

Factors Affecting the Academic Failure of Pharmacy Students at Isfahan University of Medical Sciences

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Abstract

Background: One of the major problems in educational systems is academic failure in students' education during their course of study. The lack of control of this decline, especially in medical sciences, leads to a decrease in the scientific level and the efficiency of medical students. This study aimed to determine the main causes of academic failure among pharmacy students of Isfahan University of Medical Sciences.

Methods: In this descriptive cross-sectional study, 85 students were selected randomly in the School of Pharmacy at Isfahan University of Medical Sciences. A valid and reliable questionnaire of students' demographic and educational information and their opinions about the factors related to academic failure, including family, student, teacher, educational environment, educational content, and socio-economic factors were collected. Data were analyzed by SPSS software using Pearson correlation, Spearman correlation, and student T tests.

Results: The total rate of academic failure in the studied population was 9.66%. Also, the rate in non-quota students, regional quota students, in males and females were 20, 6.92, 51.16, and 48.84%, respectively. The main causes of academic failure were educational content, teacher, student, educational environment, family, social factors, and economic factors, respectively from the viewpoint of the students.

Conclusion: This study showed that the first factor of academic failure in pharmacy education based on the opinion of students is about the content of pharmacy education. The educational system in comparison to the community and family is a more effective factor in academic failure.

Keywords: Academic failure, Pharmacy education, Pharmacy students

Background

Student academic failure and consequently probation in universities are the major problems of higher education institutions in the countries, which not only wastes time and expenses but also causes psychological, family, and social problems for students (1,2). Educational failure means failure in studying which is subject to various criteria such as probation, repetition of the course, length of education, expulsion, cancellation, and leaving school. Probation (getting an average of less than 12 of 20 in each semester) is one of the most important examples of academic failure, and often other criteria either result from probation or lead to probation (3-5). The deterioration in students' education is a very important issue in medical training, which, if not controlled, will lower the level of medical professionals in the future and cause a lot of losses for the country. The results of a US study on those who committed suicide showed that the most common cause of suicide was a failure in education (6).

An investigation in Isfahan University of Medical Sciences showed that educational counseling and psychological care have been effective in improving academic failure (7). Various factors influencing academic failure such as student's mood, intelligence and talent, motivation, method and behavior at college, friends, parental work, parental education, local status of students, students' socioeconomic status, diploma grade, university admission quota, employment, marital status, and the gap year between high school and university have been introduced in recent studies (8-11).

In order to prevent these adverse effects and in many cases irreparable problems, the existence of a screening system and identification of students at risk is necessary. To help students at risk, collaboration of educational and cultural units at universities and the efforts of supervisors can improve students' academic status (12). Obviously, identifying students at risk is dependent on recognition of factors associated with academic failure (13). Knowing the main factors related to educational failure and adopting preventive and interventional strategies can be effective in reducing academic failure and thus improving the physical and mental status of students.

Due to lack of research about the influence of the

location, the degree and the field of study, and the probation consequences especially in the field of pharmacy, the need for a deeper identification of the factors affecting academic failure seems necessary. This study aimed to determine the factors affecting academic failure from the viewpoints of pharmaceutical students of Isfahan University of Medical Sciences.

Materials and Methods

Study design and sampling

This cross-sectional descriptive-analytic study was conducted at of the School of Pharmacy at Isfahan University of Medical Sciences. Pharmacy students in Doctor of Pharmacy (PharmD) program who had at least 2 years of study were included.

The inclusion criterion was having the informed consent of students and the exclusion criterion was lack of willingness to respond questionnaires or unwillingness to participate in the study. The sample size was estimated using the following equation and at least 73 students were evaluated. Totally, 120 questionnaires were distributed randomly among the subjects.

$$n = Nz2 \cdot \frac{S2}{Nd2} + (Z2.S2)$$

In order to collect the required information, two questionnaires based on the previous studies were used (1,14). One of them examined the demographic characteristics of the participating students, which includes 13 open questions involving sex, age, place of birth, marital status, employment, type of quotas at university, year of graduation, high school diploma GPA, entrance exam score, gap years between high school and university, and parents education, residency, and university degree. The second questionnaire examined the most important factors affecting academic failure from the students' point of view in six areas including family-related factors, general factors, factors related to the teacher, socio-economic factors, factors related to the educational environment, and factors related to the content of the training. Likert scale questions had 5 response options ranged from five levels of very low (Zero) to very high (Four) and the mean above 3 was considered a positive response to that factor. The reliability and validity of the questionnaire were determined using a

pilot test by collection of data from 20 students and a panel of experts. The Cronbach's alpha value for the reliability was calculated 0.72 which seemed optimal for this questionnaire.

