

Research Attitude among Fresh Dental Graduates: A Survey to Determine Existing Facilities and Barriers in Research in Lahore Pakistan

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Abstract

Objectives: This study involves the preliminary evaluation of the attitude, knowledge, barriers towards and existing facilities present in doing research among the fresh dental graduates of Lahore Pakistan.

Methodology: The research protocol for this cross-sectional study was approved by the Institutional Review Board of de' Montmorency College of Dentistry Lahore. Total 241 students were enrolled in the study through simple random probability sampling from two dental institutes and the duration of this study was April 2018 to May 2019. The subjects included in this study were fresh Dental graduate and postgraduate students within the 5 years of their graduation of both Government and private dental schools of Lahore Pakistan. A self-structured questionnaire was used for this study. The individual Proforma consisted of Demographic information, attitude toward Dental research and barriers toward dental research in local settings. Each question has three option, Yes, No and Don't know. Written and verbal consent was taken from each respondent before data collection. All participants were assured that their responses would remain secret. Data was entered into SPSS 20. Statistical analysis was performed in the form of frequency and percentage. Chi-square of the association was done and p-value < 0.05 was taken as significant.

Results: Total 73% were female, 64.7% respondents were from private dental institutes, 81.7% were postgraduate students, 53.9% never did any research, 73.8 were demanding of research in under-graduation, 73.8 were demanding of research in under-graduation, 78% argued for the availability of biostatistician in dental institutes and 87% believed that supervisor can encourage them for research in dentistry. Barriers highlighted in this study include lack of training in research 93.4%, lack of funding/ financial incentives for research 88.8%, the lack of concept of research/ lack of importance of research 88.0%, lack of mentorship/guidance and reduced effectiveness of research 84.6%, lack of interdisciplinary teamwork 77.6%, and lack of conducive environment 74.7% in the dental schools of Lahore Pakistan. Research motivators for the fresh dental graduates include admission in post-graduation 78.4%, central induction policy 72.6%, interest in academia 76.8%, a requirement for admission in foreign universities 77.2%, a good career option 83.4%, and the future benefit of patients 77.2%.

Conclusions: Barriers reported in this study need to be addressed by the universities, Pakistan Medical and Dental Council and Government of Punjab for central induction policy. Implementation of the central induction policy is a good step taken by the Government of Punjab however there is a need to facilitate research by providing essential ingredients of research such as supervisors, biostatistician, and funding.

Keywords: Attitude; Knowledge; Practices; Oral Health Research; Barriers

Introduction

Research is a creative work done on systemic basis, with the purpose to increase knowledge, science or invention using the standard methods [1]. Research in the Health sector has an important influence on the diagnosis, prevention, treatment of diseases and on devising health care programs policy [2]. Lack of attention to research by the government and medical educational regulatory bodies of the community may result in the knowledge and scientific lag within the national community but also in the world at large [3]. The three main factors seen to have a significant influence on research success in literature are: attitude, knowledge and barriers in doing research [4-13]. Some authors have explored the attitude of medical students toward research [4,6,8-11,14].

Suitable knowledge of the research principles and the study subject are preliminary requirements for any study. Despite inadequate knowledge of research process, medical students are still interested to do research in the future as reported by previous studies [5,9]. A few of the studies have undertaken the potential barriers in doing research among under and post-grad dental trainees which include lack of knowledge of study design or interpretation of study results, lack of training in research [8,15], lack of appropriate guidance/mentorship [6-8], lack of time [6-8,10,12,13] and funds [6-8], lack of self-confidence [10,13,14], lack of interest and inadequate access to internet, lack of materials and equipment [5], heavy workload/excessive patient load, lack of structured curriculum, technical support and research office/coordination are significant barriers in publishing research [13]. Alongside research design, research ethics, navigating institutional review board (IRB) process, biostatistics, literature searching and research writing also significantly affect the publications [13]. Few researchers in Pakistan have also determined barriers in the research by the medical students such as lack of time, training, statistical support, mentorship/supervisors and financial incentives [6-8].

In India, a study reported some of the barriers among dental graduates such as lack of training for research among graduates, site and fee of publication, workload (lack of human resources) in public settings, lack of technical support, and authorship by the supervisors [16]. Surely there are some uncharted barriers for the advancement in dental science and publications in Pakistan. If these barriers are identified it will be helpful to improve the system and lay the foundation for the expansion of dental science [8].

