

## Dental students' opinions on the challenges and research opportunities: A qualitative research

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### Original Article

#### Abstract

**BACKGROUND AND AIM:** The first step to improve research in a society is a true understanding of abilities, available possibilities, and also the strengths and weakness of research projects. The purpose of this study was to survey the students' ideas about research challenges and opportunities among dental students of Kerman, Iran.

**METHODS:** In this qualitative action research, personal and group depth interviews with students of 3<sup>rd</sup> to 6<sup>th</sup>-year of the study were performed. The data were collected by interview and focus group discussions, and oral explanations, and ideas of interviewees were recorded. In these interviews, the questions were about the quality of research performance, the procedure of completing the plans and thesis, and research challenges and opportunities. Performed interviews were depth, unstructured, and semi-structured interviews. After recording, the interviews were written by an undergraduate dental student, and participants' ideas were reviewed separately and coded by two researchers and continued to data saturation phase. Finally, data were analyzed and classified by content analyze, and the number of participants was specified.

**RESULTS:** Totally, in this study, the most of research challenges and opportunities were lack of teacher's tendency to research works, little motivation of students, not enough information and little knowledge of students about the value of research work and plans, not encouraging the students to search the subject, not training, incorrect projects about research work, lack of proper site in college, lack of research atmosphere in college, not emphasizing on research, and few number of researcher teachers. Also, no interviewee mentioned the factors such as research opportunities in dental university.

**CONCLUSION:** Various personal, intra-institutional, extra-institutional, modality and attitude factors are barriers to research, based on the opinions of students. It should be pointed out that in this research nobody mentioned the factors like research opportunities as the barrier of research.

**KEYWORDS:** Qualitative Research; Opportunities; Dental Students

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Currently, the importance and necessity of research studies are well-established. Research is the bedrock of sustainable development, construction and independence of all the countries.<sup>1</sup> In addition, one of the most important factors for the growth and development of each country is to nurture

research studies. Universities and higher educational institutes have three responsibilities including producing knowledge, training experts and providing technical services for the community. It is obvious that promotion of knowledge and progress in science depend on research results in universities and finding solutions

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for the problems in the community to pave the way for the promotion of research activities in future.<sup>1,2</sup> There is a high probability that students who are actively engaged in research will complete specialty educational courses and become the academic faculty members to teach and improve research in the future.<sup>2</sup>

In addition, it should be pointed out that production of science and knowledge is only possible through research and only knowledge and science-based development could be considered sustainable.

Production of scientific outcomes would increase the knowledge and pave the way for technology, which eventually results in the creation of jobs, wealth, social comfort, and security.<sup>3</sup> It is not possible to nurture creative talents to produce science and bring about participation in the countries' development without making the university students familiar with research in their lives and daily activities.<sup>4</sup>

Currently, all the industrialized and developing countries are trying to increase research investments. In this context, industrialized countries invest in research activities to maintain their position or promote their superiority in the global competition. Developing countries have also realized that they have no choice except for making investments in research activities in order to make real progress and achieve development and radically solve their social, health and economic problems.<sup>4</sup> Therefore, it can be claimed that there is a direct correlation between research and real progress in each country.<sup>5</sup>

The first step to organize research activities in the community is to reach a correct understanding of the existing abilities and facilities and to understand the weaknesses and strengths of research programs. Researchers believe that the most important barriers to research studies are deficiencies in facilities and equipment, complicated administrative regulations, lack of positive attitudes of executive managers toward the benefits of

research, lack of access to information sources, lack of adequate funding, low research wages, difficult and long procedures for receiving grants for research plans, and lack of research skill and motivation.<sup>5</sup>

Currently, the importance and necessity of research are well-established. Research is the foundation of independence and the overall development and reconstruction of all the countries all over the world. The chief gap between the industrialized and developing countries lies in differences between their research activities.<sup>5</sup> Production of science and knowledge is only possible through research, and science and knowledge-based development is the only development that can be considered sustainable. It is only possible through familiarizing of students with research in their lives and daily routines to nurture their creative talents and engage them in the production of science and make them participate in the country's development.<sup>6</sup>

