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Causes of academic failure of medical and medical sciences students in Iran: a systematic review

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Abstract

Background: Academic failure of medical and medical sciences students is one of the major problems of higher education centers in many countries. This study aims to collect and compare relevant researches in this field in Iran.

Methods: The appropriate keywords were searched in the national and international databases, and the findings were categorized into related and non-related articles accordingly.

Results: Only 22 articles were included in this systematic review. In terms of content analysis, gender, living in a dorm, employment, marital status, age, special rights in the entrance exams, the time lag between diploma and university, diploma average, learning style, being nonnative students, being a transferred student, psychological problems, occupation of the mother, salary level, diploma type, field of study, self-esteem, exam anxiety and interest on the field of study were considered as the influential factors for academic failure of the students.

Conclusion: This systematic review shows that there is no definite academic failure criterion. It is also suggested Iranian researchers should pay more attention on the documentation of the higher educational strategies that have been implemented to prevent avoidable academic failure and contain physiological academic failure.

Keywords: Academic Failure, Medical Student, Medical Sciences Student.

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Introduction

Nowadays, specialists believe that one of the major factors for development is great attention to train effective and creative people. Students' academic success is a basic objective for any educational system. Today's academic failure is one of the most important problems of the educational systems (1-3). Academic failure is defined by the UNESCO as remaining in basic levels, early quit and decline in quality of education (4). In Iranian academic system, the definition of academic failure is to obtain an average of 12 from twenty or more- called conditional students- are a good example for academic failure. Other criteria are either a cause or result of this conditioning. During their studies, almost 12% of the medical students in IRAN experience this failure at least once (5-7). Compared to others, the students mentioned above are more exposed to the social risks and threats such as crimes, addiction, sexual harassments, anxiety, depression, suicide and finally psychiatric and family disorders (8).

Researches show that academic failure of the students causes psychiatric problems and educational deprivation (9-10).

Academic failure besides individual problems imposes a great burden on the society

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(11).

Amongst all, medical students' academic failure is the most important since their efficiency and quality of graduation directly relates to social health and lives of the people (12-13).Therefore, academic failure of the students is a social rather than an individual problem.

Obviously, to identify students at risk of academic failure, we need to identify the factors associated with it. Academic performance is affected by several factors such as student's mood, intelligence and talent, incentives and the way they behave at school, friends, parents' job, parents' education level, being a local student, socio - economic status and high school grade average, entrance exam special advantages, the time lag between high school and university, employment and marital status. Research studies conducted on these factors found many contradictions (14-16).

The economic burden of academic failure on medical education system is great (17). Given the importance of the students' academic progress with its affecting factors and consideration of evidences that show academic failure in recent years, this systematic review was carried out to identify the possible and relative factors in medical and medical science students in Iran.

Methods

The study protocol was approved by the research council of the Medical Education and Development Center of Iran University of Medical Sciences.

Design

This was a systematic review of the methodology and report of quality of the published articles in the field of medical education in Iran.

Search Strategy

Published articles related to academic failure in medical and medical science students conducted in Iran were included in this review.

In order to find and review the previous reported findings, two of the authors (SA and HRB) searched the website and data base center of the Ministry of Health and Medical Education, and reviewed all the academic failure related articles conducted on medical and medical science students from 1996 to 2011 (e.g., Medline, IranMed, Pubmed, IranMedx, SID, Medlib, Web of Science, Google Scholar).

The primary criterion was the relationship between the article and academic failure factors. Academic failure causes of non-medical students were considered an exclusion criterion.

Study Selection

Two reviewers (SA and HRB) independently reviewed the titles and abstracts of the 1226 retrieved articles and selected the eligible studies. In Iranian academic system, the definition of academic failure is to obtain an average of 12 from are a good instance for academic failure. Studies with cross-sectional, descriptive-retrospective, correlation, analytical, case-control designs which had been conducted in Iran were included. Articles related to medical students and medical science students (nursing, allied medicine, dentistry, midwifery) were included. When titles and abstracts were not sufficient for determining eligibility, the full articles were identified and reviewed. Any disagreements between the reviewers were resolved by consensus.

