

KAP Survey of Dental Students About Scientific Research

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ABSTRACT

Background: Research is an essential component of the academic curriculum and its importance in health care must be appreciated. It enables the students to critically analyse the information in clinical decision making and care of patients. The objective of the study was to evaluate research-oriented knowledge, attitude, and practices amongst undergraduates and house surgeons.

Methodology: A cross-sectional study was conducted among undergraduate dental students and house surgeons of Baqai Dental College from November to December-2018. Ethical approval was obtained from the ethical committee of the Baqai Dental College. Permission for data collection was obtained from the Research and Development Department, and the Principal of the Dental College. The sample size was calculated to be 243 using Open Epi version 3.03 by taking 20% prevalence rate with 95% confidence interval and $\alpha=5\%$. Participants were selected by convenience sampling technique and a pretested Questionnaire, was distributed.

Results: Out of total, 84 participants were males and 159 females. 1st and 2nd year students were more confident in interpreting and writing research paper. Final year students and house surgeons were more interested in reading research journals and participating in research methodology workshops. 41.2% of the respondents preferred Google scholar for literature search.

Conclusion: Adequate knowledge about research was found among all the participants while research-based practice was more among final year dental students and house surgeons.

Keywords: Attitude, Knowledge, Research, Undergraduate

Authors' Contribution:

¹Conception; Literature research; manuscript design and drafting; ² Critical analysis and manuscript review; ³ Data analysis; Manuscript Editing.

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Introduction

Research is an essential component of the academic curriculum and its importance in health care must be appreciated.¹ It enables the students to critically analyze the information in clinical decision making and care of the patients.² Research experience is strongly linked to the future career achievements in undergraduates, yet a challenging task for the students.³ The students' knowledge and attitude about scientific research is the most important aspect, to begin with, followed by the interest in a particular subject and the need to solve an unanswered question.^{4,5} Critical thinking and clinical reasoning skills can be nurtured by encouraging students to participate actively in learning activities.⁶

Research at the undergraduate level helps in the up-gradation of decision making in the medical profession rather than the repetition of old and sometimes obsolete concepts.⁷

Students should have self-directed programs, mandatory research courses, and participation in research in order to be dental graduates who can meet international standards. Worldwide, many universities have integrated research into medical school curricula by establishing Medical Research Programs (MRPs) recently. These programs provide medical students with research opportunities within the university.⁸ Research as an integral part of dental education can develop skills of the students at

undergraduate level.⁹ Very little is known about involvement of students in scientific research.¹⁰ Previous studies of undergraduate medical students reported that they had inadequate knowledge of the scientific review process but they were nevertheless interested in pursuing research in the future.¹¹ According to a study conducted in undergraduate medical students in Peshawar, majority emphasized that research should be mandatory component of medical school curriculum but considered lack of training in scientific research methodology as the main barrier.¹² A study carried out in India reported undergraduates had good knowledge of research.¹³ Another study carried out in Riyadh reported a moderate level of knowledge and attitude towards research.¹⁴

In Pakistan, little emphasis is given on research in undergraduate years due to extensive medical curriculum and in practicing years, due to busy schedules and extensive workload. Sufficient knowledge and attitude towards carrying out an ethical research is the basic element to develop a research-oriented culture. The objective of the study was to evaluate research-oriented knowledge, attitude and practices amongst dental students and house surgeons of a dental college, Karachi.

Methodology

A cross-sectional study was conducted amongst undergraduate dental students and house surgeons of Baqai Dental College from November-December, 2018. Ethical approval was obtained from the ethical committee, Baqai Dental College. Permission for data collection was obtained from the Research and Development Department, and the Principal of dental college. Those who gave consent were included in the study. The sample size was calculated by taking a 20% prevalence rate¹³ and computed using open Epi version 3.03¹⁵ at a 95% confidence interval

and $\alpha=5\%$. The sample size obtained was 243. A convenient sampling technique was employed. A pretested questionnaire,¹³ was distributed to the dental students and house surgeons and the purpose of the study explained. The completed questionnaires were collected on the same day. The questionnaire included four sections that comprised of demographic profile, questions regarding knowledge, attitude, and practices of undergraduates and house surgeons regarding research. The demographic profile included name, age, gender, and academic year. Knowledge, attitudes and practices regarding the research were obtained by asking five questions from each domain.

The data were analyzed using the IBM SPSS version 22.¹⁶ Results were recorded as frequencies and percentages. Chi square test was used to determine association between demographic profile and knowledge, attitude and practices of the participants. A p-value of less than 0.05 was considered statistically significant.

Results

The study included 243 undergraduate dental students and house surgeons out of which 84 were males and 159 females. Table 1 represents the gender-wise distribution of the participants according to academic year.

Regarding attitude of participants towards research, 1st year and 2nd year students were significantly more interested in interpreting, writing, planning and conduction of research. They were significantly more of the opinion that separate time should be allocated for research. Table 2 shows frequency of various attitudes of participants towards research.

