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PERCEPTIONS, ATTITUDES, PRACTICES AND BARRIERS TOWARDS SCIENTIFIC RESEARCH AMONG UNDERGRADUATE DENTAL STUDENTS OF ISLAMABAD

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ABSTRACT

Objectives: *The purpose of this study was to assess the viewpoints, practices, and barriers regarding scientific research of undergraduate dental students in Islamabad.*

Materials and Methods: *The cross sectional survey was conducted in two private dental colleges of Islamabad. 225 students from second to final year BDS were invited to participate in this research by submitting responses through an online survey. A structured questionnaire that consists of demographic details, items to assess knowledge, attitudes, practices and barriers regarding research was utilized to collect the data. Chi-square statistical test was used to determine the association between research knowledge and participants' attitudes.*

Results: *There were 40.4% male and 59.6% female students. 75% of dental students have an idea about the different steps involved in the research process. A significant association was found between research knowledge and participants' attitudes by using chi-square with p value 0.000. The most important barriers to scientific research conduction were lack of time as the syllabus is overloaded (69%), limitation of resources (68%), and Inappropriate or insufficient guidance for research (60%).*

Conclusion: *This study concluded that it is essential to address all the barriers highlighted in this study that hinder the research process among dental students. Faculty, supervisors, and administration should play their role in resolving the obstacles highlighted in this study and motivate the students for scientific research. It is recommended to allot sufficient time for students to conduct research smoothly.*

Key words: *Scientific research, knowledge, attitudes, Practices, barriers, dental students*

INTRODUCTION

Research is a systematic method that helps to obtain new knowledge, invention or science by using standard guidelines[1]. Healthcare research is vital to diagnose and treat diseases and preservation of oral and general health. It is taken as an important capability and one of the substantial fields in the healthcare course outline in dental and medical education[2-4]. Healthcare providers must have sufficient knowledge and expertise for scientific research[5,6] for optimum practice and delivery of excellent healthcare services[7]. It is evident that involvement of students of medical and dental college in research would help them to enhance their research expertise, as a result improve the patients' care[8]. It is proposed that initial exposure to research can be taken as a natural catalytic agent in forming a solid base for medical and dental education[9]. Health care practitioners should be provided ample research training during their undergraduate studies to upgrade their reasoning skills, critical reflection and responsiveness[10].

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Funston et al[11] collected data from 38 countries. He concluded that from 1625 responses, less than half of medical students believed that their medical schools are providing chances to participate in research. In India, even there are more than 300 dental schools, dental research is in its initial phases[12]. Undergraduate participation in research is relatively less due to their lengthy syllabus, lack of understanding of research methodology, and insufficient time. When these students join their post-graduation courses, their ability in writing a proposal is unreasonable[10]. Active participation in scientific research ensures that students will presumably complete their training, become faculty members, and also participate in future research[13]. However, previous data showed that there are still many hurdles for students to engage in research effectively[14].

Literature review showed that there was limited data on medical and dental students of Pakistan especially in twin cities related to attitudes, practices, and barriers toward medical research. At undergraduate level, there is little focus on research due to extensive curriculum and busy clinical rotations in medical and dental colleges of Pakistan. So, the objective of this study was to evaluate view point, practices and barriers regarding scientific research of undergraduate dental students in Islamabad.

MATERIALS AND METHODS

A cross sectional survey was conducted in two private dental colleges in Islamabad. This study was approved by the ERB (Ethical Review Board) of HBS Medical and Dental College. Permission for data collection was taken from administration of both dental colleges. Students from second to final year BDS were invited to participate in this research by submitting responses through an online survey. The involvement of participants in this study was voluntary. Those who provided consent were part of this study. The questionnaire was shared with students of both colleges via link in their official WhatsApp groups for online submission.

The sample size was calculated by using OpenEpi. The prevalence rate was taken at 20% with 95% CI (confidence interval)[15]. The sample size was 225. Convenient sampling technique was utilized to get the data. A structured questionnaire was used to collect the data that was adapted from a published study[16]. This questionnaire was pretested to check its validity in a similar setting. The reliability of the questionnaire was checked by using Cronbach's alpha. The value of Cronbach's alpha was 0.785. The questionnaire consists of demographic details, items to assess knowledge, attitudes and practices regarding research. The last part of questionnaire has items to assess research barriers. Each research barrier item was scored as follows: 1= strongly agree; 2= agree; 3= neutral; 4= disagree; 5= strongly disagree. IBM SPSS "version 22" was applied for data analysis. Summary statistics for continuous variables and percentage and frequency was computed for categorical variables. Chi-square statistical test was used to find the association of research Knowledge of participants with their attitudes.