Study Review and Data Extraction

Full-texts of the relevant studies were obtained and reviewed by reviewers (SA and HRB). The reviewers were not blind to the study location, authors affiliation or citation information. A standardized form was designed to extract the data from the included studies. The following information was extracted from each article: location of the study, the year of study, study design, study population, sample size and outcomes.

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Reporting Quality Assessment

Quality of reporting was assessed using the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist (18) and the 2001 revision of the Consolidated Standards of Reporting Trials (CONSORT) statement (19) for observational and experimental studies, respectively.

Data Analysis

The researchers, independently, extracted the following data from the articles and entered separately into the Code Sheet of the Rev. man.-4; disputes were referred to the third researcher.

Results

Searching in the indexed articles in MEDLINE and other data bases via OVID based on the strategy of this study resulted in 152 articles for medical students. After elimination of those unrelated articles, the number of articles decreased to 32 from which only nine articles remained for analysis. These nine studies that entered the systematic review analyzed 3005 students in total (Fig. 1). Frequency of the articles which showed affecting factors on academic failure demonstrated the followings: five articles on marital status, two on the second job, two on residing in dorm, two on acceptance in entrance exam using special advantages, two on level of education, three on the time lag between high school and university, two on grade average of diploma, three on masculinity, three on age, two on an educational programming and incentives and one on absence in class.

Searching in the indexed articles resulted in 1074 articles for medical science students from which 500 irrelevant and 300 other related articles were omitted. The remaining 274 articles were studied by independent researchers, of them, the full-texts of 74 articles were reviewed and finally 23