Studies carried out on the attitudes prevailing in our universities toward scientific research have shown that attending the university for a short time (6 months) is adequate for students to realize the differences between their speculations and the realities of this educational system. This claim is substantiated by a decrease in students' tendency for participating in research activities and the difference between their speculation about research activities of university academic staff members and the realities.<sup>7</sup> Suggestions have been made that different strategies can increase the engagement of dental students in research activities. However, an important consideration in the dental education is to identify factors that facilitate the participation of students in research activities or prevent it.

The aim of this study was to determine the students' opinions on the challenges and research opportunities in the Faculty of Dentistry, Kerman University of Medical Sciences, Iran.

## Methods

In the present comprehensive action research,

in-depth interviews were carried out in the group and individual settings with a number of dental students (3<sup>rd</sup> to 6<sup>th</sup> year) in Faculty of Dentistry, Kerman University of Medical Sciences.

Data were collected through interviews and focus groups and the opinions and oral ideas of the interviewees were recorded. The interviewees were divided into 5 groups. There were 8 dental students in each group because the participants had many valuable experiences to explain.

Despite the fact that the study had been designed in a manner to eliminate the effect of sex on the participants' opinions, an attempt was made to include students from both sexes in each study group. In addition, an attempt was made to include students in the groups from different educational levels.

The students were asked to make appointments to be interviewed. Two researchers took part in all the interview sessions, as an interviewer and an observer (2 dental students). The first researcher was responsible for carrying out the interview and the second one recorded them. The two researchers reached an agreement before the interviews on how to carry them out.

Each interview lasted at least 45 minutes. Before the interview, an oral consent was obtained from the students and they participated in the study at their own will. During the interviews, questions were asked on how research is carried out, how the research plans and themes become operational, the barriers to research and research opportunities. In addition, the students' general ideas about research were questioned. The interviews were in-depth, open and semi-structured.<sup>8</sup> At the beginning of each interview, the general questions were asked, followed by more specific questions in order to avoid a general discussion. An attempt was made to pose the questions simply without any prejudgments. In addition, at the beginning of each interview, the interviewer explained the aims of the study to the participants. In order to carry

out a better interview, each subject was given adequate time to express his/her opinions completely so that his/her experiences and attitudes could be evaluated in each field. During the interviews, the interviewer used prompters such as "could you please explain this further?" and "could you please give us an example?" for further expansion of the subject in each field.

At the end of each section of the interview, the results of the interview were summarized and summed up for the group members to make sure of the accuracy of the opinions expressed.<sup>8</sup> After recording the interviews, the interviews were written down by a last-year dental student and participants' ideas separately were reviewed and coded by two researchers and continued to data saturation phase. Finally, data were analyzed using the content analysis technique. The analyzed data were then classified and the number of respondents in each class was determined. In addition, in order to increase the scientific accuracy of the study and determine its validity, the codes of each interview were again submitted to the participants to make sure of the understanding of the researchers of the students' opinions. All steps of the study are illustrated in figure 1.

