RESEARCH ARTICLE

Investigating the attitudes and perceived drivers of research engagement among academicians of private dental colleges of Lahore, Pakistan

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Abstract

Objective: To investigate research attitude and drivers of research engagement among academicians of private dental colleges in Lahore, Pakistan.

Method: The cross-sectional study was conducted from January to August 2022 after approval from the ethics review board of the University College of Dentistry, University of Lahore, Pakistan, and comprised faculty members of five private dental colleges in Lahore. Data was collected using a self-designed questionnaire that had six items assessing attitudes and seven items evaluating drivers of research engagement. Data was analysed using SPSS 25.

Results: Of the 200 subjects approached, 169(84.5%) responded; 107(63.3%) females and 62(36.7%) males. The overall mean age was 30.9±4.79 years. There were 56(33.1%) subjects with postgraduate qualification, and 102(60.4%) had a work experience of 1-5 years. The mean attitude score was 23.19±3.38. Many participants 54(32%) reported having insufficient knowledge to conduct research, and 157(92%) believed that more attention needs to be given to research in teaching institutions. Potential drivers of research engagement were the provision of resources 110(65.1%), appreciation by the institution 150(88.8%), a decrease in academic responsibilities 134(79.3%) and research remuneration 153(90.2%). Participants with undergraduate qualification were significantly different from those with postgraduate education with regard to conducting research if provided with incentives (p=0.04).

Conclusions: The attitude of faculty members towards research was found to be moderate. Provision of adequate resources and institutional support may serve as a catalyst for enhancing research engagement.

Key Words: Dental research, Academia, Faculty, Dental, Attitude.

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Introduction

The main goal of research is to generate novel information or discover innovative ways through which knowledge is propagated to individuals who require it. Advances in dental materials and non-pharmacological treatments are excellent examples that depict the impact of meaningful research on oral health. Consequently, evidence-based practice and treatments rely on high-quality research to help health professionals provide the best care for patients. Faculty members play the most significant role in advancing this scientific progress.[1] Bridging the gap between theory and its practical application is a task that requires expertise, focus and dedication, among other considerations. It can be very challenging to conduct research when there is a lack of interest and motivation on the part of the faculty.[2]

In the past, especially in subcontinental regions, academic responsibilities did not specifically include research.[3] As a result, the emphasis of the faculty was on teaching and assessment. However, universities have now begun to prioritise the recruitment and promotion of professionals based on their research output. This shift in policy was made after recognising the importance of high-impact research in determining university rankings.[4,5] As a consequence, faculty members feel compelled to conduct research with limited resources and little genuine interest, only to secure their careers.[6] Furthermore, the lack of research and ethics departments in research-based institutions raises questions regarding the validity and reliability of the research process, consequently impeding international collaboration.[7]

It is also imperative to understand that adequate knowledge is necessary for research, and that faculty members need to feel confident in their efforts. In contrast to support for universities in Europe, North America and Canada, support for faculty members is not widely available in low-income countries.[8] A study

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conducted among trainee physicians in Pakistan revealed low levels of knowledge and moderate attitudes, whereas another study revealed positive attitudes towards research among junior faculty members.[1,9] This suggests that healthcare professionals are motivated to learn and carry out research. Therefore, it is essential to understand the factors that affect their research productivity and comprehend strategies to provide support.

Given the challenges associated with conducting research, it is commendable that academic researchers are still engaged in research projects. However, the progress of research is hindered by barriers at individual and institutional levels. Individual barriers, such as insufficient time, motivation, waning interest in continuing education, inexperience, and reduced ability to translate research findings into practice, can be mitigated by seeking assistance and support from colleagues within the faculty.[10] In contrast, institutional barriers, such as inadequate access to facilities, equipment, subscriptions to medical databases, and biostatistical tools, restrict the faculty from fully investing in their projects.[3,11] Additionally, a lack of recognition from senior administration and insufficient funding can demotivate researchers, particularly in developing countries.[12] Research carried out among the dental faculty of American and Canadian dental schools reported that academicians who received rewards from their institution were more likely to conduct research.[13] Therefore, designating rewards for faculty members involved in research can increase engagement.

Most dental education studies track research productivity or assess skills among students/practitioners, with few examining faculty attitudes or the institutional conditions that shape engagement.[14-16] The last widely cited research on faculty-attitude is decades old[13], indicating a need to investigate this topic. At present, to our knowledge, no recent study has explored the perceptions of private-sector dental faculty members. The current study was planned to fill the gap in literature by assessing research attitudes among dental faculty, and the potential drivers that influence research engagement.

