

# Knowledge, Attitude and Practice Related to Pursuing Research among Fresh Dental Graduates in Karachi, Pakistan

Waqas Yousuf<sup>1</sup>, Mehmood Hussain<sup>1</sup>, Syed Imran Hasan<sup>1</sup>, Syed Abrar Ali<sup>2</sup>, Syed Murtaza Raza Kazmi<sup>3</sup>, Sameer Quraeshi<sup>3</sup>

Department of Prosthodontics<sup>1</sup>, Department of Operatives<sup>2</sup>, Hamdard University Dental Hospital, Fatima Jinnah Dental College & Hospital<sup>3</sup>, Karachi.

## Abstract

**Objective:** To assess the knowledge, attitude and practice of fresh dental graduates of Karachi regarding pursuing research.

**Study type, settings & duration:** A cross sectional study conducted at six randomly selected dental colleges from 10 dental Colleges (4 Government and 6 Private) in the city during three months.

**Methodology:** After taking informed written consent 150 participants were enrolled. A predesigned questionnaire was filled. Questionnaire comprised of three parts; first part composed of demographic details, second part comprised of questions to assess the knowledge about research while the third part comprised of questions to evaluate the practices of dental students regarding research.

**Results:** Out of 150 study participants 112 (74.7%) expressed a desire to conduct research in future, 22 (14.7%) were not interested, whereas, 16 (10.7%) were uncertain about carrying out research work in future. Females were found more motivated to conduct research in their future as compared to male study participants. One hundred and three (68.7%) participants did not know how to write a research proposal, whereas, 47 (31.3%) claimed to know about writing a research proposal. A large majority i.e. 69 (46%) participants reported both institutional and personal obstacles preventing them from pursuing research, 43 (28.7%) respondents reported institutional barriers, whereas, 38 (25.3%) participants reported personal reasons to be the major obstacles in conducting research.

**Conclusion:** Although, a high percentage of the participants expressed their desire for carrying out research but due to inadequate knowledge regarding research methodology and lack of supervision, desired results could not be achieved. Significant efforts need to be made to improve the research culture in the institutions so as to facilitate students and fresh graduates in conducting research.

**Key words:** Research, knowledge, attitude, practice, dental, students, Karachi, Pakistan.

## Introduction

Research is one of the most important determinants of quality education in the modern teaching system. It establishes the trail

through which students can interpret their ideas, thoughts and skills into inventions and discoveries, establishing new facts and conclusions. Progress of any society in terms of economic,<sup>1</sup> technologic and intellectual aspects are heavily influenced by these factors, thus research is being measured as the most worthy asset in the modern world of education.<sup>2</sup>

Research on health related activities is crucial to achieve excellence in terms of both addressing local health problems along with enhancing public health services.<sup>1</sup> Therefore, participation in research activity has an integral weightage in the modern educational system.

Unfortunately, in Pakistan, negligent attitude towards research is also observed in medical schools which has obstructed our progress in the field of medicine.<sup>3</sup> This lackluster approach towards

### Corresponding Author:

Waqas Yousuf

Department of Prosthodontics  
Hamdard University Dental Hospital, Karachi.  
Email: [waqas.yousuf@hotmail.com](mailto:waqas.yousuf@hotmail.com)

**Received:** 14 March 2019, **Accepted:** 13 January 2020,  
**Published:** 30 January 2020

### Authors Contribution

WY, MH, SIH, SAA, SMRK & SQ conceptualized the project and drafting, revision & writing of manuscript. WY, MH, SMRK & SQ did the data collection and statistical analysis. Statistical analysis was done by WY, MH, SIH & SAA.

research is also dominant at the post graduate level. This is evident by the fact that hardly any post graduate program provides an organized curriculum and supports in providing the resources needed to support research.<sup>4</sup> Various factors can be attributed to this lackluster approach towards research in Pakistan.<sup>5,6</sup> It is therefore, imperative not only to determine the leading factors hindering the students in conducting research work but also to establish the mindset of the fresh graduates regarding this important aspect of education in this part of the world.

Numerous studies have been conducted to determine the motivational level and difficulties faced by medical students in pursuing research work.<sup>6-8</sup> However, little work has been done on dental students in Pakistan. The present study was aimed to assess the knowledge, attitude and practice related to pursuing research specifically among dental students in Karachi, Pakistan.

## Methodology

A cross sectional study was conducted at six randomly selected dental colleges from 10 dental Colleges (4 Government and 6 Private) in the city during three months.