Aim of the Study

This study aims is to evaluate attitude, knowledge and barriers towards research faced by fresh dental students of Lahore, Pakistan. The results of this study will be used as basis of recommendations and a strategy to improve research among the dental students of Lahore Pakistan.

Methods

The research protocol for this cross-sectional study was submitted to the Human Ethics Review Committee of the Faculty of de' Montmorency College of Dentistry Lahore. Following approval from the Committee, 241 students were enrolled in the study through probability sampling (simple random) from April 2018 to May 2019. The subjects included in this study were house officers and postgraduate residents. Only those resident were included who have graduated in last five years. Two dental institutes were taken in this study, from Government sector de' Montmorency college of dentistry and from private sector Lahore Medical and Dental College. Exclusion criteria for the study included: unwillingness to participate in the survey, undergraduate students and postgraduate students of more than 5 years of the graduation of their course and any responses where no more than three questions were answered. A self-structured questionnaire was used for this study. The questions included in the questionnaire were obtained on the basis of a comprehensive literature review [8-10,12]. The questionnaire included three main sections to evaluate student views on attitudes to dental research, knowledge of research parameters and barriers towards dental research in local settings. The questionnaire was distributed among the dental students by the

principal investigator who explained the aim of the study, and those students who showed an interest in participating were included. Participants had right to quit during data collection. The individual proforma consist of demographic information such as; age, gender, Graduating Institute, Years since graduation and enrollment in any post-graduation. The second part of the questionnaire was the attitude towards dental research, which was assessed by 19 questions. Last part of the questionnaire was barriers toward dental research in local settings. Each question has three option, Yes, No and Don't know. The postgraduate student includes all the students within 5 years of graduation including MDS, FCPS and M. Phil trainees in different fields of dentistry. All participants were assured that their responses would remain secret. Data was entered into SPSS 20. Statistical analysis was performed in the form of frequency and percentage. Chi-square of the association was done and p-value < 0.05 was taken as significant.

Results

Sr. No.	Variables		Number (f)	Percentages (P)
1	Gender	Male	65	27.0
		Female	176	73.0
2	Graduating Institute	Government	85	35.3
		Private	156	64.7
3	Do you intend to enroll in any post-graduation program	Yes	197	81.7
		No	44	18.3
4	Enrollment in any post- graduation	Yes	85	35.4
		No	156	64.6
5	Ever rejected in enrollment of post-graduation program	Yes	39	16.1
		No	202	83.9
6	Ever done any research?	Yes	111	46.0
		No	130	53.9
7	Is research is a prerequisite for admission in post graduate courses?	Yes	109	45.2
		No	101	41.9
		Don't know	31	12.9
8	Have you heard about central induction policy?	Yes	213	88.3
		No	24	10.0
		Don't know	4	1.7
9	Do you think research is more important in post-graduation as compared to under graduation?	Yes	181	75.1
		No	46	19.1
		Don't know	14	5.8
10	Do you think central induction policy is encouraging fresh graduates for research?	Yes	141	58.5
		No	81	33.6
		Don't know	19	7.9
11	Do you think research exercise should be included in syllabus of under graduates?	Yes	178	74.0
		No	55	22.8
		don't know	8	3.2