Next, 84 questionnaires were completed by the students and analyzed. All students were informed about the methods and objectives of the project before receiving the questionnaire. After receiving the questionnaire, they had one week to answer it.

Statistical analysis

After collecting questionnaires, the data were analyzed using SPSS software, v.20 and values of student T-test, Pearson correlation, and Spearman correlations were obtained. All information contained in the questionnaires was considered confidential and the questionnaires were completed anonymously.

Ethical consideration

This study was conducted with the support of Isfahan University of Medical Sciences and was approved by the Medical Ethics Committee of Isfahan University of Medical Sciences, Isfahan, Iran.

Results

The total number of the students studying in the pharmacy department of Isfahan University of Medical Sciences was 476 and of whom 300 were eligible for the study. Among the participants in the study, 62% were male and 38% were females, 87% were single and 13% were married and most of the married ones had no children. The mean age of the students was 22.8 ± 1.9 and all were between 20-30 years of age. Also, 51% of students were living in dormitory, 41% were living with their family, and 8% were living in rental homes. Twenty-two percent of students were employed and 78% of them had no job. The rate of non-permanent employment was more than 60% during the last semester, and they were mostly employed at the pharmacy. Moreover, 86% of college students were enrolled in college in the same year of obtaining a diploma, and 14% were graduate students from previous years. Also, 17% of parents had less than a high school diploma, 63% diploma and bachelor and 20% had higher than a bachelor's degree. Among the subjects studied, 43 students experienced academic failure during the

second semester. The total rate of academic failure in the studied population was 9.66%. Also, the rate in non-quota students, regional quota students, in males and females were 20, 6.92, 51.16, and 48.84%, respectively. The results of the study of various factors in the incidence of academic failure showed that all six evaluated factors were significant and influential (mean score above 3). The weight of these factors is shown on the basis of the mean score in table 1. Most of the students participating in this study were single and there was no significant difference between the viewpoints of male and female students.

Table 1. Mean \pm SD of factors affecting academic failure from the viewpoint of pharmacy students of Isfahan University of Medical Sciences (Score 1 has the lowest impact and score 5 shows the highest impact)

Factors	Mean score \pm SD
Educational content	4.33 \pm 1.20
Teacher	3.78 \pm 2.26
Student	3.64 \pm 1.58
Educational environment	3.55 \pm 1.74
Family	3.30 \pm 1.74
Economic - social	3.04 \pm 2.15

The results of the current study revealed that students with higher academic and diploma GPA (before entering university) considered the roles of the student ($p=0.02$) and teacher ($p=0.016$) as influencing factors in academic failure. There was no significant difference between male and female students as well as married and single students ($p>0.05$). Regarding the student's residence, the results showed that non-native students (those who do not live with their family) considered social and economic factors more important than native students ($p=0.015$). The most important factors related to the six areas studied are shown in figure 1.

Discussion

From the student's point of view, all the evaluated factors (presented in the questionnaire) were influencing academic failure. The statistical analysis showed that the mean scores of these factors were not the same ($p<0.001$). According to the results of the present study, the content of pharmaceutical education is the most

