

Opportunities and Difficulties in Conducting Research Among Dental Interns and Postgraduate Dental Students in Riyadh City, Kingdom of Saudi Arabia

Bandar Mohammad Al Maez, Navin Anand Ingle*, Mohammad Abdul Baseer

Dental Public Health, College of Dentistry, Riyadh Elm University, Riyadh, Saudi Arabia

ABSTRACT

Introduction: Dental research is progressing worldwide. Recently, there has been a remarkable growth in dentistry due to the development of newer technologies, advancement in dental materials, and sophisticated diagnostic materials. So, a study was done to assess the awareness of opportunities and difficulties in conducting research among dental interns and postgraduate dental students.

Methods: A cross-sectional survey using a self-administered questionnaire was conducted in Riyadh Elm University, Riyadh city, Saudi Arabia among dental interns and postgraduate dental students. A closed ended, structured questionnaire comprising of 21 items was used. The questionnaires consisted of demographic details, opportunities and difficulties when conducting research. Data was analysed using the SPSS IBM software version 23.

Results: The topmost reported opportunity and difficulty in conducting research were awareness that publishing research will enhance the chance for admission to higher studies and lack of research, respectively. Interns are more likely to be aware of the opportunities in conducting research and postgraduates are more like to be aware of the difficulties.

Conclusion: Within the limitation of the study, opportunities and difficulties expressed were to be taken seriously which has impact on the research outcome of the institution. Addressing these will help the students and there of institution to do better in the research field in future.

Key words: Opportunities, Difficulties, Research, Interns, Postgraduates

HOW TO CITE THIS ARTICLE: Bandar Mohammad Al Maez, Navin Anand Ingle, Mohammad Abdul Baseer, Opportunities and Difficulties in Conducting Research Among Dental Interns and Postgraduate Dental Students in Riyadh City, Kingdom of Saudi Arabia, J Res Med Dent Sci, 2021, 9(6): 205-211

Corresponding author: Navin Anand Ingle

e-mail ✉: naviningle123@gmail.com

Received: 8/05/2021

Accepted: 21/06/2021

INTRODUCTION

Research is important to the scientific progress as it entails investigation to unearth new knowledge and revise existing knowledge [1]. Research teaches skills of literature search, analyzing data, critical appraisal, and writing research papers. It is related with academic development, evidence-based clinical practice, and future research [2]. Research is an essential part of medical sciences and foundation for health policies. There is a significant growth in research to promote health care. Research experience during early days of the profession is associated with continued professional academic work and could support candidate's career decisions [3]. While the whole world is determined to contribute to evidence-based practice, conducting scientific research is a matter of concern [4]. Regardless of its significance, dental professionals are not motivated to conduct research [5]. Several undergraduate programs include research methodology course in the curriculum [6]. However, in developing countries training does not highlight its

importance in practice. Mandatory research course and project has a positive impact on student's knowledge toward research and provides essential skills to future research [7,8].

During the postgraduate period of academic activity, it's become mandatory to get involved in the research activity and produce a dissertation as a part of the fulfilment of the course requirements. Thus, there is a need to kick start the research activities early in the academic carrier that is when they are student or interns so that, they will have a sound knowledge to start the higher end research at the postgraduate level [8,9].

To conduct the research and publish in the scientifically known and authorized journal is not an easy task. It requires systematic learning. Steps of the research to be conducted need to be studied with the sound knowledge, which includes selection of the topic after finding out the research gap, literature review search, collection of data, conducting the study, analysing the results, learning the basics of statistics, statistical analysis, discussion writing and concluding with future recommendations and limitations [10].

Within the frame of learning the academic and clinical aspect, adding the research component often becomes a

learning difficulty for many. Several difficulties are expected depending on the attitude and knowledge of the individual with the research background. These difficulties vary as simple as lack of interest and lack of time to difficulty in selecting a topic according to the research gap to the collection of the data in each environment. Few students overcome this and understand the need of conducting the research for the future carrier progress. However, others will lack this interest and finds difficult to progress [11,12].

