Research Interest Assessment Among Dental Students at King Abdulaziz University Faculty of Dentistry

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Abstract

Background: Evidence-based decision-making in dentistry is critical to modify and improve healthcare protocols. Thus, the aim of our study was to assess research interest among dental students at King Abdulaziz University, Faculty of Dentistry (KAUFD) and elucidate if they understand and appreciate the importance of Evidence-Based Dentistry (EBD) in recent dental advances.

Methods: A questionnaire was formulated and sent to dental students at KAUFDF from the academic year of 2013-2014 (n=751). The questionnaire included nine English questions. These questions were intended to assess research experience as well as understanding and appreciating EBD in the advances of dentistry. The questions also determined if the dental students at the current curriculum are publishing scientific articles within or just after their graduation from dental school. In addition, the questionnaire covered questions regarding the students’ future plans during summer vacations and after graduation. The data were analyzed using IBM SPSS version 20. The chi-square test was used to establish a relationship between categorical variables, and statistical significance was defined as p ≤ 0.05.

Results: The response rate was 68.17%. Most participants were female students (67%). About 59.7% of the participants have research experience. The majority of the participants identified the 4th year as the most appropriate time for dental students to start participating in research (44.7%). Students believed that practicing dentistry should be based on both EBD and clinical experience (73.4%); 61.6% believed that clinical experience is more important. Of all participants, 59.3% did not have scientific publications or papers in preparation for publication.

Conclusions: Knowledge and awareness of research importance in the advances of our dental field need to be emphasized for dental students at KAUFDF. The misconception that clinical experience is more important than EBD must be revised. Students should be encouraged to graduate with scientific published papers. This can strengthen their promise in future postgraduate studies and can open different career opportunities.

Keywords: KAUFDF; Research; Dental student; Dentistry

Introduction

Evidence-based decision-making in dentistry is fundamental to improvements in health care. Hence, it is considered the true standard-of-care. Implementing this concept is the goal of most dental and medical schools. This will help graduates to better understand and realize the importance of research in their daily clinical practice [1,2]. Engaging students early in research as part of their dental curriculum may confer many benefits for students in their future careers. Research experience enables students to gain personal, professional and intellectual talents including experience with teamwork, increased understanding of methodology, improved study skills, improved skills in time management, increased self-confidence, and improved communication skills [3,4]. Several studies have shown that students’ experience in research helps them to develop and improve their skills. Thiry, et al. found that students with multi-year research experience had better personalities, professionalism, and perceptive outcomes versus beginner students. In addition, experienced students had a greater understanding of the scientific research process [4]. They not only improved their intellectual skills but also the behaviors that are important to be a scientist [4]. In agreement with a previous study, Bauer and Bennett found that undergraduate students with research experience had better perceptive and personal skills and higher satisfaction with their undergraduate education versus students with no research experience [5].

Many colleges have studied their students’ awareness and behavior towards research. In United States and South Africa, students have positive opinions about the importance of research in dental education, but it is difficult to engage them in research because of their limited time as well as group work issues and poor training in research methodologies and biostatistics [6,7]. Another study conducted at Macquarie University in Australia...
reported that the students are generally aware of research importance and feel that they gain many advantages from staff involvement in research. However, they lack awareness in some areas, and are usually not actively involved in research during dental school. This can negatively affect their research skills [8].

In general, few studies have evaluated the interest of dental students to conduct research during or after dental school including Saudi Arabia. In addition, whether these students actually understand and appreciate the importance of Evidence-Based-Dentistry (EBD) practice in the advances of the field of dentistry is still poorly evaluated. Recently, a study conducted on medical students in Dammam University, Saudi Arabia, showed that most students were aware about the importance of research in their education, but they need faculty support to encourage them to get involved in research projects [9].

Therefore, the purpose of our study was to assess research interest among dental students at King Abdulaziz University, Faculty of Dentistry (KAUFD) and elucidate if they understand and appreciate the importance of EBD in dentistry. We also evaluated whether dental students can use the current curriculum to publish scientific research articles within or just after their graduation from dental school to support their future career. Results from this study will help us to improve our future dental curriculum, to better help dental students in their future career.