12	Do you think central induction policy gives equal opportunity to graduates of both government and private institutes?	Yes	126	52.3
		No	94	39.0
		Don't know	21	8.7
13	Do you think availability of biostatistician at your training institute will encourage you for research?	Yes	188	78.0
		No	33	14.0
		Don't know	19	8.0
14	Do you think supervisors can also be a source of encouragement for research?	Yes	210	87.1
		No	26	10.8
		Don't know	5	2.1
15	Are you aware of any government agencies supporting and funding research in Pakistan?	Yes	72	29.9
		No	152	63.1
		Don't know	17	7.0
16	Do you think availability of funds can encourage you for research?	Yes	213	88.4
		No	22	9.1
		Don't know	6	2.5
17	Do you think research in dentistry has scope?	Yes	198	82.1
		No	24	10.0
		Don't know	19	7.9
18	Lack of concept of research/ lack of importance of research?	Yes	212	88.0
		No	15	6.2
		Don't know	14	5.8
19	Lack of individual interest in conducting research?	Yes	205	85.1
		No	29	12.0
		Don't know	7	2.9
20	Lack of training in research?	Yes	225	93.4
		No	13	5.4
		Don't know	3	1.2
21	Lack of funding for research?	Yes	214	88.9
		No	22	9.4
		Don't know	4	1.7
22	Unavailability of supervisors?	Yes	180	75
		No	56	23.3
		Don't know	4	1.7
23	Unavailability of biostatistician in your institute?	Yes	190	78.8
		No	37	15.4
		Don't know	14	5.8
24	Lack of guidance?	Yes	204	84.6
		No	31	12.9
		Don't know	6	2.5
25	Choice of appropriate/ suitable topic selection?	Yes	159	66.0
		No	73	30.3
		Don't know	9	3.7

26	Lack of interdisciplinary team work?	Yes	187	77.6
		No	43	17.8
		Don't know	11	4.6
27	Lack of conducive environment?	Yes	180	74.7
		No	58	24.1
		Don't know	3	1.2
28	Lack of resources (internet, journals, books).	Yes	117	48.6
		No	114	47.3
		Don't know	10	4.1
29	Language	Yes	98	40.7
		No	133	55.2
		Don't know	10	4.1
30	Journal selection for publication?	Yes	146	60.6
		No	72	29.9
		Don't know	23	9.5
31	Other reasons?	Yes	42	17.4
		No	86	35.7
		Don't know	113	46.9
32	Central induction policy	Yes	175	72.6
		No	49	20.3
		Don't know	17	7.1
33	Post-graduation	Yes	189	78.4
		No	46	19.1
		Don't know	6	2.5
34	Interest in academia	Yes	185	76.8
		No	48	19.9
		Don't know	8	3.3
35	Foreign universities requirement	Yes	186	77.2
		No	52	21.6
		Don't know	3	1.2
36	A good career option	Yes	201	83.4
		No	38	15.8
		Don't know	2	0.8
37	Future benefit of patients	Yes	186	77.2
		No	49	20.3
		Don't know	6	2.5
38	Contribution to existing research	Yes	158	65.5
		No	71	29.5
		Don't know	12	5.0
39	Others reasons	Yes	23	9.6
		No	110	45.6
		Don't know	108	44.8

Table 1: Frequency and percentages of demographic characteristics, research attitude and barriers among fresh dental graduates of public and private sector in Lahore-Pakistan (n = 241).

Sr. no	Independent variable	Have you ever done any research?			P value
		Yes	No	Total	
	Lack of interdisciplinary team work	Yes	81	106	0.07
		No	30	24	
		Total	111	130	
	Lack of conducive environment	Yes	77	103	0.054
		No	34	27	
		Total	111	130	
	Library and internet access for availability of article. Lack of resources (internet, journals, books).	Yes	46	71	0.02
		No	65	59	
		Total	111	130	
	Do you think Central Induction policy is encouraging fresh graduates for research?	Yes	62	79	0.261
		No	49	51	
		Total	111	130	
	Do you think Central Induction policy is encouraging fresh graduates for research?	Yes	62	79	0.261
		No	49	51	
		Total	111	130	
	Do you think research exercise should be included in syllabus of under graduates?	Yes	82	96	0.557
		No	29	34	
		Total	111	130	
	Do you think Central Induction Policy gives equal opportunity to graduates of both government and private institutes?	Yes	55	71	0.256
		No	56	59	
		Total	111	130	
	Do you think availability of biostatistician at your training institute will encourage you for research?	Yes	94	94	0.015
		No	17	36	
		Total	111	130	
	Do you think supervisors can also be a source of encouragement for research?	Yes	98	112	0.384
		No	13	18	
		Total	111	130	
	Are you aware of any government agencies supporting and funding research in Pakistan?	Yes	28	44	0.094
		No	83	86	
		Total	111	130	
	Do you think availability of funds can encourage you for research	Yes	104	109	0.013
		No	7	21	
		Total	111	130	
	Do you think research in dentistry has scope?	Yes	99	99	0.006
		No	12	31	
		Total	111	130	