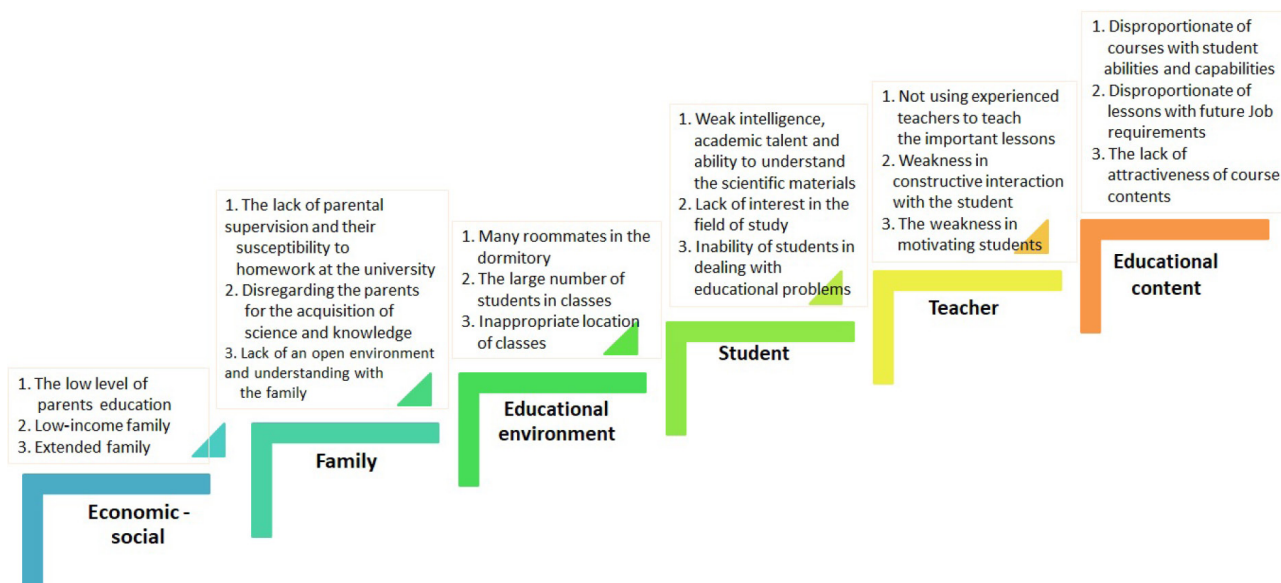


Figure 1. The most important factors related to the six areas influencing academic failure listed in order of priority.

important factor in occurrence of academic failure. The educational content of the pharmacy includes a variety of courses from a wide range of scientific fields including chemistry (general, organic, medicinal), microbiology, immunology, biotechnology, industrial pharmacy, clinical sciences, pharmacology, and internship. This educational content has been reviewed and revised several times by experts of the Ministry of Health and Medical Education and pharmacy departments, but unfortunately, these efforts were less effective in this regard (15-18).

The lack of coordination of an important part of the educational content of this field with the needs of the society, the boring theoretical approaches in teaching the main parts of the courses, the existence of several courses with different trends in animal and plant biology, chemistry, physics, mathematics, and even economics and management together with main lessons and finally, the lack of coordination of the training groups seriously lead to the reduction of learning motivation (16,17). A study conducted at St. John's University (New York City) revealed that heavy workload and time constraints were the main reasons in pharmacy curriculum which have molded students' negative perceptions (17).

The present study showed that students were not satisfied with the way the curriculum was presented and implemented. Also, in many cases, they have lost their motivation and hope for continuing education

and making more effort to raise their average. The results of Safdari *et al's* study on the factors affecting the academic achievement of the students from the viewpoint of the students and faculty members of the nursing and midwifery faculty were consistent with the results of our study (14). This study was conducted in Shahrekord, Iran, and the viewpoints of the teachers were in line with the student's opinion, and they considered the educational content as the first factor in academic failure. The curriculum of Pharm.D program in Iranian universities is somewhat different from many other countries. This course is held in Iran for twelve semesters with various educational titles with more emphasis on basic sciences and chemistry (19). In many prestigious universities around the world, such as the University of Houston and USC University of Southern California, the pharmacy course is held in 4 academic years with more practical training units in the clinic with more emphasis on "Pharmacy Practice" (20,21). Since most pharmacy graduates work in pharmacies or hospitals, the integration of pharmacy courses into Pharmacy Practice seems to be effective in reducing students' academic failure (22).