Methods

A questionnaire was formulated with nine main English questions (Figure 1). These questions were intended to assess research experience as well as understanding and appreciating EBD in the advances of dentistry. The questions also determined if the dental students at the current curriculum are publishing scientific articles within or just after their graduation from dental school. The questionnaire also covered questions regarding the students’ future plans during summer vacations and after graduation. The questionnaire contained the title and the purpose of the research project. It clearly explained the usefulness of their agreement to participate in the research project. All students were at least 18 years of age. A total of 751 questionnaires were distributed among dental students at KAUFD, Jeddah, Saudi Arabia. The dental students were from the second to the sixth year and internship students, from the academic year of 2013-2014. These questionnaires were distributed in classrooms just before starting some of the curriculum subjects after coordinating with faculty and departments staff, in a period of two weeks. The distribution of 30 pilot questionnaires to validate the clarity and objectives of the questions from the students’ responses was done before starting the actual study. The students that answered these pilot questionnaires were excluded. Three of the nine questions were revised, and some of the questions ordering were modified. The questionnaire constituted written consent that was approved by the research ethical committee board from KAUFD. This project was approved by the committee and was in full accordance with the World Medical Association Declaration of Helsinki.

For statistical analysis, IBM SPSS version 20 was used to analyze the results. Simple descriptive statistics were used to define characteristics of the variables using numbers and percentages for categorical variables. To establish relationships between categorical variables, the chi-square test was used, and statistical significance was characterized by \( p \leq 0.05 \).

Results

Five hundred and three questionnaires were answered with a response rate of 68.17%. Most of the participants were female students (67%); 33% were male students. More than half of the participants had research experience (59.7%) (Figure 2 A; \( p \leq 0.0001 \)). Of those, 29.6 % had experience in basic science research, whereas 12.5% and 16.5% had experience in clinical research or both, respectively (Figure 2B; Table 1). The majority of the students with research experience were internship students (94.8%) followed by 4th year students (77.4 %) (Table 1; \( p \leq 0.0001 \)).

Among students who did not have any research experience (40.3%), 52.5% were still interested in learning and participating in research during dental school; 32.2% preferred to explore that after they finish from dental school (Figure 2C). Only 15.3% had no interest in being involved in research at all (Figure 2C). The most common reasons behind not being involved in research were lack of knowledge and awareness of the importance of research in dentistry, and lack of time in our current dental curriculum (26.4% and 25.3%, respectively). In addition, some thought that more guidance was also needed from the faculty (17.2%) (Figure 2D).

The majority of the participants stated that the 4th year was the most appropriate time for dental students to become involved in research (44.7%) (Figure 3A). Our participants believed that practicing dentistry should be based on both EBD and clinical experience (73.4 %) (Figure 3B), but when it come to choosing between both, 61.6% selected clinical experience (Figure 3C).

When we asked students about summer plans and future careers, students preferred research in a dental specialty (54.4%) rather than being in the laboratory to conduct basic science research (21.1%) (Figure 4A). Most participants see themselves in clinical practice in 10 years (44.7%); the other half see themselves having a role participating in both academic and clinical practice (41.6%). Only 13.7% were interested in academia alone (Figure 4B). The majority of participants (59.3%) did not have scientific publications or papers in process for submission, however, few have published during dental school or during the internship year (12.5% and 8.7%, respectively) (Table 2).

Discussion

To our knowledge, this is the first study that was conducted to assess research interest among dental students in Saudi Arabia, and elucidate if they understand and appreciate the importance of Evidence-Based Dentistry (EBD) in recent dental advances.

Introducing research in the undergraduate dental curriculum
**Figure 1:** The distributed questionnaire included nine questions that assessed research interest and future plans among dental students at KAUFD.