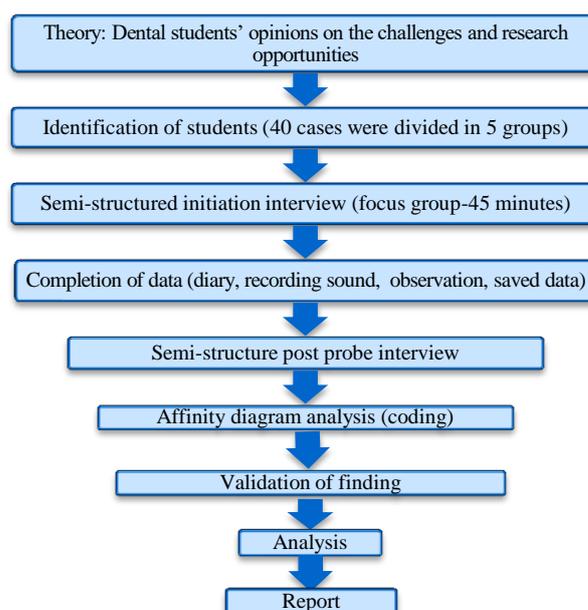


Figure 1. Qualitative research

**Table 1. Categories and subcategories in study**

Categories	Subcategories
Organizational problems	Financial restraints (7 students)
	Lack of access to the full texts of articles (4 students)
	Lack of faculty membership invalid websites (6 students)
	Lack of scoring of research works (4 students)
	Lack of acknowledgment of research works (3 students)
	Lack of an organized body for research in the faculty (4 students)
	Lack of an appropriate location for research in the faculty (7 students)
	Lack of attention to the aims of the students (4 students)
	Insufficient research opportunities during basic sciences courses (3 students)
	A long process of ratification of research plans (3 students)
	Absence of a research atmosphere in the faculty (8 students)
	Low-speed internet connections (5 students)
	Professors problems
Students' low motivation (5 students)	
Professor's disagreement with the students' research activities (6 students)	
Low appraisal of research works by professors (5 students)	
Professors not considering education and research as important (7 students)	
Student problem	A limited number of professors engaged in research activities (8 students)
	Inadequate information and students' low knowledge level in relation to the value of research plans and works (9 students)
	Lack of interest in easy jobs and high expectations of students (2 students)
	Lack of appraisal of students for searching for information (7 students)
	Lack of institutionalization of research in students (4 students)
	Low tendency of students toward research works due to a large volume of practical courses (4 students)
Educational problems	Lack of coordination between theoretical lessons and research works (3 students)
	Excessive attention to theoretical lessons (6 students)
	More research opportunities in other fields (5 students)
	Lack of education and correct programming in relation to research works (10 students)
	Interferences between research activities and studying (6 students)
	Poor information in relation to research (3 students)

## Results

The in-depth interviews were performed with 40 dental students. 13 subjects (32.5%) were men and 27 (67.5%) were women. The mean age of the subjects was  $20.8 \pm 1.6$  years, ranged from 21 to 45 years. The interviewees were divided into 5 groups. There were 8 dental students in each group because the participants had many valuable experiences to explain.

Data were coded and then the codes were categorized. The student-related codes and the number of students responding to each code listed in table 1.

In the present study, major themes were categorized into 4 key issues, including organizational, professors, student and educational problems.

Each of the remaining 6 codes acquired

from the students had been expressed by two students, the most important of which were assigning specialty research plans to students, taking part in the 6-year course for being engaged in research activities, time-consuming nature of research, poor English language knowledge of students, students not asking questions, differences in scoring and the students' tendency for preparation of educational materials.

In general, the carried out evaluations showed that the chief research challenges and barriers were lack of interest of professors to engage in research, low motivation of students, inadequate information and awareness of students in relation to the value of research works and plans, lack of student encouragement to search subjects, lack of correct education and programming related

to research works, lack of an appropriate location in the faculty for research activities, lack of a research atmosphere in the faculty, not considering research as an important plan from the point of view of professors, and a limited number of professors engaged in research activities.

It should be pointed out that none of the interviewees mentioned factors as research opportunities in the Faculty of Dentistry. In addition, the students suggested the following considerations to improve the research status of the faculty and the university: Professors should spend more time on the research work of students, promotion of research skills should begin at school, professors should discuss research work in classes, an appropriate location should be prepared by the faculty for research activities, workshops should be designed for research activities, notifications should be improved in relation to research works in the dental field, and research work should begin with easy subjects.

### Discussion

The present study evaluated the research barriers and opportunities based on the opinions of dental students in Kerman University of Medical Sciences.