A total of 150 dental house officers (fresh graduates) were included in this study. Sample size was calculated using WHO calculator by using formula;

$$n = \frac{Z^2 \cdot \alpha / sP(1-P)}{d^2}$$

Simple random sampling technique was used. Both male and female dental house officers (fresh graduates) aged between 22 to 26 years working in six teaching dental institutions in Karachi, Pakistan were included in the study. Undergraduate dental students were excluded from the study.

There went over 400 dental house officers working in different institutions in Karachi, Pakistan. After taking informed written consent 150 participants fulfilling the inclusion criteria were enrolled in the study. All the participants were asked to fill a self-administered questionnaire. The questions included in this survey were devised from different previous studies<sup>9-11</sup> and were modified. The questionnaire comprised of three parts; the first part consisted of questions regarding demographic information, the second part aimed to assess the knowledge and attitude of fresh dental graduates while third part comprised of questions designed to evaluate practice and obstacles faced by dental students in pursuing research. Research assistant

approached the recruited participants and given the questionnaire to the study participants and waited till filled up on site.

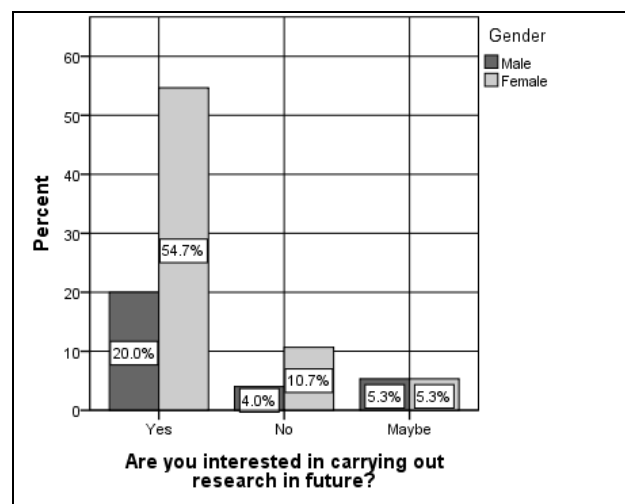
Data was entered and analyzed using Statistical Package for Social Sciences (SPSS) Version 21. Mean and standard deviation were calculated for quantitative (age, etc) variables. Frequency and percentages were calculated for qualitative (gender, etc) variables.

Ethical approval was taken from Institutional Ethical Review Committee.

## Results

A total of one hundred and fifty (n=150) participants from various dental colleges in Karachi, Pakistan were included in this study. Out of them, 106 (70.7%) were females and 44 (29.3%) were males. The mean age of the participants was  $22.9 \pm 0.8$  years. In males, the mean age was  $23.0 \pm 0.8$  years while in females the mean age was  $22.9 \pm 0.8$  years.

The questions aimed to assess the attitude of fresh dental graduates towards research revealed following results;

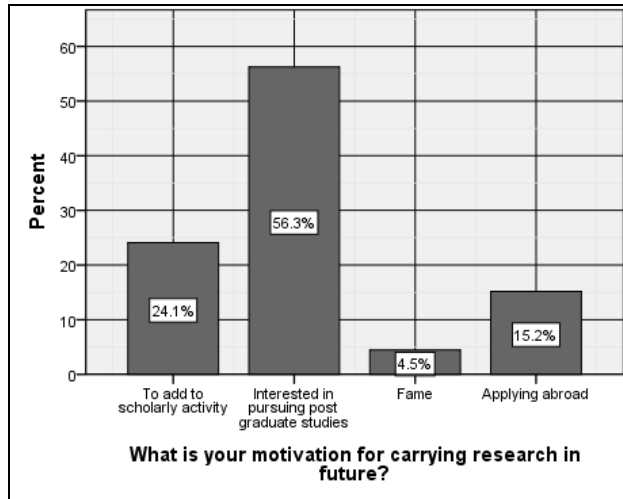


**Figure 1: Frequency of fresh dental graduates interested in carrying out research work in future.**

Analysis of the attitude variables revealed that out of 150 study participants, 99 (66.0%) were never engaged in research work in any capacity in past, whereas, 51 (34.0%) claimed to be involved in research work in past. However, a large majority, 112 (74.7%) participants expressed a desire to conduct research projects in future, 22 (14.7%) were not interested, whereas, 16 (10.7%) showed ambiguity as to carrying research work in future (Figure-1). Females were found to be more

motivated for carrying out research activity in future as compared to their male counterparts.

