



Original Article



Challenges and Barriers In Research Writing-Dental House Officers' Perspective

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ABSTRACT

Professional development in medical and dental sciences requires research. There was limited information about the research barriers faced by students in this region. **Objective:** To find out the common challenges and barriers faced by the house officers when writing research proposals. **Methods:** Dental house officers of 3 private dental colleges in Punjab were recruited for the cross-sectional study. Data collection was done using a self-administered, structured questionnaire. Closed-ended questions were designed to cover 4 domains of research barriers, e.g., personal, educational, environmental, and technical. 16 items of perceived research conduction barriers on three-point Likert scale (Disagree, Agree and Neutral) were included. **Results:** The most frequently evident barriers were personal $2.26 \pm 51.8\%$ and educational $2.00 \pm 51.8\%$, followed by environmental $1.96 \pm 51.8\%$ and technical $1.87 \pm 51.8\%$. House officers disagreed that they were not interested in research writing. 68.9% didn't have any undergraduate research writing experience. 53.6% believe that research contributes to professional development. 45.0% disagree that they will not do research during a house job. 51.4% believed that there was a lack of time for conducting research. 73.4% regarding lack of financial funding was reported. 57.7% believed that inadequate equipment and facilities were the main hurdles in conducting research. 64.4% of participants were of the view that they lack knowledge. 59.9% believed that supervisors do not give adequate time. **Conclusions:** In order of importance, the most commonly reported barriers in writing research proposals by the dental house officers were personal and educational, followed by environmental and technical barriers.

INTRODUCTION

Health research plays a vital role in the improvement of health care and is essential in the field of medicine [1]. Lack of attention to research by educated community members may result in lagging of scientific knowledge within the community and in the world [2]. During the early 20th century, there was a debate on training dentists who then offered research-based treatment modalities to their practice [3]. Students can efficiently promote and contribute to the research culture promotion. For developing research culture promotion, students and senior faculty of dental colleges need not only to be motivated but also to evaluate the strengths and weaknesses of the research system. Checking and

omitting the research barriers by evaluating the availability of facilities and equipment is important [4]. Few studies highlighted that lack of research grants, lack of experienced research personnel, limited knowledge of statistical methods, lack of motivation to do research by the faculty, and time constraints are few barriers to student research activities [5, 6]. Many western universities promote the research process by providing full support to the students, identifying their concerns, and easing out [7]. Unfortunately, research trends in South Asian countries like Pakistan are not very promising and have less importance to research culture [8]. Research work is generally focused on the university level; postgraduates



and undergraduates' students stick to reading material given by the universities and do not indulge in research work. Motivation for research conduct is low, and students are less familiar with research writing [9]. Most medical and dental colleges in Pakistan do not possess well-equipped and trained teachers for research conduct, which results in compromised quality of research. Non-availability of research grants is another big impediment in conducting research [10, 11]. Dental college has limited resources, and major barriers to research are not highlighted. To produce efficient dental graduates who can complete international students, there should be research courses, self-directed learning programs, and research conference participation [12, 13]. Promoting research culture in this country will result in the progress of the nation.

The current study was designed to narrow down the gap. Highlighting problems and challenges faced by house officers will help in promoting research culture and making teachers or supervisors aware of the problems faced by the students.

METHODS

This cross-sectional observational study was carried out, including dental house officers of 3 private dental colleges in Punjab. The study was carried out from 1st April till 1st July 2024. Non-probability convenience sampling was used. Inclusion criteria were dental house officers. Exclusion criteria were medical officers, specialists, general dentists, and students of MBBS and BDS. A sample size of 222 students was determined by Rao Soft Calculator, considering the 83% prevalence of lack of experience in research writing by medical students, keeping a margin of error of 5% and a confidential level of 95% [14]. Participation in the study was entirely voluntary, and confidentiality and anonymity were assured. Verbal consent was taken. Students who gave the informed consent were selected. The ethical clearance was obtained from the Lahore Medical and Dental College Ethical Review Board (Ref. No. No. LMDC/FD/1602/24). Data collection was done using a self-administered, structured questionnaire. The questionnaire was developed from the studies published in well-reputed journals [15, 16]. The questionnaire was composed of information regarding sociodemographic details (age, gender) and perceived research conduction barriers. Questions were designed to cover 4 domains of research barriers, e.g., personal, educational, environmental, and technical. 16 items of perceived research conduction barriers on a three-point Likert scale (disagree, agree, and neutral) were included. Out of 16 questions, four questions to assess personal domain, four questions for educational domain, five questions to assess technical domain, and three questions to assess environmental domain were selected. Content validity was assessed by 3 expert researchers of the