Increase in the research activities in each country results in the development and progression, self-sufficiency and true independence. There is a direct relationship between research and the true progress of every country. No country is able to achieve sustainable and real social development unless the strategically applied research achievements of the country are used for improving the social, cultural, economic and educational programming. Otherwise, such a country will always need the outcomes and technology of other countries. In addition, it is very important to evaluate the barriers of research activities and it is the responsibility of researchers in each scientific field to describe the debility and distinguish that field based on their own and other researchers' experiences.

The present study showed that the greatest barriers to research, based on the students' opinions, were personal factors (low student motivation, low level of students' knowledge in relation to the value of research works and activities), organizational/administrative (lack of encouragement for students to search for subjects, insufficient information, lack of correct education and programming for research works), economic/financial (financial restraints), equipment/facilities (lack of a proper location for research activities in the faculty, lack of membership of the faculty in valid websites), and social/environmental (lack of a research atmosphere in the faculty, not considering research and education important from professors' point of view, an inadequate number of students engaged in research, lack of tendency on behalf of students for research works). It should be pointed out that in this study, none of the students mentioned factors as research opportunities.

Researchers have reported the following factors as barriers of research activities: inadequate equipment and facilities, complicated administrative regulations, lack of a positive attitudes on behalf of administrators toward the benefits of research, a high level of preoccupation, lack of access to data sources, lack of proper funding, low research wages, difficult and long process of receiving grants for research plans, and lack of research skills and motivation. A decrease in researchers' motivation is attributed to incorrect policies, not providing financial needs, mismanagement and an inappropriate atmosphere.<sup>5</sup>

Hamilton et al. compared different studies on the subject and reported that the reasons for the academic staff members' lack of interest in carrying out research were factors such as lack of time, lack of adequate skills for carrying out research, lack of support for researchers, an excessive workload, financial restraints and lack of interest and motivation.<sup>9</sup>

Culpepper concluded that the most

important barriers to research in medical faculties consisted of lack of financial resources, lack of research skills, and lack of examples, respectively. The study carried out by Culpepper showed that the majority of academic staff members believed that personal factors were unimportant and of all the other factors, organizational/administrative, economic/financial, facilities/equipment and social factors were the most important, respectively<sup>10</sup> that is similar to Kangai and Mapolisa study.<sup>11</sup>

Farmanbar and Asgari carried out a study to determine factors preventing research activities based on the opinion of the academic staff members of Guilan University of Medical Sciences, Iran, and reported that 71% of them believed that organizational/administrative factors were the most important factors in this respect.<sup>9</sup>

Azila-Gbetor et al.<sup>12</sup> showed that inaccessibility to journal articles and textbooks, and lack of internet services are some of the main institutional factors that challenged dissertation writing. In addition, inadequate funding, lack of students' commitment and motivation to write and limited library skills, and poor time management are critical students-related factors which are similar to Kangai and Mapolisa,<sup>11</sup> Pakdaman et al.,<sup>13</sup> and Sadeghi et al.<sup>14</sup> studies.

This study represented that economic/financial deterring factors were reported by 7 students and they believed that such factors are very effective in deterring research activities, consistent with Shirahatti et al.<sup>10</sup> study. Students believed that factors such as allocation of inadequate budget for research plans, delays in paying the costs of the research plans, lack of grants for research plans with high costs, and paying the cost of the research plans by the students were the most important economic/financial factors that prevented research activities.

Yaghoubi reported that a lack of institutionalization of research in our country and allocating a very small portion of the

country's ??? (NGP) to research are the extra-institutional barriers to research activities.<sup>15</sup> Other similar studies have shown that academic staff members and students do not receive proper wages for their research activities.<sup>16-19</sup> Therefore, it is necessary for universities to pay more attention to such problems and allocate adequate budget to research activities and solve such a problem.