RESULT

Table1 shows that there were 40.4% males and 59.6% females. Most of the participants belong to the "20-22years" age group. 2nd year students were dominant to participate in this study. The reason may be research methodology is a part of 2nd year BDS curriculum.

Table 2 given below shows knowledge of participants towards research on Likert scale, where response options were as follow: 1= Yes, 2 =No, 3=Do not Know. 75% dental students have idea about different steps involved in research process. 88% responded that research has a role in enhancing career prospects.

Table 3 given below shows the attitudes of dental students towards scientific research. When it was asked by the students that studying scientific research method should be obligatory in undergraduate years, 60% were willing with this statement. 69% of the study participants agreed that conducting scientific research improves the chance for post graduate programs. Approximately 72% participants were willing to take part in scientific research.

The association of knowledge about scientific research to participants' attitudes was obtained by using statistical test "Chi square". Cross tabulation was done of knowledge to attitudes as shown in below Table 4. The Chi-Square statistic was estimated and it was compared against the critical value from the Chi square distribution. The computed p value was "0.00", that was below than 0.05(alpha level with 95% CI). It was concluded that a statistical

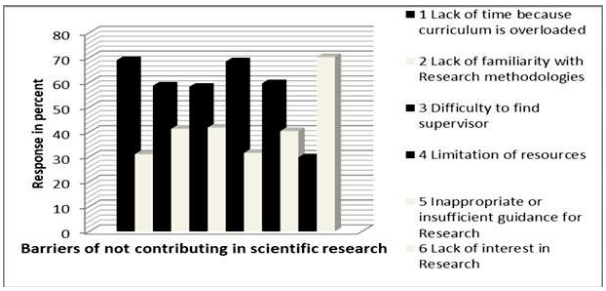

Fig 2: Barriers of not participating in scientific research

Table 1: Characteristics of the study population (n=225)

Variables		n (%)
Gender	Male	91(40.4)
	Female	134(59.6)
Age (Yrs.)	17-19	26(11.6)
	20-22	167(74.2)
	23-25	32(14.2)
Year in Dental School	2nd	135(60.0)
	3rd	46(20.4)
	4th	44(19.6)

Table 2: Perceptions & knowledge of dental students regarding scientific research on Likert scale

Items	Mean ±SD	Q-(25-75) th	Freq.(%) (1, 2, 3)
I have idea about different steps involved in research process.	1.32±0.592	(1-3)	(75.1, 18.2, 6.7)
I know that what is a hypothesis in scientific research	1.20±0.503	(1-3)	(84.0, 11.6, 4.4)
I have knowledge about sampling methods in research.	1.50±0.682	(1-3)	(60.4, 28.9, 10.7)
I believe that research enhances knowledge.	1.06±0.307	(1-3)	(95.6, 2.7, 1.8)
In my opinion, research has a role in enhancing career prospects.	1.20±0.557	(1-3)	(88.0, 4.4, 7.6)
I believe that research enhances critical thinking.	1.16±0.519	(1-3)	(90.7, 2.7, 6.7)

Note: Table 2 shows the contents about perceptions of dental students regarding scientific research. The particular columns are Mean±SD displays the data central tendency & spread, Q indicates the location while the responses are given in percentage. Response options on Likert scale were as: 1= Yes, 2 =No, 3=Do not Know

Table 3: General and personal attitudes of dental students regarding scientific research

Items	Mean ±SD	Freq. (%) (1,2,3,4,5)
1. Do you think that scientific research is necessary for improving health care using evidence-based processes?	2.15±1.078	29.3, 41.8, 20.9, 0.9, 7.1
2. Do you think that studying scientific research method should be obligatory in undergraduate years?	2.34±0.992	19.6, 40.4, 30.7, 4.9, 4.4
3. Do you think that undergraduate students should contribute in scientific research?	2.08±0.920	25.3, 51.6, 16.9, 2.7, 3.6
4. Do you believe that conducting scientific research is difficult?	2.27±0.857	16.4, 48.4, 28.4, 4.9, 1.8
5. Do you agree that research is useful for future dental profession in general?	1.91±0.894	34.7, 47.6, 12.9, 2.2, 2.7
6. Do you believe that scientific research conduction secures better chance for taking post graduate programs?	2.14±0.929	25.3, 44.0, 24.4, 3.6, 2.7
7. I want to participate in scientific research.	2.08±0.951	28.4, 44.9, 20.0, 3.6, 3.1
8. I am interested to attend lectures about scientific research.	2.16±1.046	30.7, 35.1, 25.3, 4.9, 4.0