college, and face validity was assessed for clarity. The Cronbach's alpha coefficient of research barrier questions was computed, and it was 0.765 for the personal domain, 0.67 for the technical domain, 0.74 for the educational domain, and 0.68 for the environmental domain. Microsoft Excel, and SPSS version 22.0 were used for data analysis. Data were analyzed using descriptive statistics such as mean, standard deviation, and frequencies. Both quantitative and qualitative variables were analyzed. For quantitative variables, e.g., age, mean and standard deviation were calculated, and for qualitative variables, frequency and percentage were described. An independent sample t test was run to determine the perceived research conduction barriers with respect to gender. The statistical test was two-sided. The level of significance was set at 0.05.

RESULTS

A total of 222 dental house officers from three dental colleges responded to the questionnaire provided. 74 (33.3%) were male and 148 (66.7%) were female participants. The age ranged from 23 to 26 years; with mean age 24 ± 0.703 . Barriers to the research writing were evident in all the assessed domains. The most frequently evident barriers in conducting research were personal 2.26 ± 0.089 and educational 2.00 ± 0.054 , followed by environmental 1.96 ± 0.69 and technical 1.87 ± 0.069 . The gender association with respect to personal and technical domains was insignificant (Table 1).

Table 1: Frequency Distribution and Mean Scores of Personal and Technical Research Barriers (n=222)

Questions	1= Disagree N (%)	2= Agree N (%)	3= Neutral N (%)	Scores Mean \pm SD	Gender	
					t	p
Personal						
I'm not Interested in Writing Research Paper	115 (51.8%)	55 (24.8%)	52 (23.4%)	2.23 \pm 0.557	-1.015	0.311
I have not done Research in Undergraduate Study	42 (18.9%)	153 (68.9%)	27 (12.2%)			
I do not Believe that Research Contributes to Professional Development	119 (53.6%)	72 (32.4%)	31 (14.0%)			
I will not do Research During House Job	100 (45.0%)	85 (38.3%)	27 (12.2%)			
Technical						
Lack of Time for Writing and Conducting Research	38 (17.1%)	114 (51.4%)	70 (31.5%)			
There is Financial Funding difficulty in Research Writing	0 (0.00%)	163 (73.4%)	59 (26.6%)			

Inadequate Facilities and Equipment for doing Research.	42 (18.9%)	128 (57.7%)	52 (23.4%)	1.91 ± 0.393	1.267	0.207
Research Related Tasks are Time Consuming.	24 (10.8%)	116 (74.8%)	32 (14.4%)			
Research Writing is a Complex Process	85 (38.3%)	100 (45.0%)	37 (16.7%)			

Independent sample t test, p<0.05 was significant

In the educational domain, 143 (64.4%) of participants were of the view that they have a lack of knowledge for conducting research. A large number of participants 133 (59.9%) believed that supervisors do not give adequate time. Agreement to lack of scientific writing workshops in college was the most frequently marked answer, i.e., 156 (70.3%). 153 (68.9%), i.e., a high agreement rate regarding lack of research atmosphere in respective colleges, was recorded. Majority participants 101 (45.5%) believed that the rules for conducting research were very strict. No statistical significance was found when the association of gender with educational and environmental domains was evaluated Table 2.