Subjects and Methods

The cross-sectional study was conducted from January to August 2022 after approval from the ethics review board of the University College of Dentistry, University of Lahore, Pakistan (UCD/ERCA/21/11gk), and comprised faculty members of five private dental colleges in Lahore. The sample was chosen using non-probability consecutive sampling strategy. The responses were obtained from participants of five private dental colleges in Lahore. Those included were dental academicians with at least one year of professional experience that were registered with the Pakistan Medical and Dental Council (PMDC). Those excluded were professionals who were only clinical practitioners. Individuals at all academic ranks and with various qualification levels were included to obtain a comprehensive overview of the research environment within these institutions. The sample size was estimated on the basis of PMDC outlines regarding the minimum number of dental faculty required in dental colleges.[17]Raosoft calculator[18] was used for this purpose with 95% confidence level, 5% margin of error, estimated population (330) and response distribution 70%. The total sample size obtained was 164.[18]

After taking written informed consent, data was collected using a 13-item questionnaire which was self-designed based on literature review.[1,4,9] The questionnaire was distributed among the subjects by two researchers. The academicians' attitudes towards research was assessed through six items, while factors affecting research engagement were explored with the remaining seven items. The items were scored on a five-point Likert scale, ranging from 1 = "Strongly Disagree" to 5 = "Strongly Agree". To establish validity, the questionnaire was discussed with two dental specialists and one medical educationist. After it was deemed appropriate, the researchers distributed it among 32 participants as a pilot, which were included in the final analysis and helped ascertain face validity. No issues regarding readability or clarity were reported. Reliability was then determined through Cronbach's alpha whose value was 0.72, which was acceptable. Demographic data, such as gender, age, qualification and experience, were also included in the questionnaire.

The total score for attitudes for each participant was calculated by summing the scores of these 6 items, ranging from 6-30, and it was categorised as: poor = 6-17, moderate = 18-25, and good = 26-30. The mean attitude score was obtained by dividing the sum of the items by the total number of items.

Data was analysed using SPSS25. Quantitative variables were presented as mean ± standard deviation, while qualitative variables were presented as frequencies and percentages. Exploratory subgroup comparisons were performed to assess whether attitudes differed across demographic factors, and having different qualification provided similar responses. Intergroup differences in attitude score were evaluated through one-way analysis of variance (ANOVA) for three or more levels (e.g., age and work experience) and independent sample t-tests for two factors (e.g., education, gender, previous research

experience etc.). The attitude scale was taken as a continuous variable. Chi-squared test was used to determine the association among categorical variables. Fisher's exact test was applied when >20% of cells had expected counts <5. P<0.05 was considered statistically significant.

Results

Of the 200 subjects approached, 169(84.5%) responded; 107(63.3%) females and 62(36.7%) males. The overall mean age was 30.9±4.79 years. There were 113(66.9%) participants with undergraduate qualification and 56(33.1%) had obtained postgraduate qualification. Also, 102(60.4%) participants had a work experience of 1-5 years, 46(27.2%) had been working for 6-10 years, and 20(11.8%) had spent >10 years. The majority of the participants expressed their area of research interest to be restorative dentistry 74(43.8%). More than half of the participants reported having conducted research in the past 93(55%). Only 73(43.2%) participants were taught about research methods as a student.

Table-1: Responses of participants pertaining to attitude towards research.

Statement	Graduates N=113	Postgraduates N=56	Total N=169
Research is an important aspect of the dental profession			
Strongly agree	69 (61.1%)	38 (67.8%)	107 (63.3%)
Agree	39 (34.5%)	18 (32.1%)	57 (33.7%)
Neither Agree / Disagree	3 (2.6%)	0 (0%)	3 (1.78%)
Disagree	2 (1.7%)	0 (0%)	2 (1.18%)
Strongly disagree	0 (0%)	0 (0%)	0 (0%)
I can conduct research as I have sufficient knowledge			
Strongly agree	4 (3.5%)	8 (14.2%)	12 (7.1%)
Agree	35 (30.9%)	32 (57.1%)	67 (39.6%)
NA/Disagree	27 (23.8%)	9 (16.0%)	36 (21.3%)
Disagree	33 (29.2%)	7 (12.5%)	40 (23.7%)
Strongly disagree	14 (12.3%)	0 (0%)	14 (8.3%)
I am actively involved in conducting research			
Strongly agree	4 (3.5%)	11 (19.6%)	15 (8.9%)
Agree	29 (25.6%)	28 (50%)	57 (33.7%)
NA/Disagree	22 (19.4%)	11 (19.6%)	33 (19.5%)
Disagree	45 (39.8%)	5 (8.9%)	50 (29.6%)
Strongly disagree	13 (11.5%)	1 (1.7%)	14 (8.8%)
I actively collaborate with peers in other institutes for research			
Strongly agree	5 (4.4%)	11 (19.6%)	16 (9.5%)
Agree	23 (20.3%)	24 (42.8%)	47 (27.8%)
NA/Disagree	18 (15.9%)	9 (16.0%)	27 (15.9%)
Disagree	53 (46.9%)	11 (19.6%)	64 (37.9%)
Strongly disagree	14 (12.3%)	1 (1.7%)	15 (8.9%)
Clinical research produces meaningful results			
Strongly agree	51 (45.1%)	20 (35.7%)	71 (42%)
Agree	47 (41.5%)	28 (50%)	75 (44.4%)
NA/Disagree	8 (7.1%)	3 (5.3%)	11 (6.5%)
Disagree	4 (3.5%)	4 (7.14%)	8 (4.7%)
Strongly disagree	3 (2.6%)	1 (1.7%)	4 (2.4%)
Research should be made mandatory for faculty			
Strongly agree	37 (32.7%)	23 (41.1%)	60 (35.5%)
Agree	45 (39.8%)	21 (37.5%)	66 (39%)
NA/Disagree	21 (18.5%)	8 (14.2%)	29 (17.2%)
Disagree	8 (7.1%)	2 (3.5%)	10 (5.9%)
Strongly disagree	2 (1.7%)	2 (3.5%)	4 (2.4%)