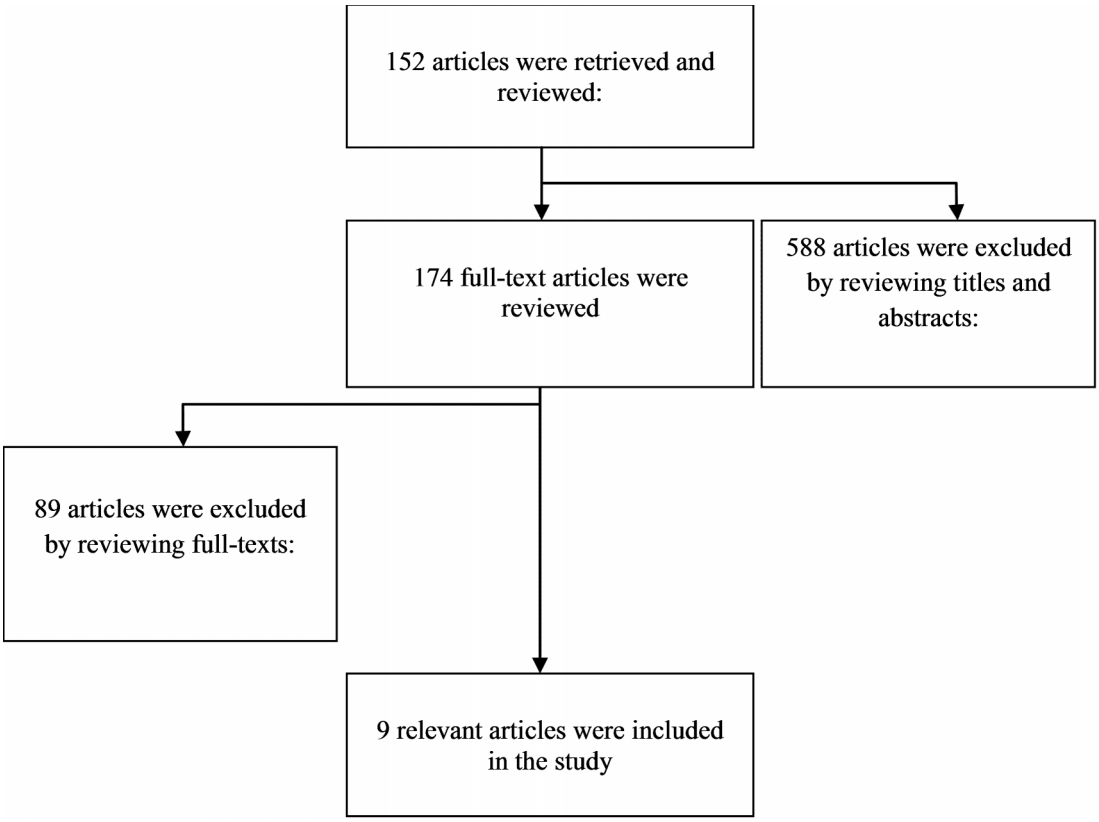


Fig. 1. Literature search and study selection process for identifying Iranian medical education articles published between 1996 and 2011

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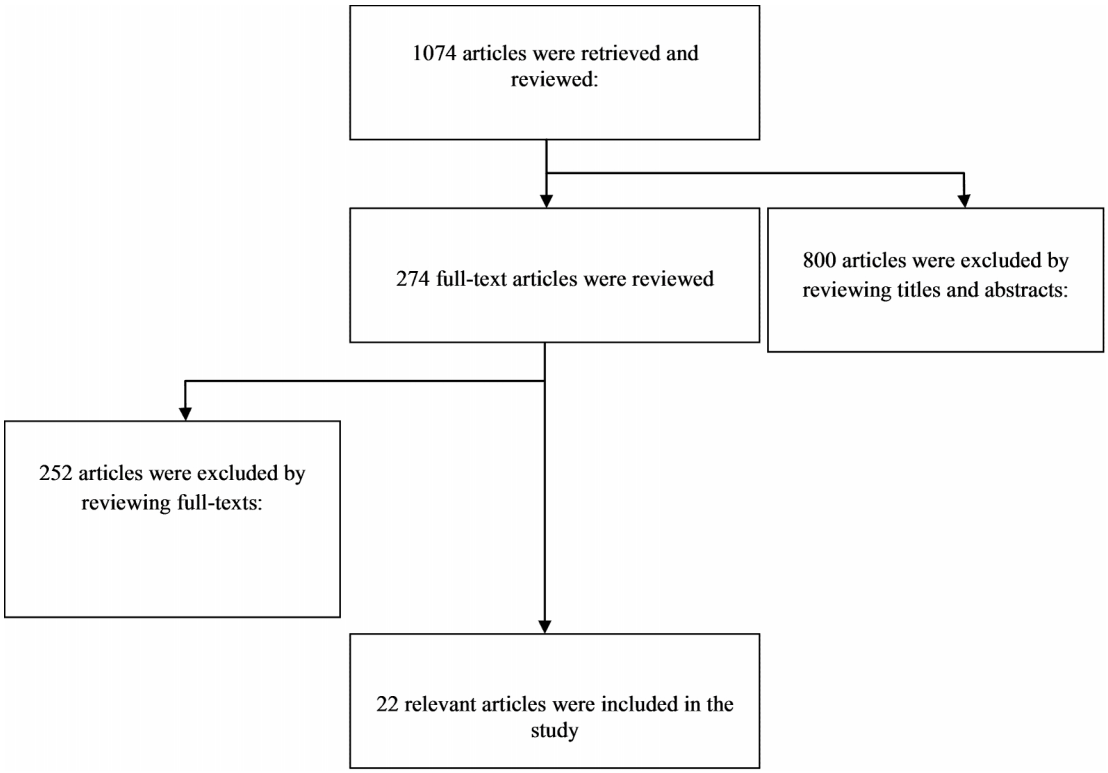


Fig. 2. Literature search and study selection process for identifying Iranian medical sciences education articles published between 1996 and 2011

articles entered the ultimate analysis (Fig. 2). The total number of 7316 students was considered in the 23 articles.