Research Interest Assessment among Dental Students  
King Abdulaziz University-2013-2014

<table>
<thead>
<tr>
<th>Student name (optional):</th>
<th>M</th>
<th>F</th>
<th>Year:</th>
</tr>
</thead>
</table>

Please answer the following questions to the best of your knowledge:

1. Do you have experience conducting?
   a. Basic science research  
   b. Clinical research  
   c. Both  
   d. Others, specify________________________  
   e. None

2. If you answered (e) in Q1, are you interested to be involved in research? Otherwise if you picked one of the other choices just skip this question.
   a. Yes, sometime during dental school  
   b. Yes, after finishing my dental school  
   c. Not interested at all

3. In your opinion, whether you are interested in conducting research or not. Those that answered, “Not interested at all” in Q2. The reason for that would be: (You can select more than one answer):
   a. Lack of knowledge  
   b. Lack of awareness of the importance of research in our field  
   c. It is a waste of time to be part of the dental curriculum  
   d. There is no time during undergraduate school  
   e. Need some guidance to start with, but never find it  
   f. It would not make me a better clinician  
   g. It is difficult to understand  
   h. Faculty are not qualified enough to guide us to conduct research

4. In your opinion, which year is the most appropriate to start getting involved in research, whether you are interested in conducting research or not?
   a. Second  
   b. Third  
   c. Fourth  
   d. Fifth  
   e. Sixth  
   f. Internship

5. Do you believe that practicing dentistry should be based on:
   a. Evidence-based dentistry (EBD)  
   b. Clinical experience  
   c. Both  
   d. I do not know what EBD means

6. If your answer to Q5 was (c), but you have to choose between answers (a) or (b), which one would you pick.
   a. Evidence-based dentistry  
   b. Clinical experience

7. If you were given the chance to carry out research during summer, which area would you be interested in?
   a. In one of the dental specialties  
   b. In a lab to learn how to conduct basic science research  
   c. Others, specify________________________  
   d. I would not accept that opportunity, I just need to enjoy my summer time

8. In 10 years from now, where do you see yourself?
   a. In academia  
   b. In private practice /government clinical practice  
   c. In both
9. Do you have scientific publication(s) that was/were published or submitted for publication:
   a. Yes, during dental school
   b. Yes, during my internship
   c. No, but I have work under preparation for submission
   d. No, I have none

Table 1: Students research experience.

<table>
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<th>P-value</th>
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<td>4th</td>
<td>5th &amp; 6th</td>
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</tr>
<tr>
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<td>100.0%</td>
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</tr>
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</table>

Figure 2: Students research experience, interest, and opinion. (A) Students research experience in general, significant difference was found between the groups, p ≤0.0001. (B) Students research interest and experience in basic and clinical sciences. (C) Students interest when to start participation in research projects. (D) Students opinion on obstacles that hinder students from participating in research.

can play a vital role in students’ education and future career opportunities [4]. South African dental students recognize that research and evidence-based principles are needed in their future careers [7]. This agrees with our results. More than half of our cohort had research experience, and the majority believed that both EBD and clinical experience are important when practicing dentistry. However, unfortunately, the majority (61.6%) believed that clinical experience is more important. This information will be used and emphasized in our future-developing curriculum. Thus, students must understand and believe in the importance of EBD in the development of our dental field, and ensuring the best standards of care for our patients.

Moreover, the South African study evaluates the interest in research among students. The authors reported that most of students were interested in research after finishing dental school [7]. This is in contrast to our results where most students are engaged in research during dental school. Regarding research experience, 82% of South African dental students reported doing research during dental school. In our student population, only 59.7% had research experience. This is similar to the reported percentage among a study done on Chinese students (62%) [7,10]. While many students do research during dental school, most of the participants did not publish their work nor had work in progress for submission. This may be because most students’ research expediency in our school does not have the defined goal of publication, but rather the research experience itself.
obstacles that prevent students from getting involved with academic life for various reasons including poor study skills, insufficient self-management, language barriers, or being the first one in their families to attend a tertiary education institution. Furthermore, others believe that students are not prepared for an academic career and how research underlies patient care. The lack of interest in an academic career might be because dental students have a poor understanding of an academic career and how research underlies patient care. Furthermore, others believe that students are not prepared for academic life for various reasons including poor study skills, insufficient self-management, language barriers, or being the first one in their families to attend a tertiary education institution.

