Research Article

Factors Affecting Academic Failure from Students' Perspectives

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Abstract

Background: Students' academic failure is one of the educational problems causing the loss of allocated resources.

Objectives: This study aimed to assess the factors affecting the academic failure of students and their viewpoints regarding the factors affecting educational achievement at Guilan University of Medical Sciences, Guilan, Iran.

Methods: The present cross-sectional analytical study was conducted on 375 students in medical, nursing, and other related fields. A valid and reliable multipart questionnaire was used as a data collection tool. Based on the obtained results, the criteria for academic failure were extracted. Then, due to abnormal data distribution, Spearman nonparametric statistical test was used to analyze the data using both SPSS software (version 23) and GraphPad Prism software (version 7).

Results: According to the obtained results, the frequency of academic failure in the study population was 25.6%. Moreover, 28.46% of the students were satisfied with their field of study. Academic failure showed the strongest relationships with gender, regularity, and precision in the study. Furthermore, the most effective factors in educational achievement from the students' viewpoints were student motivation, professor's mastery over the subject, and student occupational future.

Conclusion: It is necessary to create a system to precisely investigate students' academic failure and counseling needs to help them if necessary.

Keywords: Educational Achievement, Academic Failure, Satisfaction, Students, Iran

Background

Every year, numerous young individuals complete school days and step toward the future with entrance to the university (1). Entry into the university is an important event and critical cross-section because it affects the student's social, familial, and personal life and causes an individual to face new challenges (2). Currently, universities are of great importance in all countries of the world. The university is considered a community in which students and professors are two pillars, and its quantitative and qualitative growth and promotion are at the core of the careful attention of officials (3, 4). In this regard, student academic failure is one of the most important problems in educational systems in all countries (3, 5).

According to the United Nations Educational, Scientific, and Cultural Organization, academic failure is defined as course repetition, early school leaving, and

a decline in the learners' educational quality. Studies have provided a variety of definitions of academic failure (6-8); however, their common point is failure in education. Based on the aforementioned studies, various criteria, such as decreased scores, undesirable averages of scores, repetition of a lesson or educational course, prolongation of the study period, conditionality, expulsion, leaving education prior to the due date, and change in the field of study are symptoms of student academic failure (4). Learning and academic achievements are realized when the physical, mental, and social characteristics of students are considered (9). Academic failure is the cause of psychological, emotional, familial, and social problems for students (5, 10). Frustration and loss of self-esteem, lack of prosperity of talents and abilities, the risk of committing a crime, physical and sexual abuse, drug and alcohol

abuse, and even suicide can be the consequences of academic failure (3, 11, 12).

Academic failure is not only an individual problem but also has effects on the whole society, including the loss of human resources, time, and educational costs (10, 11, 13-15). Meanwhile, students who graduate from various fields of medical sciences and therapeutic services are custodians of individuals living in society (7). If these students complete their education with academic failure, they will not be empowered enough scientifically and practically, and their poor performance can lead to human casualties and financial losses with irreparable consequences (13, 16, 17). Each year, about 10% of students entering different fields of medical sciences experience academic failure in some stages (18). In addition, about half of the students experience failure in at least one course (16). The average rate of academic failure among medical students in Iran is high, compared to those of developed countries, such as England (17). Meanwhile, medical students are facing more academic failure than others (5, 19, 20), most of whom are in the first years of study in the course of basic sciences (20).

To date, various studies have been conducted to investigate and identify the causes of academic failure. The results showed the fundamental and important role of academic interest and satisfaction in the rate of academic failure (11, 21, 22). Studies conducted in Iran on educational satisfaction have shown that most students have a small degree of satisfaction with their field of study (19, 23). Other factors affecting this phenomenon include gender, age, marital status, the field of study, living in a dormitory, being non-native, high Internet usage, lack of scientific and research activities, employment during education, absence from classes, the time interval between the diploma and the university entry, the average of diploma scores, the type of diploma, the occupation and the level of parents' literacy, the number of family members, physical and mental problems, personal characteristics, learning style, self-esteem, and test anxiety (6, 8, 24).