In Saudi Arabia, most of the dental school curriculum includes conducting a research at the undergraduate or internship level. Postgraduates are expected to conduct the research as a part of the curriculum too. Though there is opportunity to do research and publish articles, there are several difficulties quoted by the students to conduct the research and publish it. Lack of time and research design was quoted as the main obstacle to conduct the research. However, there is still a research gap to explore about these topics among the dental interns and postgraduates [13].

Further, in Riyadh Elm University, research is mandatory and part of the curriculum in both undergraduate postgraduate programs. Final year undergraduate students are required to conduct research which is mentored by the faculty members. While conducting research, students learn to identify the research question, generate research hypotheses, critically appraise literature, design the study, collect, analyse the data, and write a detailed project report. In addition, students are also encouraged to publish their research in dental journals and present in conferences. In Saudi Arabia, knowledge, attitudes, and barriers toward conducting research were investigated among dentist [14]. However, there is no information on the awareness of opportunities and difficulties in conducting research among undergraduate dental students. Thus, the present study is conducted aiming at to find out the opportunities and difficulties in conducting research among dental interns and postgraduates in Riyadh City, Kingdom of Saudi Arabia.

MATERIALS AND METHODS

Study design and setting

A cross-sectional survey using a self-administered questionnaire was conducted in Riyadh Elm University, Riyadh city, Kingdom of Saudi Arabia. The questionnaire was distributed to all dental interns and postgraduate dental students. The questionnaire was completed by the respondents in an electronic format or through an online link.

Instrument, measures, and data collection

A closed ended, structured questionnaire comprising of 21 items was used. The questionnaires consist of three

parts: Part I: demographic details of the participants (age, gender, and academic level), Part II: opportunities in conducting research, and Part III: difficulties when conducting research. The response format was categorical (yes/no and agree/disagree) and the time required to complete the questionnaire was 10 minutes. A pilot study was conducted to test the reliability of the questionnaire. The study obtained the approval by the ethics committee at the College of Dentistry, Riyadh Elm University. Participation was voluntary, and the confidentiality and anonymity of the answers were emphasized.

Statistical analysis

Data was analyzed using SPSS IBM version 23 (IBM SPSS Statistics for Windows, Version 21.0, IBM Corp: Armonk, NY). Descriptive statistics was performed to present the overview of the finding. Two-way cross-tabulation and Fisher's exact test used to assess the relationship between the variables. A p value of ≤ 0.05 will be considered statistically significant.

RESULTS

Of the total 162 participants, 53.7% (n=87) were male and 51.9% (n=84) were intern (Table 1). The top three opportunities in conducting research were awareness that publishing research will enhance the chance for admission to higher studies (87.0%, n=141), followed by aware of the scope for conversion of theoretical knowledge to practical aspect in conducting the research (85.2%, n=138), and aware of faculty support which can be availed to conduct the required study in the university (81.5%, n=132) (Table 2). The top three difficulties in conducting research were lack of research funding (79.6%, n=129), lack of rewards (74.1%, n=120), and lack of facilities and lack of proper mentoring (72.2%, n=117) (Figure 1).

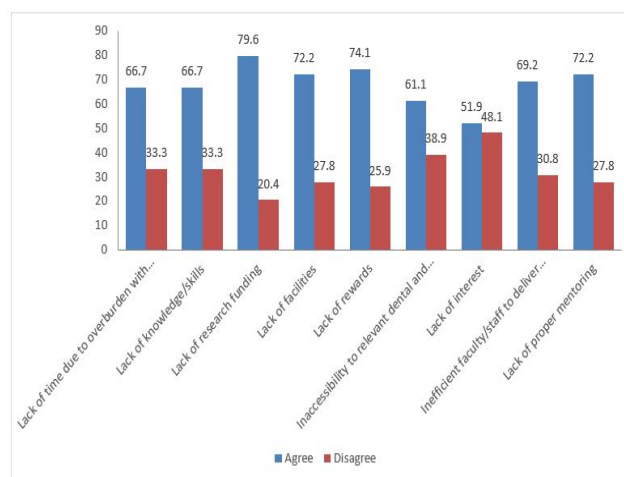


Figure 1: Difficulties in conducting research.