NA: Neither agree.

Table-2: Association of attitude scores with demographic variables.

Variables	Attitude Mean ± SD	p-value
Age (years)		0.058
24-34	22.91±3.22	
35-45	24.06±3.85	
>45	26.33±3.06	
Gender		0.133
Male	23.71±3.89	
Female	26.33±3.06	
Education		0.001
Graduate	22.45±3.43	
Postgraduate	24.70±2.78	
Experience		0.178
1-5 Years	22.86±3.13	
6-10 Years	23.98±2.89	
>10 Years	23.10±5.12	
Research conducted in the past		0.003
Yes	23.88±3.54	
No	22.36±3.01	
Research conducted as a student		0.028
Yes	23.85±3.17	
No	22.70±3.48	

SD: Standard deviation.

The participants' responses were stratified according to their educational background to statements assessing attitudes towards research, most participants were found cognizant of the importance of dental research, with those having postgraduate qualifications being more knowledgeable about research (Table 1).

The mean attitude score was 23.19±3.38. Higher scores were observed among postgraduates compared to graduates (p=<0.01) and among those who had conducted research previously (p=0.003) or as a student (p=0.028). Although the scores showed an upward trend, no significant association with age (p=0.058), gender (p=0.133) or years of experience (p=0.178) was seen (Table 2).

Responses to potential drivers of research in academic institutions were noted separately (Table 3). A significant difference was observed among participants who had graduate and postgraduate qualification in response to the incentivisation of research participation (p=0.04).

Table-3: Drivers influencing research engagement.

Statement	Graduates	Postgraduates	p-value
My institute encourages research activities of faculty			
Strongly agree	29 (25.6%)	18 (32.1%)	0.339
Agree	44 (38.9%)	24 (42.8%)	
NA/Disagree	24 (21.2%)	5 (8.9%)	
Disagree	14 (12.3%)	7 (12.5%)	
Strongly disagree	2 (1.7%)	2 (3.5%)	
My institute financially supports research activities of faculty			
Strongly agree	10 (8.8%)	10 (17.8%)	0.433
Agree	13 (11.5%)	7 (12.5%)	
NA/Disagree	27 (23.8%)	11 (19.6%)	
Disagree	30 (26.5%)	16 (28.5%)	
Strongly disagree	33 (29.2%)	12 (21.4%)	
More resources should be directed toward dental research in teaching institutes			
Strongly agree	62 (54.8%)	30 (53.5%)	0.25
Agree	41 (36.2%)	24 (42.8%)	
NA/Disagree	9 (7.9%)	1 (1.7%)	
Disagree	1 (0.8%)	0 (0%)	
Strongly disagree	0 (0%)	1 (1.79%)	
Carry out research if scarcity of resources in institution are addressed			
Strongly agree	25 (22.1%)	14(25%)	0.22
Agree	52(46%)	19(33.9%)	
NA/Disagree	21(18.6%)	8(14.3%)	
Disagree	12(10.6%)	12(21.4%)	
Strongly disagree	3(2.7%)	3(5.4%)	
Carry out research if efforts are appreciated by higher-ups/institution			
Strongly agree	53 (46.9%)	29(51.8%)	0.34
Agree	49(43.4%)	19(33.9%)	
NA/Disagree	9 (7.9%)	4(7.1%)	
Disagree	1(0.8%)	3(5.7%)	
Strongly disagree	1(0.8%)	1(1.8%)	
Carry out research if the institution incentivizes participation in research			
Strongly agree	48(42.5%)	36(64.3%)	0.04
Agree	55(48.7%)	14(25%)	
NA/Disagree	7(6.1%)	4(7.1%)	
Disagree	2(1.8%)	2(3.6%)	
Strongly disagree	1(0.9%)	0(0%)	
Carry out research if academic or clinical responsibilities were reduced			
Strongly agree	41(36.3%)	22(39.3%)	0.57
Agree	51 (45.1%)	20(35.7%)	
NA/Disagree	12(10.6%)	10(17.9%)	
Disagree	8(7.1%)	4(7.1%)	
Strongly disagree	1(0.88%)	0(0%)	

NA: Neither agree.