The frequency of the articles which showed the effecting factors on academic failure is as follows: two articles were conducted on learning style, four on being non local students, two on transferred students, six on psychological problems, one on occupation of mother, one on salary level, one on article diploma type, one on field of study, one on self-esteem, one on exam anxiety, six on interest on the field of study, five on marital status, three on the second job, four on residing in a dorm, six on acceptance in entrance exam using special advantages, two on parents' level of education, five on time lag between the high school and university, ten on diploma average, nine on masculinity, four on age, three on educational programming and incentives and two on absence in class.

Discussion

The results of this systematic review revealed that the main influential causes of academic failure of medical students are as follows: Gender, living in a dorm, employment, marital status, age, special rights in the entrance exams, the time lag between obtaining a diploma and entering a university, diploma average, education level of the parents, motivation, number of professors and their academic level and not attending classes, learning style, being a nonnative student, being a transferred student, psychological problems, occupation of the mother, salary level, diploma type, field of study, self-esteem, exam anxiety, interest on the field of study. No significant heterogeneity was found in the results of the reviewed studies.

As noted, all of the factors influencing academic failure were similar in the papers in which different criteria of academic failure were used. In other words, there is no clear cut-off point; this means that the criteria for defining unsuccessful student may be a pass or fail in a basic science exam, in some an average grade below 15 and one-time conditional status in education, and in others the average 14 or lower and condi

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Table 1. Summary of characteristic and evaluating of studies on academic failure in medical students in Iran

NO	Refrence	Year	Place	Sample size	Type of study	Frequency of academic failure			Result	Comments
						Basic sciences	Clinical section	Physio-pathology		.
1	Rodbari M and et al	2001	Zahedan	206	analytica	20%			Marital status, age, the average and length of the period of the basic sciences and score of the lessons of Microbiology, Parasitology and fiziopatolozi are the factors affecting the exam score.	Academic data were self-administered which seems a week point of this study
2	KharaziM and et al	2006	Kermanshah	215		80.6	3.5	16.75	Between the two groups in terms of age, sex, average diploma, time lag between high school and university, marital status, parents ' education, having the additional jobs, acceptance quota and all the average University courses was a significant difference.	The criterion this article for academic failure is only one drop.
3	Dehbozorgi G and et al	1999	Shiraz	215	Cross-sectional	53 from 215			Acceptance of quotas, marital status, parental education, distance diploma and University, have added jobs, native, academic curriculum and academic motivation with the status of a significant relationship.	Determination of successful and unsuccessful student criteria is optional. The definition of some of the variables is also a problem, as the presence in the course that it is not objective.
4	Yosefi A and et al		Esfahan	344	Cross-sectional				Academic motivation had significant relationship with basic sciences and clinical section.	The relationship with the average and motivation is considered, to ignore other variables.
5	Adhami A and et al	1999	Kerman	160	Cross-sectional				The relationship between educational facilities and academic achievement was negative and the relationship between numbers t and scientific rating with a score within the part of the base was positive.	Selected academic achievement criteria varies, just basic is considered.
6	Hoseini F and et al	2008	Kashan	586	Cross-sectional	41%	47.4	42.7	Acceptance quota, marital status, gender, and the delay in arrival were affecting factors.	Adverse determination is based on the average of the period have been favorable.
7	Hoseini F and et al	2008	Kashan	586	Cross-sectional	5.1			Parties in other universities, certain quotas, not native, marital status, low grade point average diploma of the most important factors were introduced to academic failure.	The only selection criterion for probation, drop in academic achievement.
8	Ghaibi SH and et al	2007	Oromie	176	Cross-sectional	23.3	26.5	0.7	Failure to attend class and the large gap between the diploma and university had relationship with academic failure.	Usage statistics are not defined. A report on the use of statistical test is not perfect.
9	Haghdost A and et al	2007	Kerman	571					Girls in all sections of the country were more successful than the comprehensive exam. With increasing age the likelihood of success in College will be less	Conclusion is indeterminate.