Other studies have shown that academic failure is affected by the number of accepted students (17), And the educational variables and criteria for entering the university, such as the different quotas for entering the university, which are provided by the country's government system for certain groups of people, such as people who live in deprived socio-economic areas, are the main effective factors (10, 17, 20). The disparity between the current capacity of universities and the future needs of the labor market, the occupational future of the course of study and lack of hope for occupational future

(4), and educational factors related to resources and equipment, such as the availability and usefulness of educational assignments, the usefulness of the resources provided by the professors, educational planning, the content of the courses, the teaching methods of the lecturers and their experience in teaching, and educational stressors (e.g., educational conditions and educational and dormitory environments), can also affect academic failure (11, 14, 25, 26).

Objectives

Considering the importance of academic failure, especially in students of different fields of medical sciences, the researchers of the present study considered it necessary to assess the students' viewpoints regarding the factors affecting educational achievement and preventing the occurrence of academic failure and offer a solution to solve this problem based on the obtained data.

Methods

This cross-sectional analytical study was conducted to investigate the factors affecting students' academic failure and their viewpoints regarding the factors affecting educational achievement at Guilan University of Medical Sciences, Guilan, Iran, within 2017-2018. The convenience sampling method was used to select the population under study, and the Cochran formula was employed to calculate the required sample size. Accordingly, the minimum sample size was 370 students who completed at least one semester.

$$n = \frac{\frac{z^2 pq}{d^2}}{1 + \frac{1}{N}\left(\frac{z^2 pq}{d^2} - 1\right)}$$

Z = 1.96, p=q=0.5, d=0.05

322.4 + 15% (Percentage of possible sample attrition)
= 370.76 ≅ 370

It was also tried to achieve a good proportion of medical students to students in other fields (i.e., nursing, midwifery, laboratory sciences, radiology, operating room, and anesthesiology). The students were given the right to participate or refuse to participate in the study. If they were not willing to participate, they were excluded from the study. After obtaining the necessary permissions, the researchers referred to the hospital and university and first explained the purpose of the study to the selected students. After obtaining verbal consent, the information of the participants in this study was collected anonymously and without the possibility of

returning to the individuals in order to comply with the ethical points.

The data were collected using a 5-part questionnaire. Part A includes a demographic data checklist, including age, gender, marital status, height, weight, ABO and Rh blood group, order of the child in the family, field of study, year of university entry, term of education, grade point average (GPA) of high school (diploma) and university, educational level, number of passed courses, number of not passed courses, conditionality, father's occupation, mother's occupation, parental educational level, economic status, home-to-university distance, employment, and tobacco use. Part B includes the student satisfaction dimensions questionnaire (27,28), including 20 items on a 5-point Likert scale. Part C includes a questionnaire on the factors affecting academic failure (28), including 15 items on a 2–5-point Likert scale. Part D includes a questionnaire on preventing academic failure from students' viewpoint (28), including 13 items on a 2-point Likert scale. Part E includes a questionnaire on the factors affecting academic achievement from the students' viewpoint (14), including 5 domains comprising learner with 5 items, educator with 8 items, educational facilities with 5 items, familial with 3 items, and socioeconomic with 4 items. This researcher-made questionnaire was developed by Ashtiani et al. The validity and reliability of this questionnaire have been calculated by Ashtiani et al. Ashtiani et al. used the content validity method to determine the validity of the questionnaire. In this way, the questionnaire was prepared using the opinions of several faculty members. After applying some suggestions and resolving some problems, its validity was determined. The content validity and reliability of all used questionnaires were evaluated for questionnaires B, C, and D, with Cronbach's alpha coefficient reported as 0.8. The Cronbach's alpha coefficient for questionnaire E was 0.84 (14, 28).

In addition, to define academic failure, based on Changizi Ashtiani et al., the researchers of the present study, and other researchers, students with a GPA of less than 15 or at least one conditional semester were considered cases of educational underachievement (28). After data collection, descriptive and analytic statistics were used to analyze the data using SPSS software (version 23) and GraphPad Prism software (version 7). The D'Agostino-Pearson omnibus test showed that the distribution of the data was not normal; therefore, a nonparametric test was employed for variance analysis, and the Spearman test was used to investigate relationships. In this study, the significance level was considered 0.05. The academic motivation was assessed through a three-choice question, including low, moderate, and high motivation.