Table 1: Characteristics of the participants.

		n	%
Gender	Male	87	53.7
	Female	75	46.3
Education level	Intern	84	51.9
	PG	78	48.1

Table 2: Opportunities in conducting research.

	n (%)	
	Yes	No
Are you aware of the scope for conversion of theoretical knowledge to practical aspect in conducting the research?	138 (85.2)	24 (14.8)
Are you aware about the collaboration of our university with other organization for the research work?	120 (74.1)	42 (25.9)
Are you aware that the innovation can be patented or guided by the patent office to file for the patents?	120 (74.1)	42 (25.9)
Are you aware about the facility available to conduct the research work in our university?	117 (72.2)	45 (27.8)
Are you aware of faculty support you can avail to conduct the required study in our university?	132 (81.5)	30 (18.5)
Are you aware about the infra-structure/equipment available to conduct the study in our university?	87 (53.7)	75 (46.3)
Are you aware of presence of the statistical analysis support in our university?	93 (57.4)	69 (42.6)
Are you aware that publishing your research will enhance your chance for admission to higher studies?	141 (87.0)	21 (13.0)
Are you aware of the scope for conversion of theoretical knowledge to practical aspect in conducting the research?	126 (77.8)	36 (22.2)

Opportunities

Interns are more likely to be aware that the innovation can be patented or guided by the patent office to file for the patents, aware about the facility available to conduct the research work in our university, and aware of faculty support which can be availed to conduct the required study

in the university. Fisher’s Exact test showed that the associations were statistically significant ($p < 0.05$) (Table 3). Females are more likely to be aware about the infra-structure/equipment available to conduct the study in the university and aware of presence of the statistical analysis support in the university. Fisher’s Exact test showed that the associations were statistically significant ($p < 0.05$) (Table 4).

Table 3: Association between opportunities and education level.

		%		p value
		Intern	PG	
Are you aware of the scope for conversion of theoretical knowledge to practical aspect in conducting the research?	Yes	89.3	80.8	0.184
	No	10.7	19.2	
Are you aware about the collaboration of our university with other organization for the research work?	Yes	78.6	69.2	0.21
	No	21.4	30.8	
Are you aware that the innovation can be patented or guided by the patent office to file for the patents?	Yes	82.1	65.4	0.019*
	No	17.9	34.6	
Are you aware about the facility available to conduct the research work in our university?	Yes	82.1	61.5	0.005*
	No	17.9	38.5	

Are you aware of faculty support you can avail to conduct the required study in our university?	Yes	96.4	65.4	0.000*
	No	3.6	34.6	
Are you aware about the infrastructure/equipment available to conduct the study in our university?	Yes	57.1	50	0.431
	No	42.9	50	
Are you aware of presence of the statistical analysis support in our university?	Yes	64.3	50	0.081
	No	35.7	50	
Are you aware that publishing your research will enhance your chance for admission to higher studies?	Yes	85.7	88.5	0.646
	No	14.3	11.5	
Are you aware of the scope for conversion of theoretical knowledge to practical aspect in conducting the research?	Yes	78.6	76.9	0.851
	No	21.4	23.1	

*Statistically significant at $p \leq 0.05$; PG: Postgraduate

Table 4: Association between opportunities and gender.