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Table 2. Summary of characteristic and evaluating of studies on academic failure in medical sciences students in Iran

No	References	Year	Sample size	Place	Type of study	Frequency of academic failure	Results	Comments
1	Moniri R and et al	2005	242	Faculty of Paramedics, Kashan	Cross-sectional	1/6 cent (4 employees of the 166). Of the 242 people in 94 cases (38.8 per cent) success and 148 (61/2) were unsuccessful.	Odds ratio of educational failure among students with less than two years the distance university diploma 4/34,diploma average less than 16,2,6,	Academic grade point average drop cutting point 16 is considered while generally 13 or 14 shall be considered. 2-questionnaire about some of the options in the information about the validity and reliability of them. 3 different factors in the calculation of odds ratio should be moderated.
2	Tagharobi Z and et al	2007	1174	Faculty of Nursing and Midwifery, Kashan	Cross-sectional	3.9% (46) was raised. That 26 patients (2.2) is just a semester, 11 (9) two semesters and 8 people (/7) three semesters and one person (/1) four semesters were conditional. The maximum frequency is related to the term two and then term one.	The highest risks of the occurrence of conditional were related to non-being, allocating the guest areas in other universities, male sex, transfer grade point and average diploma.	In order to dampen the effect of confounding factors must be adjusted odds ratio was calculated. 2- Different groups need to be separate form about the analysis.
3	Bakooi F and et al	2009	152	Faculty of Nursing and Midwifery, Babol	Descriptive-Retrospective	10/5 percent poor, 76.3 percent in the average Group 13.2 percent on good group.	Between the three groups in terms of individual and family factors, and there was no difference in social and economic but psychological factors. the amount of family problems, associated with the opposite sex, the problem of communication with friends same sex, in the poor Group of students was significantly more. Agents also attend training classes, curriculum and notate the contents were in classes of risk factors.	about the validity and reliability of the questionnaire's description is not given
4	Aalikhani SH And et al	2004	189	Faculty of Nursing, Army	Cross-sectional	32 (16.9%)	There was a significant relationship between the variables of age, diploma average, residency, marital status, use the side jobs, job quotas, individual income levels and mother job.	1 is not clear cut-point drop.
5	Nazari R and et al	2009	100	Faculty of Nursing, Amol	Cross-sectional		The relationship between educational facilities with academic achievement negative and the relationship between academic achievement and scientific "rating and numbers of stuff with a score of inter-sectoral and science maqbt was positive.	1-point average academic failure cut 16 is considered. 2. Regression to compare the unused and just a simple comparison.
6	Fakharian A And et al	2009	586	Kashan	Cross-sectional	History of conditional was raised in the in 133(9.2%).	Acceptance quota, marital status, gender, time lag between high school and university were related with academic failure.	Moderating variables have not been moderated.
7	Valizade L And et al	2005	62	Faculty of Nursing and midwifery, Tabriz.	correlation		Locus of control and motivational strategies to learn as the determining factors were considered in academic achievement.	Among Various factors determine the academic failure just to learning style is considered.
8	Kamali S And et al	2007	182	Faculty of nursing and Midwifery, Zanjan	correlation		A significant relationship between self-esteem and academic achievement.	1-Among Of different factors determines the academic failure only one is studied. 2-a certain cut-off point is undefined.
9	Edraki M And et al	2007	117	Faculty of Nursing and Midwifery, Shiraz	Descriptive-correlation		The consent of study had a meaningful relationship with academic achievement.	The validity of the questionnaire is not clear.
10	Zeyghami M And et al	2010	302		Cross-sectional		there is a negativerelation Between academic achievement and scores of general health and coping style .	Among of Psychological factors only 2 have been considered.
11	Tagharobi Z and et al	2007	482	Faculty of Nursing and Midwifery,	Cross-sectional		Gender, age and the use of quotas, the diploma average had a significant positive impact.	Definition of academic performance is not clear