Discussion

To our knowledge, the current study is the first among dental academicians to assess not only their attitudes towards research, but also the potential drivers that influence their engagement. Overall, the participants had a moderate attitude towards research. Moreover, those who had conducted research in the past or as a student had better attitudes. Given the lack of attention paid to teaching and learning research methods, less than half of the participants reported having insufficient knowledge to conduct research. Abdulrahman et al. also concluded that dentists had lower knowledge scores associated with research.[16] This may be because most of the current participants had completed their bachelor's degrees, which lacks a structured research component. The absence of sufficient exposure generates a need, as is evident in the results. Integrating research training within the specialties during this phase will guarantee that students become proficient in research, and subsequently pass on this knowledge as faculty to the next cohort.

Research engagement among faculty members is crucial for academic growth, knowledge advancement, and student mentorship. It also contributes to the overall reputation of an institution. Only about 42.6% of the current participants were actively engaged in research activities. Another study reported that only 30.5% of faculty members were regularly involved in research.[19] It is plausible that a lack of research knowledge and skills may have contributed to this. Additionally, most of the faculty were early- to mid-career academicians (Table 1). Many dental schools in this part of the world are concerned with the research output of experienced dental academicians rather than that of younger faculty. By making research mandatory for the faculty, a research-oriented culture can thrive among academicians. It will not only augment their knowledge, but also enrich their critical thinking skills, thus enhancing the quality of research. This can be corroborated by the fact that approximately 75% of the faculty in the current study supported this idea, as did the teaching staff of another study conducted in Nigeria.[4]

Collaborating on research is crucial for faculty members to establish productive institutional connections, gain valuable experience, and expand their network. However, according to the current results, only a minority of participants reported being involved in such collaborations. This could be ascribed to a lack of enthusiasm towards research. Unfortunately, in developing countries, university linkages with international organisations suffer due to a lack of funding and governmental support. It can only be countered if higher education stakeholders at the national level are to facilitate institutions by establishing education-based liaisons with international universities and stakeholders. It is noteworthy that research collaborations enable the faculty to share resources, often in the form of funding,

which will drive researchers to collaborate. It is also essential to emphasise and advocate such collaborations, as they are not restricted to just faculty members, but also involve institutions.

Enormous responsibility lies on institutions to provide the faculty with the required resources. For instance, funding, access to databases, uninterrupted internet availability, and subscriptions to different analysis software can ease the process of research. A study in Malaysia revealed that approximately 81% of the participants reported the institutional funding system as a major barrier to conducting research.[20] The majority (65%) of the participants agreed that a lack of resources made research challenging; but a profound effect was on those with postgraduate qualifications and greater experience. Reports suggest that in the United States, funds allocated for research increased by 80% in 2011.[2] Hence, many good-quality studies published in high-impact journals originated from there. In contrast, the World Research and Innovation Transformation reported that approximately 0.2% of the total annual grants were awarded to low-income countries, of which only $17.6 million were received by Pakistan.[7]

While intrinsic motivations were not directly measured in the current study, the respondents strongly endorsed actionable institutional support, protected time, resources, recognition and incentives as facilitators of research participation. Findings from other studies support the findings, with reported lack of allotted time, financial incentives and financial support by their institution as the main blockades of research.[21,22] As far as appreciation from higher-ups was concerned, a study revealed that senior faculty members with more research experience did not pay much heed to it.[23] Most participants in the current study indicated that they would likely conduct research if they were appreciated for their efforts.

The current study has limitations of having a small sample drawn totally from private-sector institutions. Besides, the study did not collect data on actual research output, such as publications or grants. Future research should correlate such objective measures with perceived attitudes and drivers to provide a more comprehensive picture.

On the basis of the current findings, it is recommended that institutions publicly acknowledge the contributions and research accomplishments of faculty members to express gratitude and recognition for their work. It is also crucial to allow enough time for research activities by easing the burden of teaching or providing flexible schedules. Finally, creating a culture of research within an institution can aid in promoting the value of research, fostering collaboration, and offering opportunities for training and professional growth.

Conclusion

Appreciation of effort, provision of support, incentives and time for research were found to be the key factors that may promote engagement in research among private-sector dental faculty in an urban setting. It will not only be beneficial for the academicians themselves, but also increase an institution's reputation and research culture.

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AUTHORS' CONTRIBUTIONS:
KT: Concept, study design, data analysis and writing.
ST: Writing.
MH: Data interpretation and collection.
RA: Data collection.