Among those expressing a desire to conduct research work in future, 63 (56.3%) participants wanted to conduct research work to help them enter into a post graduate program, whereas, 27 (24.1%) were interested to add the research work as a scholarly activity (Figure-2).



**Figure 2: Motivation for carrying out research work in future among fresh dental graduates of Karachi.**

On a question regarding reading a scientific paper, 97 (64.7%) participants had read at least one scientific paper whereas, 53 (35.3%) never read a scientific paper ever in their career.

When asked about the most frequently used search engine, 89 (59.3%) participants claimed google scholar as their prime search engine, whereas, 10 (6.7%) participants never searched for a scientific article.

On a question regarding the best time to be engaged in research activity, 84 (56.0%) participants stated house job (one year clinical internship) be the best time for carrying out research work (Table-1). However, upon further inquiry whether research should be made compulsory during one year house job (clinical internship), 98 (65.3%) participants answered in the affirmative.

In depth analysis of knowledge questions revealed that large majority, 103 (68.7%) participants did not know how to write a research proposal, whereas, 47 (31.3%) claimed as aware of writing a research proposal. On a question regarding seeking permission from ethical review committee for carrying out research activity, 60 (40.0%) participants believed that ethical approval is mandatory before commencing a research project,

whereas, 14.0% assumed that ethical approval is not a requirement for conducting a research project.

**Table 1: Attitude of dental fresh graduates towards research.**

		(n)	(%)
Have you ever been involved in research work in past?	Yes	99	66.0
	No	51	34.0
	Total (n)	150	100.0
Have you ever read a scientific paper?	Yes	97	64.7
	No	53	35.3
	Total (n)	150	100.0
How important do you think research is as a part of your dental education?	Not important	04	2.7
	Slightly important	21	14.0
	Moderately important	56	37.3
	Very important	69	46.0
	Total (n)	150	100.0
Are you interested in carrying out research work in future?	Yes	112	74.7
	No	22	14.7
	Maybe	16	10.6
	Total (n)	150	100.0
What is the best time to be engaged in research work?	During four year BDS program	41	27.3
	During one year of house job	84	56.0
	During post graduate studies	25	16.7
	Total (n)	150	100.0

Out of the total sample, 87 (58.0%) participants claimed to be aware of the basic study designs, whereas, 63 (42.0%) were found unaware. When asked about calculating sample size, 104 (69.3%) participants were not aware of sample size calculation, whereas, 46 (30.7%) stated that they know how to calculate the sample size. Similarly, 98 (65.3%) participants were not familiar with data analysis softwares, whereas, 52 (34.7%) confirmed their familiarity with different data analysis softwares. Likewise, 88 (58.7%) participants did not know how to develop a questionnaire, whereas, 62 (41.3%) confirmed their inability to formulate a questionnaire. Upon further inquiry, 36 (24.0%) participants confirmed their ability to perform descriptive statistics, whereas, 116 (76.0%) were not aware of how to do descriptive statistics (Table-2).

Analysis regarding obstacles to undertake research revealed 69 (46%) participants reported both i.e. institutional and personal obstacles preventing them from pursuing research. Forty three (28.7%) respondents reported institutional barriers, whereas, 38 (25.3%) participants reported personal obstacles to be the major impediment in conducting research.

**Table 2: Knowledge of fresh dental graduates regarding research.**

		(n)	(%)
Do you have an experience of writing a research proposal?	Yes	47	31.3
	No	103	68.7
	Total (n)	150	100.0
Do you have a basic idea of different study designs?	Yes	87	58.0
	No	63	42.0
	Total (n)	150	100.0
Is the approval by the institutional ethical review committee required for conducting research work?	Yes for all studies	60	40.0
	Yes for specific studies	69	46.0
	Not required	21	14.0
	Total (n)	150	100.0
Do you know how sample size is calculated?	Yes	104	69.3
	No	46	30.7
	Total (n)	150	100.0
Do you know how are questionnaires developed?	Yes	88	58.7
	No	62	41.3
	Total (n)	150	100.0
Do you know how to use different software(s) for data analysis?	Yes	98	65.3
	No	52	34.7
	Total (n)	150	100.0
Do you know how to perform descriptive statistics of the data?	Yes	36	24.0
	No	114	76.0
	Total (n)	150	100.0
Do you know what indexed journals are?	Yes	28	18.7
	No	122	81.3
	Total (n)	150	100.0