In agreement with our results, Holman et al. studied the obstacles that prevent students from getting involved with research during their dental studies in a USA setting. They found that the lack of time during undergraduate school and inadequate teaching research methodologies to guide them are the most common reasons that prevent students from conducting research. In addition to these previous reasons, Pin et al. mentioned a lack of interest in scientific research and a lack of opportunities to participate in research during dental school as the two main causes that hindered Chinese dental students from participation in scientific research during dental school studies. Grossman et al. conducted a South African study and addressed others issues such as financial problems, difficulties to create group work, and a lack of mentoring. The financial and group work problems were not addressed in our study, but mentoring seems to be one important and consistent factor.

Consequently, we need to eliminate the barriers that frustrate students and prevent them from participating in research activities during their undergraduate level. We should focus on increasing their interest in participating in scientific research and having publications before graduation. Edmunds et al. suggested many factors that could encourage undergraduate students to participate in research activities and increase their interest. First, students must understand the connection between research and clinical practice. Thus, presenting information in a way to bridge the gap between research and clinical practice is an important element that can allow students to demonstrate their understanding of what they do. They can also attend a conference or publish a paper to achieve a sense of ownership of the research project. In addition, time challenges can be overcome by offering research credit hours. Research can be introduced in classroom lectures or customized courses tailored to students in a way to bridge the gap between research and clinical practice. Thus, presenting information in a way to bridge the gap between research and clinical practice is an important element that can allow students to demonstrate their understanding of what they do. They can also attend a conference or publish a paper to achieve a sense of ownership of the research project. In addition, time challenges can be overcome by offering research credit hours. Research can be introduced in classroom lectures or customized courses tailored to students in a way to bridge the gap between research and clinical practice.

In our study, students have less support in our current curriculum to conduct research. This is due to the lack of time or resources during the current dental school curriculum. However, our dental students graduate with some research experiences without scientific published papers. Thus, to improve our current status, we recommend:

| Table 2: Students’ scientific publication status during dental school. |
|------------------------|------------------------|------------------------|
|                        | No. | Valid Percent (%) |
| Valid                  |     |                    |
| Yes, during dental school | 60  | 12.5                 |
| Yes, during my internship | 42  | 8.7                  |
| No, but I have work under preparation for submission | 94  | 19.5                 |
| No, I have none         | 285 | 59.3                 |
| Total                  | 481 | 100.0                |
| Missing                |     |                      |
| System                 | 24  |                      |
| Total                  | 505 |                      |

Publications could help these students compete in international graduate programs. Here, most students believed that it is better to start participating in a research project during their early years of dental school. We noticed a gap in experience between different years with the most experience-filled year being the internship year. This is because research projects are mandatory before graduation. Thus, integrating scientific research in the early years would be more beneficial. The majority of our participants prefer clinical fields over academia. They see themselves in private practice or government clinical practice over teaching and education. The lack of interest in an academic career might be because dental students have a poor understanding of an academic career and how research underlies patient care. Furthermore, others believe that students are not prepared for academic life for various reasons including poor study skills, insufficient self-management, language barriers, or being the first one in their families to attend a tertiary education institution.

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| System                 | 24  |                      |
| Total                  | 505 |                      |
1) Better emphasis on the importance of EBD practice and the exposure of dental students for both clinical and basic sciences research.

2) Developing strategies to implement this concept within the new developing curriculum.

3) More attention and opportunities to be given to students to get involved in research during dental school. Thus, students should publish before graduating from dental school.

Limitations of our study may include the use of manual distribution of the questionnaires. Using e-questionnaires may increase the response rate and easily facilities distributing the survey to all students in a shorter period of time without affecting the curriculum timetable. In addition, that would have helped in the statistical analysis part and prevented any missing data.

Our dental school is currently undergoing through a curriculum development stage. Results from our study, will hopefully help in the improvement of the new curriculum. One important future direction of this study will be to reassess the newly developed dental curriculum in couple of years from now, to see if we did actually improve the current status and filled our gaps.

Conclusions

Knowledge and awareness of research importance in the advances of our dental field need to be emphasized for dental students at KAUFD. The misconception that clinical experience is more important than EBD must be revised. Students should be encouraged to graduate with scientific published papers. This can strengthen their promise in future postgraduate studies and can open different career opportunities.

Acknowledgments

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Ethical approval

This project was approved by the ethical committee board from KAUFD and was in full accordance with the World Medical Association Declaration of Helsinki.

References