Results

A total of 375 students participated in the current study, 64% of whom were female. The mean age of the subjects was 22.83±4.8 years. Additionally, 11.20% of the total study population were married. Moreover, 16.17% of the participants were smokers, and mostly they were the first child of the family. Furthermore, 9.36% of the students had a history of referring to the university counseling center mostly for educational counseling. The GPA range of 18-20 was the most frequent in the high school period, which changed to the range of 13-18 in the university period. Most students had parents with university education, entered university immediately after pre-university, and were native to Guilan province (Table 1).

In studying students' satisfaction with the field of study, 28.46% were satisfied with their field; the most direct relationship was observed between satisfaction and interest in the field of study and parent's education. Moreover, there was an inverse relationship between interest in the field of study in non-medical students and employment in education. The total score of satisfaction was 26.41±3.94. Furthermore, 5 (1.36%), 71 (19.24%), 188 (50.95%), 98 (26.56%), and 7 (1.90%) students were very dissatisfied (score: 8-15), dissatisfied (score: 16-21), relatively satisfied (score: 22-27), satisfied (score: 28-33), and very satisfied (score: 33-40), respectively. In most students, precision and focus in the study were moderate, and the study method was not restricted and was flexible. In addition, the students reported the study duration on average as less than an hour a day. The students spent more than 6 hours a day on the Internet; however, 70.54% of them spent less than 2 hours a day on the Internet for educational purposes.

Most students were living with their families, and 5.29% used quotas other than the quota of the area. In addition, 7.67% of the students were always or often present in the classroom; however, the interest in the field of study in 9.03% of them was low, and educational motivation was reported to be low in 7.78% of students who had chosen their field of study with personal interest. Moreover, 49.44% of the students reported difficulty in access to the supervisor, and 48.30% described access to the counseling unit as difficult. Additionally, 40.44% of the students assessed the usefulness of their specialized courses at a weak and moderate level. At the same time, they reported the quality of education as good and excellent (Table 2).

In terms of the factors preventing academic failure from students' viewpoints, three factors of the educational quality of the college, the use of experienced professors, and improvement of amenities in dormitory and university had the most significant effects, respectively (Table 3). The results of this study showed that 25.6% of the students had academic failure, and 17.70% became conditional. Students' academic failure showed a direct relationship with gender (r=-0.197), focus on the study (r=-0.175), irregularities in the study (r=0.190), study hours in 24 hours (r=-0.118), Internet usage rate for educational purposes (r=-0.146), professor's educational level (r=-0.107), the existence of a warm and intimate relationship in the family (r=-0.148), and the occupational future of the field of study (r=-0.186) (Table 4).

In addition, by examining the factors affecting academic achievement from the students' point of view, the most significant effects were related to student motivation, the professor's mastery over the subject, and the occupational future of the student's field of study, respectively.

