

## Original article

# Comparison of barriers to research activities form the point of view of normal and talented students at Arak University of Medical Sciences

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## Abstract

**Introduction:** The quantity and quality of research papers and projects is considered as the most important indicator of scientific development in any country therefore, the plan to compare barriers to research activities form the point of view of normal and talented students at Arak University of Medical Sciences was performed in 2010.

**Methods:** This study was a cross sectional analytical study that was carried out on 56 talented students and 180 regular ones. Data collection was done through questionnaires including research problems in different dimensions of methodology, access to resources, and more familiarity with the research process. The validity was measured through the content validity, and the reliability was confirmed through Crounbakh's alpha test. Finally, the data information were analyzed through Chi-square tests, t tests and ANOVA.

**Results:** The results showed that there was a significant difference between mean score of research problems of talented and regular students for no motivation for research ( $p<0/001$ ), lack of sufficient in language English ( $p<0/003$ ), lack of access to Counseling research at the University ( $p<0/022$ ) and time-consuming research being done ( $p<0/0028$ ) Most solutions proposed by the students include removing the obstacle in the fields research of law study, the use of experienced research consultants and research subsidies allocated to the students

**Conclusion:** Considering the obstacles found in this study, eliminating obstacle regulations, training teachers in skills to help students to do research, encouraging students to participate in research methodology workshop and adequate funding can reduce barriers Be positive.

**Key words:** Student, Talented student, Research barriers

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## Introduction

**K**nowledge Production is intended to develop future leaders and create a knowledge-based society. The quality

of knowledge production as well as its quantity is an important indication of the degree to which a society is developed. The greater the

role the knowledge plays in different aspect of the lives of a people of a society the more challenging would be removing the obstacles in the way of knowledge production (1-3). Currently, as compared to developed countries, the knowledge production in Iran is not in a good situation in terms of quality and quantity (4, 5). Nonetheless, the trends in the research have been shown to be favorable. Whether the favorable trends observed in recent years is to be continued in the future or not remains to be elucidated. The research in Iran is facing serious challenges including deficits in infrastructures, instability in the research grow rate, quality problems, and lack of cooperation between scientists of different subject areas as well as lack of interaction between scientists and end-users of the science (6). In developed countries as much as three percent of is allotted to the research areas; the corresponding figure for Iran has not exceeded 0.3 percent hitherto (4, 7). Several factors have been defined as hindrance to the research. For example results obtained from research are not integrated to policy-making systems, hardware and software for many areas of research is not available, bureaucratic laws are complicated and exhausting, attitude of policy-maker does not favor effectiveness of the research, informatics resources are not commonly available, researchers have not sufficient experience and skills, and it is very difficult to find funds for research grants (9-14). Haffrin et al. have added data analysis related problems and lack of motivation to what mentioned above (15).

Students and faculties are to be considered as sine qua non to the research. Impediments to researches have largely been investigated from faculties' standpoints. Less is known about students' attitude towards factors that can negatively affect the research and knowledge production.

Talented students with high educational achievements are expected to play a pivotal role in research; they are more likely to be sought by faculties for researches and grants for their

researches are more likely to be funded by their universities. We have compared the research impediments as is looked upon by talented students vs. normal students.

## Materials and Methods

To investigate the difference in the hindrance to the researches as perceived by talented and normal student we conducted a cross-sectional case-control study. All talented students studying in the Arak University of medical science were invited (69 students) of which 56 students agreed to participate. Controls (180 students) were recruited among normal students of the same university. Cases and controls were matched for sex and the subject area they studied. Gifted or talented students were ascertained in accordance with the criteria issued by supreme council of the Cultural Revolution. Talented students were recruited if they were registered in the office of the talented students of the university. Registration is not permanent and students are required to keep achieving standards of excellence. The achievement of students is evaluated each semester and the membership is cancelled for those who no longer meet the criteria.

Data were secured using a questionnaire composed of three main components. First component included demographic data (age, sex, and talented criteria met where applicable); the second component included 14 Likert-type items regarding research difficulties and obstacles; and the third components students were asked to make their suggestion for improving research quality and quantity. Students were asked to rate their responses to hindrance statements on a 5-point scale (1 for strongly disagreed and 5 strongly agreed). The reliability of questionnaire was examined using Cronbach's alpha. The reliability of the 14-item hindrance questionnaire was estimated to be Cronbach's alpha=0.74.

All data analysis was performed using SPSS 11.5. Data presented as mean (SD) or frequency

(%) for continuously and categorically distributed variables, respectively. Differences among subgroups were examined using t-test, chi-square test, and analysis of variance (ANOVA). Statistical significance was set at P-value<0.05.