**Table 3: Obstacles faced by fresh dental graduates to undertake research.**

		(n)	(%)
What according to you is the biggest obstacle which prevents you from doing research?	Institutional obstacles	43	28.7
	Personal obstacles	38	25.3
	Both	69	46.0
	Total (n)	150	100.0
Institutional obstacles	Lack of interest by faculty	15	13.4
	Lack of research curriculum	52	46.4
	Inadequate mentors/supervisors	21	18.8
	Lack of financial support	17	15.2
	Lack of time	07	6.3
	Total (n)	112	100.0
Personal obstacles	Lack of interest	14	13.1
	Busy schedule in house job	47	43.9
	Lack of research knowledge	15	14.0
	Busy schedule plus lack of knowledge	33	29.0
	Total (n)	107	100.0

Amongst the institutional barriers, majority of the respondents 52 (46.4%) considered lack of

research curriculum as the major barrier in conducting research, whereas, amongst the personal barriers, 47 (43.9%) participants considered busy house job schedule to be the major barrier to pursue research (Table-3).

## Discussion

A positive attitude of dental students towards research is a prerequisite for achieving excellence in the world of modern dentistry. Attitude towards research assessed in the present study demonstrated that there is a high level of motivation among fresh dental graduates for carrying out research activity which is evident that around 74.7% of the fresh graduates were interested to participate in research work in future. A similar trend was observed in a study conducted in three different Arab universities by Amin TT et al<sup>12</sup> where 69% of the medical students showing willingness for carryout research activity. A study conducted in India also revealed the similar findings showing 70.7% of the medical students expressing a desire to attend workshops on research methodology.<sup>13</sup>

Alarming, only 34% of the participants were involved in research activity in any capacity in the past. This negligence towards research demonstrated in present study is in accordance to various other studies conducted in this region of the world as Student's and fresh graduates contribution to research in the past is 12% and 39.7% in India and Saudi Arabia respectively.<sup>12,14</sup> Similar statistics were also observed by Khan et al who reported 26.9% of the post graduate medical students having previous research experience in a study conducted in Pakistan.<sup>15</sup> The low level of participation in research work in this region can be attributed to various factors such as; lack of research culture and curriculum, busy schedule in house job, lack of research knowledge and supportive supervisors etc.

The present study demonstrated that entrance into a post graduate program (56.3%) was among the most admired reason for pursuing research activity. Similar motivational factor was also observed in a study by Raza et al reporting 40.7% of the participants pursuing research to help facilitate their acceptance to residency program in their respective study area.<sup>16</sup> Similar statistics were also reported by Siemens et al showing 43% of the respondents participated in research work to help facilitate them into a residency program of choice. On the contrary, Al Ghamdhi KM et al in a study conducted in Saudi Arabia reported that 82.9% of the respondents participated in research work to help facilitate into a residency program.

In the present study, 65.3% of the participants were in favor of including research as a mandatory component during one year clinical internship (house job). The results are in concordance to other studies conducted in India,<sup>14</sup> Saudi Arabia<sup>17</sup> and Pakistan<sup>18</sup> showing majority of students supporting the suggestion of including research as a mandatory component of medical curriculum.

Adequate knowledge of research methodology has a direct influence on student's ability to conduct research activity. Alarming, a large majority (68.7%) of the participants in the current study were incapable of writing a research proposal. Similar statistics were observed by Jeelani et al. who reported 57.1% of the participants unable of planning, conducting and writing a research article in a study conducted on medical and dental students in Pakistan.<sup>19</sup> Likewise, Raza et al. also demonstrated similar statistics i.e. 49.4% of the students claiming inadequate training in research methodology in a study conducted on medical students at Rehman medical college, Peshawar, Pakistan.<sup>16</sup>

In the present study, majority (46.4%) of the participants considered lack of research curriculum as a major factor preventing students from pursuing research. The barriers to conducting research varied widely in different studies conducted in this region of the world. Al-Ghamdi et al. reported lack of professional supervisor as the major barrier in conducting research whereas lack of financial support was reported as a leading barrier by Nour et al in studies conducted on medical students in Saudi Arabia.<sup>17,20</sup> Lack of time was considered as the main factor preventing students from pursuing research in Indian population.<sup>14</sup>

Significant efforts need to be made to improve the research curriculum to help and facilitate students in conducting research activity. Although, a high percentage of the participants expressed a desire for carrying out research projects but due to inadequate knowledge regarding research methodology and lack of supervision, desired results could not be achieved.