Table 1. Demographic Data

Variable (responsiveness %)	Grouping	n (%)	Variable (responsiveness %)	Grouping	n (%)
Gender (100)	Male	135 (36)	Educational degree (99.73)	Bachelor	155 (41.44)
	Female	240 (64)		MD	219 (58.55)
Age group (100)	18-22	166 (44.24)	University average score (97.06)	>18	39 (10.71)
	23-26	169 (45.07)		15-18	56 (15.22)
	27-30	22 (5.87)		13-15	3 (0.82)
	30	16 (4.27)		<13	2 (0.55)
Marital Status (100)	Single	333 (88.8)	Student employment (99.2)	Yes	54 (14.52)
	Married	42 (11.2)		No	318 (85.48)
Height (93.86)	150-159	29 (8.24)	Time interval between pre-university and university entrance (98.66)	Immediately	190 (51.35)
	160-169	161 (42.74)		1 year	149 (40.27)
	170-179	108 (30.68)		2 years	20 (5.41)
	180-189	47 (13.35)		More than 3 years	11 (2.97)
	190-199	7 (1.99)			
Weight (94.13)	40-59	133 (37.68)	Father's occupation (40.8)	Governmental	97 (63.04)
	60-79	170 (48.46)		Non-governmental	1 (0.65)
	80-99	44 (12.46)		Unemployed	55 (35.95)
	100	6 (1.7)			
Blood group (92.8)	A+	89 (25.57)	Distance from home to university in km (97.06)	<50	173 (47.53)
	A-	14 (4.02)		50-100	91 (25.00)
	B+	66 (18.97)		100-200	38 (10.44)
	B-	8 (2.3)		200-400	29 (7.97)
	O+	119 (34.2)		400-600	15 (4.12)
	O-	25 (7.18)		>600	18 (4.94)
	AB+	24 (6.9)	Smoking (99.46)	Yes	27 (7.24)
	AB-	3 (0.86)		No	346 (92.76)
Referring to the university consulting center (99.73)	Yes	35 (9.36)	Mother's occupation (41.33)	Housewife	137 (88.38)
	No	339 (90.64)		Employed	18 (11.61)
Order of child in the family (98.93)	First	184 (49.6)	Father's literacy (98.4)	Illiterate	6 (1.63)
	Second	115 (31)		Elementary	18 (4.88)
	Third	38 (10.24)		Middle school	20 (5.42)
	Fourth	17 (4.58)		High school	96 (26.20)
	Fifth or more	17 (4.58)		University	229 (62.06)
Field of study (100)	Medical	220 (58.67)	Number of conditional courses (100)	1	25 (6.67)
	Paramedical	84 (22.4)		2	3 (0.80)
	Nursing	71 (18.93)		3	2 (0.53)
University entrance year (100)	2009 and earlier	17 (4.53)		0	345 (92.00)
	2010	21 (5.6)	Number of failed courses (100)	0	345 (92.00)
	2011	40 (10.67)		0.5-1.5	16 (4.27)
	2012	53 (14.13)		2-3	8 (2.13)
	2013	55 (14.67)		>3	6 (1.6)
	2014	75 (20)	Average diploma score (98.13)	>18	13-15
	2015	112 (29.87)		15-18	56 (15.22)
	2016	2 (0.53)		13-15	4 (1.09)
				<13	3 (0.82)

The mean scores of the factors related to the learner, educator, environmental educational facilities, family, and socioeconomic dimensions were 21.31±3.07 (out of 25), 31.75±5.55 (out of 40), 19.88±3.68 (out of 25), 10.63±2.59 (out of 15), and 15.96±2.95 (out of 20), respectively (Table 5).

Discussion

In the current study, 64% of the participants were female, and the mean age of the subjects was 22.83±4.8 years. In a study conducted by Loloie et al. on medical students in Kerman, Iran, the mean age of the

participants was 22.2 years, and 73.5% of the participants were female (27).

The results of this study showed that 25.6% of students had academic failure, and 17.70% became conditional. In a study conducted by Esmaeilpour-Bandboni et al. n students of Guilan University of Medical Sciences to assess academic failure in medical students, They had reported that 28.1% of students had academic failure (28).

In a study conducted by Ghasemi et al. (2014) to examine the academic failure of nursing and midwifery students, they stated that 36.5% of the surveyed students had academic failure (26).

Table 2. Investigation of the Relationship between Different Factors and Students' Satisfaction with the Field of Study

Inverse relationship with	Correlation (r)	P-value	Direct relationship with	Correlation (r)	P-value
Field of study	-0.564	<0.001	Interest in the field of study	0.506	<0.001
Student employment	-0.260	<0.001	Father's education	0.362	<0.001
Time interval between pre-university and university entrance	-0.200	<0.001	Mother's education	0.350	<0.001
Difficult access to the supervisor	-0.164	<0.001	Motivation to continue education	0.285	<0.001
Selecting a field of study affected based on others' opinions	-0.158	<0.001	score University average	0.208	<0.001
Having problems with access to the counseling unit	-0.150	<0.001	Economic status	0.172	<0.001
Lack of acceptance through average diploma score	-0.147	<0.001	Residence with family	0.158	<0.001
Average diploma score	-0.143	<0.001	Study in 24 hours	0.122	<0.001
Distance between student residence place and university	-0.122	<0.001	Quality of educational planning	0.122	<0.001
Student entrance quota at the entrance exam to university	-0.121	<0.001	Satisfaction of physical space of education	0.109	<0.001
Number of failed courses	-0.108	<0.001			

In a study conducted by Habibzadeh et al to assess academic failure among students at Ardabil University of Medical Sciences, Iran, they reported that 4.05% of the surveyed students had academic failure (38 out of 938 students) (29). The results of the aforementioned studies are consistent with the results of the present

study, indicating the importance of academic failure among medical students.