The study protocol was approved by research committee of the Arak University Medical Sciences and students who agreed to participate voluntarily completed the questionnaire.

## Findings

The study sample consisted of 56 talented student and 180 normal students. Two common criteria for admission to the office of talented students were achieving average grade point of at least 18.5 out of 20 and ranking top in the university entrance examination. Among students registered in the talented students' office of the university 28% ranked top on the nation-wide university entrance examination. The length of membership to the talented students' office was one semester for 19%, two semesters for 33%, three semesters for 28%, and four semesters for 17% of talented students.

The mean age of the talented [21.1 (3.1) years] and normal students [21.7 (2.8) years] were not different (P-value>0.05).

As shown in the Table 1, the majority (75%) of the talented students were girls and single. The distribution of the level of the education of the fathers (less than 12years vs. 12 years or above), the fathers' and mothers' job, and school (medical vs. paramedical vs. nursing) was different among talented and normal students. The level of education was higher among fathers of the talented students with near 70% of them having studied for at least 12 years whereas only half of the fathers of normal student had such levels of education(P <0.001). Near 70% of the fathers of the talented students were office worker; the corresponding figure for fathers of normal students was 54% (P-value

<0.001). Mothers of talented student were more prevalently observed to be employed (34% vs. 18%; P-value <0.001) than were mothers of normal students and their fathers were more likely to be office worker (73% vs. 54%; P-value<0.001). While in both groups most of the participants were recruited from medical school, among talented students only 20% were studying nursing as compared to 44% among normal students (P-value=0.048).

As shown in the Table 2, talented students weighted following obstacles in a way different from that having done by normal students. As compared to normal students, they weight higher the lack of motivation, lack of English skills, lack of computer skills, lack of access to research consultant, research being time-consuming, having to learn too much lessons and as such having few time for research, and teachers not motivating students.

The most highly weighted obstacles as perceived by talented students were, having to learn too many lessons and thus running short of time for research (4.6), not having sufficient skills for doing research and writing a scientific paper (4.1), and not being skilled in using computer and internet for doing research and searching resources (3.9).

The most commonly reported suggestion for improving research situation as reported by talented students were

Modifying terms and conditions for research (71%) to as to make it easier for students to have their proposal reviewed and accepted as well as to make it easier for them to use facilities required for research,

Providing students with professional and accredited consults (62%), and

Holding workshops to increase students capabilities for writing appropriate proposal, obtaining research grant funds, writing scientific papers, and publication.

Table 1. Demographic characteristics of the talented as compared to normal students.

		Talented N(%)	Normal N(%)	P value
Age	<20 year	19(34)	55(30.6)	0.461
	20 years or above	37(66)	125(69.4)	
sex	Women	42(75)	137(76.1)	0.811
	Men	14(25)	43(23.9)	
Marital status	Single	52(93)	158(88)	0.441
	Married	4(7)	22(12)	
School	Medicine	32(57.1)	93(66.5)	0.048
	Para-medicine	13(23.2)	52(27.9)	
	Nursing	11(19.7)	35(44.2)	
Father's job	Office worker	41(73.2)	97(54)	0.001
	Others	15(26.8)	83(46)	
Mother's job	Not employed	37(66)	147(82)	0.001
	Employed	19(34)	33(18)	
Father's education	Less than 12 years	17(30.4)	84(46.6)	0.003
	12 years or above	39(69.7)	96(53.4)	
Mother's education	Less than 12 years	44(78.4)	153(84)	0.621
	12 years or above	12(21.7)	27(16)	
Distance to home	Less than 50 km	20(35.7)	57(32)	0.531
	50-200 km	23(41.1)	85(47)	
	More than 200 km	13(23.2)	38(21)	
Employment	Yes	4(7)	23(13)	0.142
	No	52(93)	157(87)	
Semesters taken	2-3	16(28.5)	50(27.7)	0.381
	4-5	21(37.5)	73(40.5)	
	6 or above	19(34)	57(31.6)	

Table 2. Factors that hinder research as perceived by talented students compared with normal ones.