Lack of concept of research/ lack of importance of research?	Yes	99	113	212	0.368
	No	12	17	29	
	Total	111	130	241	
Lack of individual interest in conducting research?	Yes	92	113	205	0.243
	No	19	17	36	
	Total	111	130	241	
Lack of training in research?	Yes	106	119	225	0.166
	No	5	11	16	
	Total	111	130	241	
Lack of funding for research?	Yes	99	115	214	0.512
	No	12	15	27	
	Total	111	130	241	
Unavailability of supervisors?	Yes	77	103	180	0.054
	No	34	27	61	
	Total	111	130	241	
Unavailability of biostatistician in your institute?	Yes	84	106	190	0.170
	No	27	24	51	
	Total	111	130	241	
Lack of guidance?	Yes	94	110	204	0.566
	No	17	20	37	
	Total	111	130	241	
Choice of appropriate/ suitable topic selection?	Yes	69	90	159	0.154
	No	42	40	82	
	Total	111	130	241	
Lack of interdisciplinary team work?	Yes	81	106	187	0.076
	No	30	24	54	
	Total	111	130	241	
Lack of conducive environment?	Yes	77	103	180	0.054
	No	34	27	61	
	Total	111	130	241	
Library and internet access for availability of article. Lack of resources (internet, journals, books)	Yes	46	71	117	0.028
	No	65	59	124	
	Total	111	130	241	
Graduating institute: Government	Yes	31	54	85	0.019
	No	80	76	156	
	Total	111	130	241	

Table 2: Cross tabulation between attitude of research and barriers of research among fresh dental graduates of public and private sector in Lahore-Pakistan (n = 241).

Sr No.	Independent variable		Graduating institute			P value
			Government	Private	Total	
	Lack of concept of research/ lack of importance of research?	Yes	79	133	212	0.58
		No	6	23	29	
		Total	85	156	241	
	Lack of individual interest in conducting research?	Yes	76	129	205	0.12
		No	9	27	36	
		Total	85	156	241	
	Lack of training in research?	Yes	82	143	225	0.121
		No	3	13	16	
		Total	85	156	241	
	Lack of funding for research?	Yes	78	136	214	0.195
		No	7	20	27	
		Total	85	156	241	
	Unavailability of supervisors?	Yes	68	112	180	0.106
		No	17	44	61	
		Total	85	156	241	
	Unavailability of biostatistician in your institute?	Yes	72	118	190	0.067
		No	13	38	51	
		Total	85	156	241	
	Lack of guidance?	Yes	73	131	204	0.424
		No	12	25	37	
		Total	85	156	241	
	Choice of appropriate/ suitable topic selection?	Yes	68	91	159	0.00
		No	17	65	82	
		Total	85	156	241	
	Lack of interdisciplinary team work?	Yes	71	116	187	0.06
		No	14	40	54	
		Total	85	156	241	
	Lack of conducive environment?	Yes	64	116	180	0.5
		No	21	40	61	
		Total	85	156	241	
	Library and internet access for availability of article. Lack of resources (internet, journals, books)	Yes	54	63	117	0.00
		No	31	93	124	
		Total	85	156	241	
	Is it a prerequisite for admission in post graduate courses?	Yes	41	68	109	0.01
		No	44	88	132	
		Total	85	156	241	

Table 3: Cross tabulation between graduating institutes and barriers of research among fresh dental graduates of public and private sector in Lahore-Pakistan (n = 241).

Discussion

World Health Organization (WHO) recommends and focuses on enhancing capacity building regarding research in developing countries [17]. Academic dental institutions are the fundamental underpinning of a nation's oral health. Education, research, and patient care are the cornerstones of academic dentistry [18]. This study involves the preliminary evaluation of the attitude, knowledge, barriers towards and existing facilities present in doing research among the fresh dental graduates of Lahore, Pakistan. In the current study, the major barrier reported is the lack of training in research i.e., 93.4%. It is therefore need of the hour to have a uniform training in research including the facilities of doing research to achieve an adequate level of satisfaction in faculty professionally and ultimately for the betterment of dentistry.