The findings of this study suggest an inverse relationship between gender and academic failure. This result means that the female students experienced academic failure less than male students.

Table 3. Other Effective Factors in Academic Failure

Variable	Grouping	n (%)	Variable	Grouping	n (%)
Precision and focus in the study	Low	64 (49.17)	Motivation to continue education	Low	28 (7.67)
	Moderate	233 (66.63)		Moderate	122 (33.42)
	High	69 (85.18)		High	215 (58.9)
Study hours in 24 hours	Less than 1 hour	175 (47.95)	Hours of Internet usage in 24 hours	Less than 1 hour	22 (6.06)
	2 hours	119 (32.6)		1-2 hours	27 (7.44)
	4 hours	59 (161.16)		2-4 hours	49 (13.5)
	6 hours	12 (3.29)		4-6 hours	46 (12.67)
	More than 6 hours	0 (0.00)		More than 6 hours	219 (60.33)
Residence place	Student dormitory	91 (24.86)	Educational quota	Area 1	37 (10.31)
	With family	209 (57.1)		Area 2	233 (64.9)
	Self-governing dormitory	18 (4.92)		Area 3	70 (16.5)
	Rental homes	48 (13.11)		Have a quota	19 (5.29)

Interest in the field of study	Moderate	141 (38.52)	How to choose the field of study	Personal interest	259 (71.55)
	High	192 (52.46)		Effects of family and individuals around	103 (28.45)
Educational quality of college	Excellent	144 (39.56)	Usefulness of specialized courses	Excellent	76 (21.05)
	Good	143 (39.29)		Good	139 (38.5)
	Medium	67 (18.41)		Medium	129 (35.73)
	Weak	10 (2.57)		Weak	17 (4.71)
Method of study	Precise and planned	47 (12.95)	Attendance in the classroom	Always	10 (2.74)
	Non-restricted and flexible	226 (92.61)		Often	18 (4.93)
	Without planning	92 (21.25)		Low	145 (39.73)
				Rarely	192 (52.6)
Having access to the supervisor	Easy	182 (50.56)	Having access to the counseling unit	Easy	182 (70.51)
	Difficult	178 (49.44)		Difficult	170 (48.3)
Hours of Internet usage in 24 hours for educational purposes	Less than 1 hour	127 (34.99)			
	1-2 hours	129 (35.54)			
	2-4 hours	52 (14.33)			
	4-6 hours	28 (4.71)			
	More than 6 hours	219 (60.33)			

Table 4. Factors Preventing Students' Academic Failure (Responsiveness Rate: 98.4% [n=369])

Factors	n (%)
Improving educational quality of college or university	306 (82.93)
Use of experienced professors	286 (77.51)
Improving amenities in dormitories and universities	253 (68.56)
Giving university grants	224 (60.70)
Encouraging students by professors	224 (60.70)
Use of well-trained educational counselors at universities	214 (57.99)
Ability and interest of professors in teaching and internship	214 (57.99)
Existence of appropriate study halls in dormitories and universities	197 (53.39)
Holding workshops to learn correct planning for studying and the correct way of studying and learning in the presence of successful students in this field	194 (52.54)
Paying attention to individual differences of students by professors during teaching and internship	188 (50.95)
Having access to supervisors and their assistance	170 (46.07)
Collecting and compiling the experiences of successful students and sharing periodically among other students	153 (41.46)
Student admission based on average diploma score (instead of national entrance exam)	70 (18.97)

The aforementioned findings are consistent with the findings of studies by Changizi, Khadiv, and Fallah (21). In addition, in previous studies, the relationship between marriage and academic failure was proven; however, such a relationship was not observed in this study. The present study showed that in high school, most of the average scores were within the range of 18-20; nevertheless. However, despite the results of previous studies, there was no relationship between academic failure and high school scores. Most of those who had academic failure were MD students, and this relationship was statistically significant.

It is noteworthy that only 12.5% of the students referred to the university counseling center, and two-thirds of the counseling sessions were educational. With this low percentage of counseling, giving importance to this issue requires designing a mechanism for managing and increasing counseling for students.