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12	Sarchami M and et al	2001	195	Kashan Faculty of Nurs-ing, Gazvin	Cross-sectional		There was not a significant statistical relationship between learning style and average scores.	The definition of specific academic achievement score is not clear. 2-don't talk about the validity of the questionnaire3-it is a single factor study.
13	Rafaati F and et al	2000	304	Faculty of Nurs-ing, Shiraz	analytical		?	Is communication between introspection and radicalism and academic failure? 2-cut off point academic failure is not clear. 3-it is a single factor study.
14	Chgeraghian B and et al	2007	150	Faculty of Nurs-ing, Abadan	Descriptive-analytical		There was not a significant relationship between test anxiety, academic performance, age, marital status and education level.	The definition of academic failure is not clear. 2-only anxie-ty is considered.
15	Motlagh MA and et al	2005	200	Ahvaz			Male gender, being employed, quotas, , the average distance between the bottom of the diploma, low average diploma, living in a dorm, age, and education of parents had significant relation-ship with academic failure.	In the regression procedure was used from the average.
16	Delaram M and et al	2010	310	Shahrekord			The difference in age, sex, low average diploma, use quotas , smoking and other drug use, having a regular presence during the study,time lag between high school and university, It is not the existence of one of the parents alive, being non-native on the team , lack of interest in getting into the field of study and the University, mental illness , Public health students , provided a regular program for study,was significant.	Regression model should have been employed.
17	Ashtiani S and et al	2009	600	Arak		The frequency of academic failure 19%	A significant difference between gender, marital status, level of education, average diploma, being native, distance diploma and University and the consent of the field of study in between the two groups successful and unsuccessful students.	Cut off point academic failure is not clear.
18	Beygi A and et al	2009	426	Arak			Dependence on the Internet with number of faild units, number of units of the total semester, grade point average, spent the recent drop, the academic semester and conditional during the study had a significant relationship.	1-Cut off point academic failure is not clear.2- it is a single factor study.
19	Najafipor S and et al	2008	150	----------			A significant relationship between depression and academic failur. Failed 75% of the students in the Group and in some degree successful 39 percent of the mild to moderate depression.	1-analysis of multivariate test is not used.2- Cut off point academic failure is not clear
20	Emamghoreyshi F and et al	2009	772	Jahrom			The averagediploma, average for the semester's andsex had an impact on the education situation.so that students with highera-verege diploma and the academic status of girl students were better.	There is no specific criterion for academic failure.
21	Rodbari M and et al	2008	380	Zahedan			Between the average University according to gender, binge a native, living in a dorm there was a significant difference.	The definition of academic failure is not clear.
22	Raofi MB and et al	2005	692	Tabriz			Between gender and binge non-native there was no significant relationship. A significant correlation between depression and academic failur.	There is no specific criterion for academic failure.

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tional status in education were considered.

Although being an influential factor in academic failure in some papers, lack of presence in university classes was not an objective variable and could not be precisely defined. Some articles did not provide a clear definition of the statistical methods used.

With regards to the role of psychological factors and the impact of mental health on the level of motivation to study, planning and goal setting, and considering the prevalence of depression and anxiety in medical students, it is expected that the effect of these factors on the success rate of this students to be considered for better conclusion. However, mental illnesses have not been taken into accounts in these articles.

Conclusion

As mentioned, with regards to the importance of the academic failure of the students, the social effects and the negative consequences it is of high importance to conduct more precise studies on the factors influencing this problem so that on the basis of their results, appropriate strategies such as special meetings and workshops be designed for the students at risk.

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