**Conflict of interest:** None declared.

## References

1. Salazar CR, Celedon JC. The Importance of Biomedical Research. *Revista Sociedad Colombiana de Oftalmología* 2018; 47(3): 198-201.
2. Nass SJ, Levit LA, Gostin LO. The value, importance, and oversight of health research. *Beyond the HIPAA privacy rule: enhancing privacy, improving health*

- through research: National Academies Press (US), 2009.
3. Saeed I, Khan NF, Bari A, Khan RA. Factors contributing to the lack of interest in research activities among postgraduate medical students. *Pak J Med Sci* 2018; 34(4): 913.
4. Levine RB, Hebert RS, Wright SM. Resident research and scholarly activity in internal medicine residency training programs. *J Gen Int Med* 2005; 20(2): 155-9.
5. Qadeer AA, ul Haque MI, Hassan U, Kashif RS. Knowledge and attitude of medical students towards research at rawal institute of health sciences. *P J Pub Health*. 2018; 8(1): 8-12.
6. Sabzwari S, Kauser S, Khuwaja AK. Experiences, attitudes and barriers towards research amongst junior faculty of Pakistani medical universities. *BMC Med Edu* 2009; 9(1): 68.
7. Jeelani W, Aslam SM, Elahi A. Current trends in undergraduate medical and dental research: a picture from Pakistan. *J Ayub Med Coll Abbottabad* 2014; 26(2): 162-6.
8. Haseeb A, Bilal M, Ansari MA, Raheem A, Khan A, Arshad MH, et al. Impact of mode of curriculum on knowledge and attitudes of medical students towards health research. *J Clin Diag Res JCDR* 2016; 10(4): LC15.
9. Al-Shalawy FAN, Haleem A. Knowledge, attitudes and perceived barriers towards scientific research among undergraduate health sciences students in the Central Province of Saudi Arabia. *Edu Med J* 2015; 7(1): e16-21.
10. Memarpour M, Fard AP, Ghasemi R. Evaluation of attitude to, knowledge of and barriers toward research among medical science students. *Asia Pacific Fam Med*. 2015; 14(1): 1.
11. Choo TL, Pung C. Attitudes, barriers and facilitators to the conduct of research in government hospitals: a cross-sectional study among specialists in government hospitals, northern states of Malaysia. *Med J Malaysia* 2017; 72(1): 27.
12. Amin TT, Kaliyadan F, Qattan EAA, Majed MHA, Khanjaf HSA, Mirza M. Knowledge, attitudes and barriers related to participation of medical students in research in three Arab Universities. *Edu Med J* 2012; 4(1): e43-56.
13. Giri PA, Bangal VB, Phalke DB. Knowledge, attitude and practices towards medical research amongst the postgraduate students of Pravara Institute of Medical Sciences University of Central India. *J Fam Med Prim Care* 2014; 3(1): 22.
14. Gupta M, Kasulkar A. Awareness of research among dental students in Central India. *J Evol Med Dent Sci* 2014; 3: 6923-7.
15. Khan H, Khawaja MR, Waheed A, Rauf MA, Fatmi Z. Knowledge and attitudes about health research amongst a group of Pakistani medical students. *BMC Med Edu* 2006; 6(1): 54.
16. Raza F, Nisa Q. Perception, attitudes and barriers in undergraduate medical students toward medical research at rehman medical college, Peshawar, Pakistan. *Khyber Med Uni J* 2017; 9(3): 146-9.

17. AlGhamdi KM, Moussa NA, AlEssa DS, AlOthimeen N, Al-Saud AS. Perceptions, attitudes and practices toward research among senior medical students. *Saudi Pharma J* 2014; 22(2): 113-7.
  18. Meraj L, Gul N, Zubaidazain IA, Iram F, Khan AS. Perceptions and attitudes towards research amongst medical students at Shifa College of Medicine. *JPMA* 2016; 66(2): 165-9.
  19. Jeelani W, Aslam SM, Shah I, Ahmed U, Khokhar M, Bhatti MA. Medical and dental research at undergraduate level: evaluation of opportunities and barriers. *Pak Armed Forces Med J* 2012; 63: 573-7.
  20. Nour MO, Natto HA, Bara'ah SF, Almghrabi NA, Alqurashi AA, Alaiafi AA, et al. Participation of Health Colleges' Students in Research at Umm Al-Qura University, Saudi Arabia: A Cross-Sectional Study. *Imp J Interdiscip Res* 2016; 3(1): 429-35.
-