Another significant barrier reported is the lack of concept of research/lack of importance of research i.e. 88.0%. A significant role of Staff members in teaching basic principles of research is reported [4,5,15]. Faculty staff, more precisely, Professors can generate a positive attitude of research in students [19]. Lack of mentorship/guidance and reduced effectiveness of research in present study accounts for 84.6% and has already cited in literature [5,13,20]. Unavailability of supervisor accounts for 74.7% among the barriers in doing research. Therefore, it is strongly recommended that universities should encourage professors to supervise and participate in every step of the research study process to ensure a quality and productive research [5].

Lack of funds in conducting research is another barrier as 88.8% respondents mentioned. Funds in research are required to provide stipends to researchers, cost of material, transportation and for other requirements [21]. Lack of funding is one of the reasons which are described by many authors in the previous studies [4,8,12]. Expensive materials and equipment in some countries are responsible for limitation in funding and ultimately causing low incentive for research [4]. Universities must look for funding support from agencies other than government and they must inspire researchers to look for foreign grants and awards [13]. Another dynamic factor in conducting research in local setting is the publication fee or processing charges. Local and international journal do have publication charges, and funding stakeholders are government, funding bodies, and institutes. In some developed countries, funds for publications are available and this trend is also increasing. Some charge for color pages, processing, and submission however some journals also publish free publication [22].

Another barrier highlighted in this study includes unavailability of biostatistician i.e., 78.8% which is showing that researchers need help of biostatistician for the study design and result analysis. A survey showed that about 75% of authors took help from biostatisticians or epidemiologists and the researchers who don't take help their papers have more chances to be rejected [23].

While discussing curriculum and conventional teaching course in undergraduate dental students, it was recommended that best method or methods are needed to be applied by which dental education promotes research among the dental students, result, graduates can apply knowledge of basic dental sciences to clinical and evidence-based research [24]. In the current study, around 93.3% respondents expressed that lack of training is a barrier in conducting research. This training in undergraduate students is based upon curriculum which is continuously assessed and evaluated by the universities and dental schools. A survey reported that there is a need to create an interdisciplinary curriculum; blend basic and clinical sciences; implement online core curriculum; and develop new techniques for assessing competence among dental schools. This need was perceived due to faculty dissatisfaction, and student's feedback [25]. A study was carried out in Karachi in year 2008-9 to assess the interest of research in final year medical students and fresh medical graduates. Results showed that 91% medical students want to have research activity in the curriculum of under-graduation [26]. These results are similar to current research where participants reported that in their undergraduate dental course lack of research training exist (93.1%). In another study, it was recommended that a positive learning environment ought to maintain and nurture in medical institutes [27]. In the current study, 74.7% respondents mentioned that lack of conducive environment is the reason of not conducting research and 77.6% reported that lack of interdisciplinary team work is another factor contributing in lacking of research among fresh dental graduates.

Research motivators for the fresh dental graduates include admission in post-graduation 78.4%, central induction policy 72.6%, interest in academia 76.8%, a requirement for admission in foreign universities 77.2%, a good career option 83.4%, and for the future benefit of patients 77.2%. Punjab residency program has been implemented in province Punjab for admission in postgraduate medical and dental institutes in the public sector. Publications carry five marks so that is also a motivational factor for research attitude among fresh graduates [28]. Pakistan Medical and Dental Council (PMDC), Ministry of Health and Higher Education Commission (HEC), College of Physicians and Surgeons Pakistan (CPSP), and Pakistan Medical and Research Council (PMRC) are encouraging research in medical institutes [26], however most of the respondents (63.1%) do not know about any agency which is providing funds for the research in dental institutes or for medical students and researchers.

Conclusion

Results of the current study depict that medical universities and Pakistan medical and dental councils ought to consider research training and workshops in undergraduate students and facilitate research by providing biostatisticians, supervisors, and funds. There is also a need to have an easy access to get funds for oral health research in local settings. There should be no publication charges for the academic institutes, undergraduate and postgraduate dental students in low-income country. Pakistan Medical and Dental Council and government of the Punjab both bodies should facilitate research in medical and dental institutes by providing funds to the fresh graduates for the oral health research. CIP is a good step however it needs to facilitate researchers and supervisors by providing essential requirements which are necessary to conduct research in dentistry.

Conflict of Interest

None.

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