Regarding Practices of participants, final year students and house surgeons were found to be more interested in reading Journals regularly, participating in research methodology workshops, protocol writing and presenting research paper in conferences. Table 3 shows frequency of various practices towards research. Regarding Knowledge of participant, dental students and house surgeons preferred Google

scholar for literature search. Table 4 represents knowledge about the principles of research.

Year of study	Total No of Students	Male	Female
1st year BDS	50	19(38%)	31(62%)
2nd year BDS	51	16(31%)	35(68%)
3rd year BDS	47	14(29.8%)	33(70.2%)
Final year BDS	50	11(22%)	39(78%)
House Surgeons	45	24(53.3%)	21(46.7%)
Total	243	84(100%)	159(100%)

S. No	Questions	Year of study	Yes (%)	No (%)	p-value
1	Do you feel confident in interpreting and writing research paper	1 st year	41(82)	9(18)	0.003
		2 nd year	46(90.2)	5(9.8)	
		3 rd year	31(66)	16(34)	
		Final year	33(66)	17(34)	
		House surgeons	27(60)	18(40)	
2	Do you feel that dental students can plan and conduct research paper	1 st year	42(84)	8(16)	0.015
		2 nd year	45(88.2)	6(11.8)	
		3 rd year	30(63.8)	17(36.2)	
		Final year	33(66)	17(34)	
		House surgeons	33(73.3)	12(26.7)	
3	Do you think research time should be allotted separately to students	1 st year	44(80.4)	6(12)	0.025
		2 nd year	41(80.4)	10(19.6)	
		3 rd year	29(61.7)	18(38.3)	
		Final year	35(70)	15(30)	
		House surgeons	36(80)	9(20)	
4	Do you think patient outcome will improve with continued clinical research	1 st year	38(76)	12(24)	0.708
		2 nd year	39(76.5)	12(23.5)	
		3 rd year	36(76.6)	11(23.4)	
		Final year	36(72)	14(28)	
		House surgeons	38(84.4)	7(15.6)	
5	Do you feel research can be a good career option	1 st year	38(76)	12(24)	0.582
		2 nd year	38(74.5)	13(25.5)	
		3 rd year	34(72.3)	13(27.7)	
		Final year	32(64)	18(36)	
		House surgeons	35(77.8)	10(22.2)	

S. No	Questions	Year of study	Yes (%)	No (%)	p-value
1	Do you read Journals regularly	1 st year	12(24)	38(76)	0.071
		2 nd year	10(19.6)	41(80.4)	
		3 rd year	7(14.9)	40(85.1)	
		Final year	13(26)	37(74)	
		House surgeons	19(42.2)	26(57.8)	
2	Have you participated in workshops on research methodology recently	1 st year	8(16)	42(84)	0.000
		2 nd year	18(35.3)	33(64.7)	
		3 rd year	7(14.9)	40(85.1)	
		Final year	23(46)	27(54)	
		House surgeons	34(75.6)	11(24.4)	

3	Do you have experience of writing research protocol	1 st year 2 nd year 3 rd year Final year House surgeons	10(20) 16(31.4) 8(17) 24(48) 20(44.4)	40(80) 35(68.6) 39(83) 26(52) 25(55.6)	0.002
4	Are you confident in presenting a research paper or poster in a conference	1 st year 2 nd year 3 rd year Final year House surgeons	22(44) 24(47.1) 09(19.1) 28(56) 27(60)	28(56) 27(52.9) 38(80.9) 22(44) 18(40)	0.001
5	Are you interested in doing Research in future	1 st year 2 nd year 3 rd year Final year House surgeons	39(78) 27(52.9) 27(57.4) 43(86) 34(75.6)	11(22) 24(47.1) 20(42.6) 07(14) 11(24.4)	0.001