Table 5. Factors Affecting Students' Educational Achievement (Responsiveness Rate: 94.93%)

Dimension	Factors (of 5 scores)	Mean (standard deviation)
Educator dimension	Professor's level of education	4.28 (0.88)
	Professor's teaching experience	4.10 (0.99)
	Professor's mastery over the course scope	4.49 (0.76)
	Respectful relationship between professor and student	4.20 (0.97)
	Continuous evaluation of the student (through oral questioning or taking quizzes) during the semester	3.49 (1.15)
	Using different methods of teaching by the professor, such as group discussion and teaching by students	3.75 (1.08)

	Professor use of learning assistance tools during teaching	3.47 (1.06)
	Timeliness and timely presence of professor in class	3.73 (1.09)
Learner dimension	Student motivation	4.68 (0.61)
	Student self-confidence	4.45 (0.75)
	Student interest in the field of study	4.51 (0.69)
	Regular attendance of the student in class	3.65 (1.11)
	Attention and focus of students in class	4.03 (0.9)
Familial dimension	Sensitivity and insistence of parents on children's education	3.12 (1.21)
	Guiding children in education by family	3.45 (1.11)
	Warm and intimate relationship with the family	4.06 (0.92)
Socioeconomic dimension	Giving grants (student loans) to students	3.95 (1.05)
	Income and economic status of family	3.90 (0.98)
	Parental educational level	3.63 (1.14)
	Occupational future of the field of study	4.48 (0.87)
Dimension of environmental educational facilities	Number of faculty members	3.35 (1.16)
	Suitability of the student dormitory environment in terms of population and facilities	4.06 (1.00)
	Students' access to books and national and international publications in the library	4.07 (0.93)
	Suitability of the physical environment of class in terms of light, heat, space, table and chair arrangement, and the number of class members	4.06 (0.98)
	Facilities of clinical teaching environment	4.33 (0.86)

It should be noted that contrary to the results of the study by Changizi et al., in the present study, the ratio of successful students' referrals to the university counseling center was higher than students facing academic failure (21). In the present study, similar to the study by Changizi et al., there was no relationship between the family's economic status and a student's academic failure; however, some studies considered the aforementioned relationship effective and direct. Contrary to the findings of Changizi et al.'s study, in the present study, there was no relationship between academic failure and parents' occupations. In the present study, there was no relationship between academic failure and the distance between student home and university; nevertheless, this relationship was significant in previous studies (21).

In addition, in this study, the time interval between the completion of high school and entry to university had no relationship with academic failure. The total satisfaction score among students experiencing academic failure was higher than the total average score of students, which did not match the results of other studies (21). In a study by Moslemizadeh and Ahmadipour, they concluded that medical students with a problem with cell phone use and a history of mental disorders were more likely to drop out. It was noted that since academic failure is not uncommon, the factors associated with it should be appropriately identified in order to act in a timely manner (30). In the present study, there was a relationship between academic failure and precision in the study, meaning that students with more precision had less academic failure. In addition, the aforementioned subject was related to regularity in the study. In other words, the regular and planned study was related to the prevention of academic failure, and

this problem was not observed in students who spent more time studying and more hours of Internet usage for educational purposes. This issue suggests that appropriate counseling can be highly effective in solving such students' problems.

Among the limitations of this study were the lack of cooperation of the whole students in participating in the study, the lack of consideration of factors related to mental health, the impact level of mental health on academic failure, and methods for the prevention of academic failure. Therefore, it is suggested to carry out studies on the prevalence of mental health problems and their relationship with academic failure.

Conclusion

In the present study, the relationship between academic failure and the three factors affecting academic achievement, including the professor's educational level, the warm and intimate relationship in the family, and the occupational future of the field of study, was reversed, meaning that students facing academic failure did not believe in the effect of these three factors. This issue is important because it shows the low importance of these components among students with academic failure; in other words, the professor's level of education and literacy was not important to them, and they did not consider their families as the basis for academic achievement. Additionally, they did not imagine an appropriate occupational future.

According to the results of this study, the most effective factor in the success or prevention of academic failure is discipline and precision in the study, and the most effective factors in academic achievement are student motivation, the mastery of the professor over the subject, and the occupational future of the student.

Furthermore, psychological counseling is essential in solving the educational problems of students. Therefore, the present study suggests creating a student monitoring system and preventing academic failure to solve problems and provide services at the time required to help prevent potential damages and loss of capital.

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