	Talented	Normal	P value
Materials needed for research is easily and commonly available	2.29 (1.43)	2.74 (1.28)	0.612
There are no hindrance for me to easily participate in research workshops	3.14 (1.22)	2.97 (1.31)	0.480
Information resources are commonly available and can be easily obtained	3.53 (1.41)	3.72 (1.16)	0.280
Too many lessons to be learned in the school so that I run short of time to get involved in research	4.62 (1.84)	3.08 (1.26)	0.001
Students are not familiar with research methods	4.11 (1.58)	4.04 (1.33)	0.217
I am not skilled enough in English so as to use scientific papers and text books	3.21 (1.04)	3.94 (1.15)	0.003
Students do not know subject areas where they can do their researches	3.79 (1.92)	3.61 (1.68)	0.510
I am not motivated enough to get involved in a research	3.12 (0.91)	2.27 (1.08)	0.001
Students have not computer skills enough to make them able to do a research	3.93 (1.38)	3.05 (0.87)	0.038
There are not enough research consultant available for student to them in their research	3.86 (1.21)	3.11 (0.98)	0.022
University consultants and executives do not motivate students to do research	3.27 (1.83)	2.14 (1.25)	0.001
Students have to deal with too many bureaucratic obstacles in order to be able to do their research	2.35 (1.13)	2.63 (1.10)	0.441
I am not familiar with paper review processes and publication terms and conditions	4.38 (1.61)	4.11 (1.18)	0.820
Research is too time-consuming	3.71 (0.98)	2.84 (1.21)	0.003

## Discussion

In the current study we observed that the factors that hinder research by students as perceived by talented student were relatively the same as those perceived by normal students and that these factors could be classified into two major groups of bureaucratic (e.g. research grants funding or facilities) and personal (lack of time or motivation).

Most talented students were studying medicine. This finding may not be surprising since acceptance to medical school mandate high ranking in the nation-wide university entrance examination. Furthermore, considering that the length of medical education in Iran is twice (7 years) as many other majors (2-4 years). Medical students are also more competitive and motivated for studying and consequently achieving higher average grade points.

The level of education was higher among fathers of the talented students and they were more likely to be office worker. Higher educational level may at least in part explain the reason why their children were selected as talented.

Talented students frequently reported following obstacles to prevent them from performing research. They have to spent time on many credit hours allotted to their lessons during each semester, as such they run short of time to do research; they have no self-motivation and are being motivated enough by their school policy-makers to participate in research projects; they are not good at using computer, are not familiar with meta-libraries, search engines, electronic banks, databases, or full papers; they do not know how to utilize internet for reviewing of literature, they do not know how to use implement data analysis using appropriate software. The school does not provide due information and news with respect to research opportunities neither it does provide research consults. Talented students rated these hindrances higher than did normal students. This

could be explained by the fact they have been more frequently tried to do researched and consequently have been more frequently struggling with these obstacles. Talented students are more likely to be asked by lecturers or professors to cooperate in research projects. Talented students are also more likely to seek consult from their professors.

To be registered as talented, a student need to high education achievement. Educational achievement has been being frequently defined based on the average grade points. To obtain a high average grade point a student need to study hard and spend many times on attending classes and learning lessons delivered in those classes. As such starting performing research is to be looked upon as point divergence; since time-frame in each course of study (term or semester) is not expandable. That is being talented and performing research contradict each other in that the more time a student spent on one the less will be remain for the other.

Results from previous research are not conclusive regarding weights assigned to different hindrances. For example Sabzevari et al, as we did, reported the non-personal or bureaucratic obstacles to be weighted less than personal hindrance like lack of skills (16). Other investigators from Tehran and Gilan have reported executive tasks professors have to accomplish as well as educational tasks prevent them from doing research (17, 18). Sereshti et al have reported the lack of motivation to be the most important restrain to research (19).

Lacks of facilities have been commonly reported by many studies to prevent students from attending in research projects. For a research to be done it is necessary to provide information banks, resourceful libraries, electronic databases, and well-equipped laboratories (20-24). Saminan, however, stated that while reviewing research proposal those which rely more on human mind capacities should prioritized over those needing more equipment and facilities (25).

Lack of skills as shown in the current has also been reported by other studies to restrain students from research (26). Difficulties in obtaining research grand funds have also been frequently mentioned in this regard (10, 26). It has been shown that increasing payments to researchers has not significantly improved their researches (27).

It has reported from Pennsylvania that problems related to job, family, financial issues, and medical and clinical tasks prevent medical students from doing research (28).

#### Limitation

Data gathered for this analysis was based on self-reports from students and are subjected to bias. This limitation applies to all questionnaire-based investigations, though.

#### Conclusion

We observed that talented and normal students share same reason for why they are not attending research projects. To persuade student to get involved in research, based on the findings of the current study, universities should:

Providing experts group capable of providing due consults in preparing proposal, conducting a study, and having the findings published.

Allocate some research budget to projects that facilitate research.

Facilitate the process of paying study cost as well as payments to researchers.

Increase quality of education to increase performance of students in a unit of time so that they are providing with more time to allocate to research.

Increase the performance of the educational organization, improve social welfare services delivered to the students so that they are less worried about non-education issues and can be more focused on their research and education.

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