Table 2: Frequency Distribution and Mean Scores of Educational and Environmental Research Barriers(n=222)

Questions	1= Disagree N (%)	2= Agree N (%)	3= Neutral N (%)	Scores Mean ± SD	Gender	
					t	p
Educational						
Lack of Knowledge of Research, Tools, Data Collection, Data Analysis.	31 (14.0%)	143 (64.4%)	48 (21.6%)	2.02 ± 0.496	0.820	0.413
Supervisors do not give Adequate Time for Discussing Research Proposal	50 (22.5%)	133 (59.9%)	39 (17.6%)			
No Scientific Writing, Research Methodology and Biostatistics Workshop in the College	36 (16.2%)	156 (70.3%)	30 (13.5%)			
I do not Possess Knowledge of Statistical Analysis	66 (29.7%)	156 (70.3%)	0 (0.00%)			
Environmental						
There is no Proper Research Related Atmosphere in the College.	29 (13.1%)	153 (68.9%)	40 (18.0%)			
There are few Competent Researchers to help Students in Research	11 (5.0%)	190 (85.6%)	21 (9.5%)			

There are few Competent Researchers to help Students in Research	11 (5.0%)	190 (85.6%)	21 (9.5%)	1.95 ± 0.414	-0.820	0.413
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Independent sample t test, p<0.05 was significant

DISCUSSION

The current study was conducted to identify the most commonly faced barriers while doing research. Research barriers and problems were found in almost all assessed domains. Razieh and coworkers reported research barriers but stated inconsistent results concerning the ordering of barriers, i.e., where the most frequently highlighted barriers were environmental and technical, followed by quality, a result-related domain [16]. In contrast, Anbari and coworkers reported parallel results [17]. The current study found that the majority of house officers 68.9% were of the view that they were interested in research writing but did not have the experience. Likewise, Razieh and coworkers reported that their students had a poor understanding of statistical findings and research writing [16]. Few other studies reported the parallel findings [18, 19]. Similarly, Abdullah and coworkers reported only 2.8% of students with good awareness of research, and the majority, 66.5%, with poor awareness [20]. Likewise, 80.5% reported no or lack of previous research experience. Other studies also stated that lack of proper motivation/reward, educational burden, and activities were a few elements that were the reasons for suppressing research culture [21, 22]. Abdullah [20] and coworkers reported that 56.3% of students with a positive attitude toward research writing. Similar findings were observed in the current study, where the attitude toward research writing was fairly well [20]. In the current study, 51.4% of house surgeons believed that time constraints were the major problem responsible for the lack of research activities at the undergraduate level. Lack of time because of educational courses was reported by a few other researchers. In contrast, 35.8% of students marked that the research was being taught and that they had participated in the research paper or poster presentations. Komal and coworkers reported that 33.3% of students stated that lack of time was the main hindrance to the contribution of research [2]. Similarly, Kumar reported that 88.79% of students responded to short time for research participation [23]. Another most commonly reported barrier found in the current study was the lack of financial funding, i.e., 73.4%. Moreover, 57.7% highlighted that they faced a problem related to inadequate equipment facilities. A few other studies' main barriers highlighted were organizational [18, 19]. According to results there is insufficient institutional support from universities and colleges. Authorities and scarce research experts and equipment reduce motivation in engaging research procedures. These findings were in agreement with the findings of the study conducted on research activity by Komal and coworkers [2]. Current findings reported that

93.6% of participants claimed a lack of financial help for research projects. Similarly, large-scale research including 27 African countries showed a lack of interest, access, and qualified research teams [20]. In the educational domain, 64.4% of this study participants said that their knowledge of research conduct was poor. 59.9% agreed that the lack of qualified supervisors and lack of research culture in colleges were major barriers. A qualitative study carried out on SUMS reported a lack of research teams and interest/rewards. As the result of the current study, they stated that students failed to present data effectively because they were non-familiar with the research culture [21]. Conradie and coworkers reported that difficulty in data presentation was frequently found in their respective studies, and the reason behind this was the unfamiliarity with the research culture [22, 23]. This was a cross-sectional study where we cannot evaluate a definite cause-and-effect relationship. Another limitation was that it was done in one province of Pakistan, so it affected the generalisability of the results. Further studies were required to evaluate the best possible strategies for facilitating the research interests of students, thus establishing a better research system.

CONCLUSIONS

In order of importance, the most commonly reported barriers in writing research proposals by the dental house officers were personal and educational, followed by environmental and technical barriers. The study highlighted the need for providing necessary facilities, guidance, and counselling to the dental students in the research conduction process.

Authors Contribution

Conceptualization: FA

Methodology: RAA, MM

Formal analysis: SN, KQ

Writing, review and editing: RA, MHR, NK, SN, KQ

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

All the authors declare no conflict of interest.

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