The next factor considered by students to be important in academic failure is "teacher". The teacher as a pivotal element of teaching has a major impact on the development of advanced education, so that failure to pay attention to them can lead to a lack of

progress, stagnation, or academic failure of students (23). Regarding the crucial role of teachers to guide the educational strategies, it is necessary to increase their educational capabilities, use new educational methods, and increase their positive interaction with students (24). In this regard, the recruitment of new faculty members, in addition to their high level of knowledge and expertise, should be based on talent and ability to express, and essentials of teaching and learning skills (25).

The next factor is the student, and their remarkable and undeniable role in the prevention of academic failure is emphasized especially by their stronger academic background. This suggests that paying attention to the student's talents and abilities (not just the entrance exam rank) and creating more equitable conditions for student admission with more university skills can be effective in preventing academic failure. Previous investigations confirmed that providing the guidance to all students at the beginning of university studies in a way to overcome stress and educational problems in the university environment and increase their skills in this field can have a considerable impact on reducing academic failure (26,27).

Demographic variables (age, gender, marital status), personality, physical and mental health (depression, neuropsychiatric disorders, interest in the field of study, concentration power, and IQ) are among other factors affecting academic failure in this area which have been considered in previous studies, but in the present investigation, these factors were not considered by the participants (28).

Another factor leading to academic failure is the educational environment, which includes the richness of the school library from the books needed by pharmacy students, the existence of a suitable study hall, and the availability of appropriate classes in terms of light, beauty, and space (29).

Family-related factors are also important and they include the level of parent education, the value of academic discussions from the perspective of parents, the existence of a person with relevant education, and the existence of discrimination between children in the family (30,31).

The last factor affecting academic failure is socio-economic problems, such as high population density, being native and non-native, lack of job security, lack

of job and promising economic incentives, and lack of social respect in the field (32).

Here, it is important to note that the economic condition of a general pharmacist is better than professional pharmacists in the current situation and consequently, students are not interested in promoting the quality of their knowledge and continuing their studies in specialized fields. Regarding the lack of social respect associated with pharmacy, the role of a pharmacist in the pharmacy, which has the greatest relationship with the people, is not explained in the community and pharmacists do not have a proper social and scientific respect (15).

In previous studies, the characteristics of unsuccessful and successful students have been investigated and the study population was divided into two groups of successful and unsuccessful students and the questionnaires were analyzed (14). However, in the current study, the student's opinions about the factors affecting academic failure were investigated and the factors influencing the reduction of academic achievement were analyzed by random sampling from the statistical population of the students at Isfahan's School of Pharmacy.

In a study conducted at Jundishapur University of Medical Sciences in Ahwaz, the rate of academic failure was 7% in pharmacy, which was the lowest in comparison with other fields (in our study, it was 9.66%) (5).

Conclusion

The current study included only the opinions of the students about academic failure and lack of teachers' comments were the limitations of this study. Also, there were significant differences between the number of male and female and single and married persons. In future studies, the assessment of the students' academic performance is recommended in order to improve the academic achievements, the active participation of students and authorities in designing, implementing, evaluating, and reviewing the education system. Also, the use of the teachers' comments requires a comparative and multi-center study which may provide better insight. The same qualitative investigations and evaluations are recommended to figure out the real perceptions of pharmacy students regarding the pharmacy curriculum in order to prevent academic failure.

Identifying the effective factors on reducing motivation to education and ways to increase motivation to study in students with coordination of different authorities are helpful. Creating a team of psychiatrists, psychologists, and educational experts to help students by educational, welfare, and counseling support schemes can partly mitigate the problems. Establishing an appropriate association, forum of supervisors, having a specific program for continuously meeting students and providing educational pamphlets in student counseling sessions about educational regulations and practices,

and crisis management practices besides detecting students' specific problems can help students to solve future problems better (32,33). Attention to the beneficial factors in reducing the motivation to study and ways to increase such motivation with the help of various authorities, psychiatrists, psychologists, and educational experts can help students to reduce the educational problems.

Conflict of Interest

The authors declare no conflict of interest in this study.

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