Table 4: Knowledge of participants about research

Variables	Options	Year of study n(%)						Total (n)	p- valu e
		1 st Year	2 nd Year	3 rd Year	Final Year	House Surgeons			
Which website you would prefer to search Literature review	PubMed/Cochrane/ Medline	6(6.6%)	26(28.6%)	15(16.5%)	16(17.6%)	28(30.8%)	91	0.001	
	Google scholar	28(26.7%)	19(18.1%)	21(20%)	21(20%)	16(15.2%)	105		
	Text books	15(34.9%)	5(11.6%)	10(23.3%)	12(27.9%)	1(2.3%)	43		
	Expert	1(25%)	1(25%)	1(25%)	1(25%)	0(0%)	4		
How do you define Research hypothesis	a proposed idea or thought	27(30%)	19(21.1%)	7(7.8%)	12(13.3%)	25(27.8%)	90	0.001	
	an answer or solution to a question	12(14%)	16(18.6%)	27(31.4%)	24(27.9%)	7(8.1%)	86		
	an answer of solution to a question which has a capacity of verification	7(13%)	11(20.4%)	12(22.2%)	14(25.9%)	10(18.5%)	54		
	Logical deduction of the premises may or may not be verified	4(30.8%)	5(38.5%)	1(7.7%)	0(0%)	3(23.1%)	13		
What is Medline	Bibliographic database	9(12.2%)	19(25.7%)	20(27%)	9(12.2%)	17(23%)	74	0.004	
	Medical literature analysis	18(20.9%)	16(18.6%)	15(17.4%)	17(19.8%)	20(23.3%)	86		
	First and best online medical Journal	20(30.8%)	8(12.3%)	10(15.4%)	20(30.8%)	7(10.8%)	65		
	International association of medical Journal	3(16.7%)	8(44.4%)	2(11.1%)	4(22.2%)	1(5.6%)	18		
What is graduated scale 1-5	Ratio scale	27(36.5%)	15(20.3%)	8(10.8%)	11(14.9%)	13(17.6%)	74	0.008	
	nominal	14(15.7%)	18(20.2%)	22(24.7%)	17(19.1%)	18(20.2%)	89		
	ordinal	4(8.2%)	12(24.5%)	14(28.6%)	12(24.5%)	7(14.3%)	49		
	interval	5(16.1%)	6(19.4%)	3(9.7%)	10(32.3%)	7(22.6%)	31		

Discussion

Research is an important component of advancement and improvement in health care services.¹³ Scientific development in medical research is still lacking behind amongst third-world countries, but within the last few years, a positive change has been noticed at the undergraduate level and house surgeons.¹⁷

Knowledge and attitudes regarding research are the factors that are closely related to performing research activities.¹⁷ A literature review is considered as one of the most important steps,¹⁸ and it is done to avoid heavy work, to ensure an in-depth understanding of the topic, to identify similar work done within the area, knowledge gaps that demand further analysis, compare previous findings, critical analysis of existing findings and to suggest further studies.¹⁹ Four popular search engines in medical sciences included are PubMed, Science Direct, Google Scholar, and federated search of Iran's health, treatment, and medical education.¹⁹ The present study reports that 91(35.7%) of the students preferred Medline/PubMed for literature review search. Madhu P et al¹³ in a study reported that out of 701 participants, only 221(31.5%) preferred Medline as the search engine. Chellaiyan VG et al²⁰ reported that only 20% of students had proper knowledge of search engines while according to Sarita KS²¹, only 29.5% of the students knew about the search engines.

The dental students' knowledge about scientific research seems to be lower compared to the medical students and possible reasons could be fewer teaching hours for research in dental schools.¹⁹ Regarding Knowledge, the present study reports that 90(35.29%) of the participants had the knowledge about research hypothesis. Madhu P et al¹³ in a study reported that 115(46%) of the students knew about research hypothesis while 202(28.8%) of the students according to another study were knowing about research hypothesis.¹⁹ Regarding Interpreting and writing a research paper, the present study results show that 46(90.2%) of the 2nd year students feel confident

in interpreting and writing a research paper when compared to house surgeons. When asked about planning and conducting research paper, 45(88.2%) of the 2nd year students and 33(73.3%) of the house surgeons replied 'yes'. 44(80.4%) of the 1st year students and 36(80%) of the house surgeons were of the opinion that separate time should be allotted for the research. Habib S et al¹⁹ in a study reported that 356(50.8%) of the students felt confident while reading/ interpreting a research paper and 448(63.9%) of the students could plan and conduct a research project. Madhu P et al¹³ in a study reported that 130(52%) of the undergraduates were confident in writing and interpreting a research paper, 143(57.2%) undergraduates felt that they can conduct research projects without any supervision and 142(56.4%) of the students felt that research can be taken as a profession, 172(68.8%) of the students felt that time should be allotted separately while planning research work and 88(35.2%) of the students felt that they do not have adequate time to carry out their research and analyze the data.

Regarding practices of research, the present study reports that only 19(42.2%) of the house surgeons and 13(26%) of the final year students read journals regularly showing less number of students and house surgeons having experience of writing research protocol. Madhu P et al¹³ reported that 130(52%) of the participants experienced writing of research protocol. The present study reports that 28(56%) of the final year students and 27(60%) of house surgeons were confident in presenting research paper or poster in conferences. Madhu P et al¹³ reported that 140(56%) of the participants were confident in presenting paper. The reason was positive attitude towards research and having the opportunity of presenting a paper or poster at the conference. The present study reports that majority of the students and house surgeons were interested in future research. Similar observations have been reported in other studies.^{1,13,21-24}

Conclusion

Adequate knowledge about research was found among all the participants while research-based practice was more among final year dental students and house surgeons.

Recommendations

Knowledge and practices of undergraduate students can be improved by incorporating the research as an essential part of the undergraduate (Dental section) curriculum. House surgeons should also be encouraged to participate in research activities and a time should be allocated for research activities. The study was limited to a single center with a small sample size with low generalizability.

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