriptive statistics (frequency and percentage) and inferential statistics (t-test and Chi-square) at $P < 0.05$.

Confirmatory factor analysis and LISREL were used to ensure validity of measurement instruments. CFA determines which variables are correlated with which factors and which factors are correlated with which factors [29]. In fact, this test determines whether an observed variable has a significant factor loading on its underlying construct. CFA results are listed in the table below. These findings indicate that the items related to effective factors on major selection and effective factors on demotivation have acceptable factor loadings. All these factor loadings are significant ($P < 0.01$).

The table below lists fit indexes related to constructs. This table shows acceptable values and estimated values for each construct. As the results show, each of effective constructs on major selection and effective factors on demotivation has acceptable fit indexes.

3. RESULTS

This study was conducted on 120 pharmacy students in Zabol University of Medical Sciences in 2016. Descriptive statistics are listed in Table 2.

Based on data listed in Table 2, Participants included more female than males (59.2% versus 40.8%), more natives than non-natives (66.7% versus 33.3%) and were mostly (89.2%) not married (single). Based on findings that show in Table 2, fathers of 5.8% of subjects had elementary degree; fathers of 10.8% of subjects had high school diploma and fathers of 69.2% of subjects had academic degrees. Also Based on data listed in Table 2, mothers of 16.7% of subjects had elementary degrees; mothers of

9.2% of subjects had middle school degree; mothers of 23.3% of subjects had high school diploma and mothers of 44.2% of subjects had academic degrees. Effective Factors on Major Selection show in Table 3, also effective factors in Discouraging show in Table 4.

Table 1. fit indexes calculated for confirmatory factor analysis of constructs

Index	Effective factors on major selection	Effective factors on demotivation
χ^2/df	3.92	1.42
(NFI)	0.95	0.95
(NNFI)	0.92	0.91
(CFI)	0.94	0.98
(GFI)	0.92	0.98
(AGFI)	0.90	0.97
(RMSEA)	0.047	0.045

The collected data was analyzed in SPSS using descriptive statistics (frequency and percentage) and inferential statistics (t-test and Chi-square) at P<0.05

According to Table 3 the most important reason for which people select pharmacy as their major is the Pharm also Other effective factors included social status and satisfaction with income. As found result of data that show in Table 4, the most important factor which motivates students is good career prospects. So all the numbers and calculation according t-test and chi-square at P<0.05 in Tables show this study found no

significant relationship between native students and discouragement.

Table 2. Distribution of descriptive statistics in the studied population

Descriptive statistics	N	%
Gender		
Female	71	59.2
Male	49	40.8
Total	120	100.0
Marital status		
Single	107	89.2
Married	13	10.8
Total	120	100.0
Native students		
Yes	80	66.7
No	40	33.3
Total	120	100.0
Paternal education		
Elementary	7	5.8
Middle school	7	5.8
High school diploma	13	10.8
Academic degree	83	69.2
Systemic error	10	8.3
Total	110	91.7
Maternal education		
Elementary	20	16.7
Middle school	11	9.2
High school diploma	28	23.3

Table 3. Effective factors on major selection

Effective factors	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Social status	46.7	34.2	15	3.3	0.8
Income	38.3	41.7	11.7	6.7	1.7
Pharm. D	45.8	36.7	7.5	9.2	0.8
Community service	33.3	40	17.5	6.7	2.7
Interest in chemistry	21.7	32.5	22.5	20.8	2.5
Family recommendation	12.5	31.7	32.5	20.8	2.5
Work as health worker	11.7	29.2	34.4	21.7	3.3
High parental education	15	16.7	33.3	25.8	9.2
Wide research	16.7	27.5	32.5	18.3	5
Lower rank	10	16.7	16.7	30.8	25.8
A pharmacist in the family	3.3	14.2	31.7	35.8	15

Table 4. Effective factors in discouraging students

Effective factors in discouraging	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
High scores	32.5	42.5	14.2	8.3	2.5
Informed selection of courses	17.5	38.3	32.5	10.8	0.8
Well-equipped laboratory	39.2	48.3	7.5	5	0
Good career prospects	60	30	6.7	1.7	0.8
Specialized courses	26.7	46.7	19.2	10.8	1.7
General courses	4.2	14.2	33.3	27.5	20.8
Pharmacy courses in general	10.8	33.3	42.5	12.5	0.8
Teaching methods	46.7	37.5	6.7	4.2	5
Low scores	36.7	40.8	21.7	7.5	3.3
Professor treatment	49.2	37.5	10	2.5	0.8
Courses prior to basic sciences	13.3	17.5	49.2	15	4.2
Native students	30.8	38.3	24.2	5.8	0.8
Urban facilities	45	35.8	16.7	2.5	0
Achieving goals	35	39.2	18.3	3.3	3.3
Major reselection	39.2	30.8	10.8	13.3	5.8
Tendency to change major	7.5	12.5	22.5	33.3	24.2
Disinterest in major	9.2	22.5	30	27.5	10.8

4. DISCUSSION

This study evaluated effective factors on pharmacy major selection and factors which discourage students. This study was conducted in 2016 on 120 students in Zabol University of Medical Sciences. Participants included 71 female and 49 male students; moreover, 107 students were single and 13 students were married. These students were native (66.7%) or non-native (33.3%).

Data analysis shows that the most important reason for which people select pharmacy as their major is the Pharm. D. degree. A study conducted in Isfahan also found that this degree is an important factor for selecting pharmacy as a major [24]. Other effective factors included social status and satisfaction with income. This is consistent with several other studies in which the most important factor of major selection was social status and good income. However, increasing admission of pharmacy students have reduced chance of work in the market [24, 30,31]. As found by the relevant questionnaire, the most important factor which motivates students is good job (career) prospect.

Job satisfaction is efficient for continued education and employment. Continued employment would be tedious and even

impossible for someone who is not interested in his job. Therefore, there is a mutual relationship between job satisfaction and job success [32]. This can lead to loss of material and spiritual capitals [33]. Continued efficient employment, job motivation and job success are interrelated [34]. Positive attitude toward future career will be followed by job motivation which will lead to job success [35]. In a study conducted in Ghazvin University of Medical Sciences in 2002 on job prospects, most students considered job insecurity due to lack of planning for hiring these students in medical centers. Following job prospects, the most important factors which motivate students include sufficient facilities, professor treatment and teaching method.

Mostafavi [24] concluded that existence of sufficient facilities encourage students to continue their studies. Consistent with Mostafavi et al. [24], this study found no significant relationship between parental education and native students and discouragement of students. However, saturation of labor market discourages students, which is consistent with Mostafavi et al [24].

5. CONCLUSION

As findings of this study suggest, the most important factors in major selection are Pharm. D

degree, social status and sufficient income. Moreover, the most important factors which motivate students and lead to academic achievement include good prospects; however, increasing admission of students have discouraged students.

This study found no significant relationship between native students and factors which discourage students. Moreover, Chi-square test showed no significant relationship between gender, marital status, paternal education, maternal education and effective factors which motivate or discourage students ($P\text{-value}>0.05$) and this result state that this items do not affect in final result and considering native and non-native students do not affect in final result.

CONSENT

Consent is not applicable.

ETHICAL APPROVAL

Ethical approval is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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