Factors such as equipment/facilities are very important for carrying out research based on the opinions of students. In this context, lack of access to facilities and equipment, lack of an appropriate location for carrying out research, the low internet speed and lack of access to journals were factors mentioned by students. Farmanbar and Asgari,<sup>9</sup> and Sabzevari et al.<sup>19</sup> believed that it is tiresome to prepare an independent and suitable location for research, consistent with the present study. In relation to sources and library facilities, the attitudes of more than 50% of students were inclined toward poor. The results of the present study were consistent with those of Zohor and Fekri.<sup>20</sup> The results of a study on 300 students in Yasuj, Iran,<sup>22</sup> also showed that an internet and computer center has a role in research activities and library sources meet the needs of students in relation to research, consistent with the results of studies carried out in Tabriz, Yasouj and Qazvin Universities of Medical Sciences, Iran.<sup>23</sup> Therefore, the adequate budget should be allocated to universities and research centers to provide the required equipment and facilities.

The absence of a research atmosphere in the faculty, the professors' opinion in relation to the insignificance of education and research, the limited number of professors who are engaged in research and lack of their interest in research activities were a barrier to research, based on the students' opinions. Hamilton et al. reported that the long hours of teaching by the university academic staff members to satisfy their financial needs of their lives and their obligation to teach in different educational centers were obstacles

to research activities in higher education.<sup>9</sup> In addition, Talebi reported in the engineering field that usually the professors spend a lot of time on education and spend less time on research.<sup>23</sup> Ferdosi et al. reported that the most important barriers to the use of research results were management and administrative barriers,<sup>24</sup> consistent with the results of studies by Kazuko<sup>25</sup> and Sabzevari.<sup>27</sup> Kadivar reported that the universities in Iran, in the first place, have become centers for education and evaluation of the regulations. In this respect, he showed that teaching wages are higher than research wages. In addition, the scores assigned to research are even less than those assigned to the translation of a small book and having administrative responsibilities such as the group manager, deputy dean and faculty dean provides greater scores for university professors. Therefore, individuals get involved in research under such conditions only based on their personal interest.<sup>28,29</sup> Such a decrease in research activity and a decrease in the number of students carrying out research have been reported in medical universities in the USA.<sup>29</sup> Therefore, it is possible to overcome such a problem by decreasing the number of teaching hours, preventing professors from being engaged in several activities and modifying the existing regulations.

Another factor which was mentioned by students as a barrier to research was a lack of institutionalization of research works (6 students). Hamilton believed that in order to institutionalize research activities individuals, an organization unit or a specific body should shoulder responsibility for research and constantly be responsible for this subject.<sup>9</sup>

In the developing countries, usually, the authorities try to immediately solve economic, social and political problems and pay less attention to research because the research results are used some years later. In this context, these countries will not achieve sustainable and social development as long as the authorities do not use the results of

research activities in decision-making processes and in social, economic and educational programming. Currently, there is a large gap between our country and many other countries in the production of science and knowledge. For example, in South Korea and the USA, one scientific article has been published per one thousand and 6 thousand of the population, respectively. But in Iran, this rate is one article for every 120000 of the population. In addition, studies have shown that the articles published by Iranian researchers have been of lower quality.<sup>20</sup>

The authors of the current study have suggestions to overcome the barriers to research, including strengthening the motivation of professors and students with regard to the facilities and privileges for faculty, strengthening the number of faculty members in order to reduce the number of units required to teach, strengthening management like increasing space and laboratory facilities, broadening access to information resources like high-impact papers, increasing research funding and expediting the payment, inspection at various stages of the project, and shortening the duration of approved research projects and theses.

### Conclusion

The major barricades to research, based on the students' opinions, were personal factors, organizational/administrative, equipment/facilities, and social/environmental. It should be pointed out that none of the students interviewed in the present study mentioned any factors as research opportunities.

### Conflict of Interests

Authors have no conflict of interest.

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