Note : The table 3 represents the contents related to attitudes of dental students regarding scientific research. The corresponding columns are Mean±SD indicates the data central tendency & spread. The Participants' response is given in percentage. Response options on Likert scale were as follow: 1= Strongly agree, 2=Agree, 3=Neutral, 4=Disagree, 5=Strongly disagree

Table 4: Cross tabulation -Knowledge*Attitudes regarding research

		Attitudes		Total	P value
		Positive	Negative		
Knowledge	Good	155	40	195	0.000
	Bad	15	15	30	
Total		170	55	225	

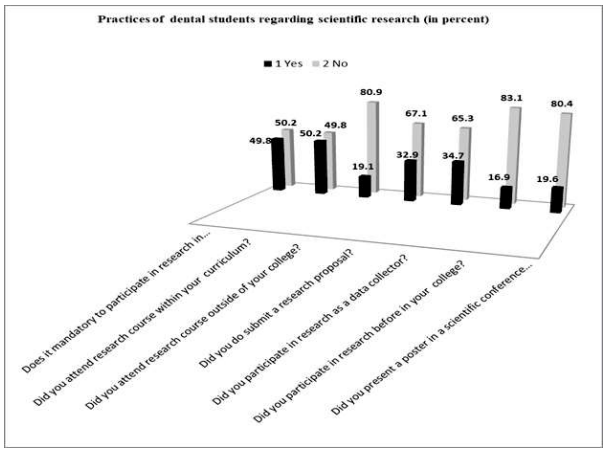

Fig 1: Practices of dental students regarding scientific research (response in percentage)

relationship is present between research knowledge of participants and their attitudes regarding this. Both variables are dependent of each other.

Figure 2 represents the barriers which contribute in the research conduction. The most important hurdles in the scientific research conduction were lack of time as curriculum is overloaded (69%), limitation of resources (68%) and Inappropriate or insufficient guidance for research (60%). When it was asked from study participants that lack of interest in research could be a possible barrier in research conduction, 70% participants were disagree with this.

DISCUSSION

It is evident that involvement of students in research would help them to increase their research expertise, as a result improve the patients' care[17]. A sufficient level of knowledge, positive attitude, and reasonable skills contribute positively in conducting research[18]. The purpose of this research was to evaluate view point, practices and barriers regarding scientific research of undergraduate dental students of Islamabad. In the present study, 84% students had knowledge of research hypothesis. These findings are inconsistent to a study[19] by Aisha Wali which showed 35% knowledge regarding hypothesis. Another study reported that 29% of students had idea of hypothesis[20]. Our present study indicated that 75% of dental students showed positive attitudes towards scientific research. This finding is consistent to a study conducted in Taibah College of Medicine, Saudi Arabia by Noorelahi at el[16]. Another study by Vujaklija et al described the similar results[21].

This present study showed good research knowledge and positive attitudes among dental students. A significant relationship was present between research knowledge and attitudes among dental students with a p value 0.000. But the percentage of research practices of study participants was low. This study also discovered the barriers present in the conduction of research. The most important obstacles in this way were lack of time as curriculum is overloaded (69%), limitation of resources (68%) and Inappropriate or insufficient guidance for Research (60%). Another study[16] revealed the following barriers as deficient time (89%),stress associated with work(83.2%), and shortage of supervisors (73.3%). Another research done by Alsaleem SA et al. showed lack of reward and/or motivation (65%) as a barrier in research conduction[22].

It is very important to motivate the undergraduate students to create positive perceptions regarding scientific research and try to remove any obstacle that may stop the involvement of dental students in research. Lack of funding[23] is also an important barrier as researchers do not have enough funds to publish their research in journals with high impact factor. There is evidence that increasing the job pays, research funding and incentives for medical and dental students is the current need to increase the research culture[24,25]. A research conducted in Tanta University[26] concluded that incorporation of research training into the curriculum may aid to improve understanding and participation in scientific research.

CONCLUSION

This study concluded that it is essential to address all the barriers highlighted in this study that hinder the research process among dental students. Faculty, supervisors and administration should play their role to resolve these issues and motivate and encourage the students for scientific research. This study showed that lectures on research had positive impact on the attitudes of students.

LIMITATION & RECOMMENDATION

This study was conducted in only 2 dental colleges of Islamabad so results cannot be generalized to all undergraduate dental students in Islamabad. Secondly this research did not investigate the perceptions and viewpoint of faculty members that may provide added information regarding facilitators and

barriers of scientific research. A multicenter design would be the recommendation for future research. It is also recommended to arrange the research course by vertical integration of BDS curriculum. It is suggested to allot the sufficient time for students to conduct their research smoothly.

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