		%		p value
		Male	Female	
Are you aware of the scope for conversion of theoretical knowledge to practical aspect in conducting the research?	Yes	89.7	80	0.12
	No	10.3	20	
Are you aware about the collaboration of our university with other organization for the research work?	Yes	79.3	68	0.109
	No	20.7	32	
Are you aware that the innovation can be patented or guided by the patent office to file for the patents?	Yes	75.9	72	0.594
	No	24.1	28	
Are you aware about the facility available to conduct the research work in our university?	Yes	72.4	72	1
	No	27.6	28	
Are you aware of faculty support you can avail to conduct the required study in our university?	Yes	82.8	80	0.689
	No	17.2	20	
Are you aware about the infrastructure/equipment available to conduct the study in our university?	Yes	44.8	64	0.018*
	No	55.2	36	
Are you aware of presence of the statistical analysis support in our university?	Yes	44.8	72	0.001*
	No	55.2	28	
Are you aware that publishing your research will enhance your chance for admission to higher studies?	Yes	86.2	88	0.817
	No	13.8	12	
Are you aware of the scope for conversion of theoretical knowledge to practical aspect in conducting the research?	Yes	72.4	84	0.09
	No	27.6	16	

* Statistically significant at $p \leq 0.05$

Difficulties

Interns are more likely to be agree that inefficient faculty/staff to deliver necessary knowledge and skills as a difficulty. Postgraduates are more likely to agree that

lack of knowledge/skills and lack of time due to overburden with educational activities as the difficulties. Fisher’s Exact test showed that the associations were statistically significant ($p < 0.05$) (Table 5). Males are

more likely to be agree that inefficient faculty/staff to deliver necessary knowledge and skills as a difficulty. Females are more likely to be agree that lack of proper

mentoring, lack of rewards, and lack of time due to overburden with educational activities as the difficulties. Fisher's Exact test showed that the associations were statistically significant ($p < 0.05$) (Table6).

Table 5: Association between difficulties and education level.

		%		p value
		Intern	PG	
Lack of proper mentoring	Agree	67.9	65.4	0.742
	Disagree	32.1	34.6	
Inefficient faculty/staff to deliver necessary knowledge and skills	Agree	75	57.7	0.030*
	Disagree	25	42.3	
Lack of interest	Agree	82.1	76.9	0.44
	Disagree	17.9	23.1	
Inaccessibility to relevant dental and another electronic database	Agree	71.4	73.1	0.862
	Disagree	28.6	26.9	
Lack of rewards	Agree	67.9	80.8	0.074
	Disagree	32.1	19.2	
Lack of facilities	Agree	57.1	65.4	0.334
	Disagree	42.9	34.6	
Lack of research funding	Agree	50	53.8	0.64
	Disagree	50	46.2	
Lack of knowledge/skills	Agree	53.8	84.6	0.000*
	Disagree	46.2	15.4	
Lack of time due to overburden with educational activities	Agree	57.1	88.5	0.000*
	Disagree	42.9	11.5	

* Statistically significant at $p \leq 0.05$; PG: Postgraduate

Table 6: Association between difficulties and gender.

		%		p value
		Male	Female	
Lack of proper mentoring	Agree	55.2	80	0.001*
	Disagree	44.8	20	
Inefficient faculty/staff to deliver necessary knowledge and skills	Agree	75.9	56	0.012*
	Disagree	24.1	44	
Lack of interest	Agree	79.3	80	1
	Disagree	20.7	20	
Inaccessibility to relevant dental and another electronic database	Agree	75.9	68	0.294
	Disagree	24.1	32	
Lack of rewards	Agree	65.5	84	0.011*
	Disagree	34.5	16	
Lack of facilities	Agree	62.1	60	0.872
	Disagree	37.9	40	
Lack of research funding	Agree	51.7	52	1

	Disagree	48.3	48	
Lack of knowledge/skills	Agree	63	76	0.085
	Disagree	37	24	
Lack of time due to overburden with educational activities	Agree	58.6	88	0.000*
	Disagree	41.4	12	

* Statistically significant at $p \leq 0.05$

DISCUSSION

At present the scientific research has become an important part of dental curriculum and a vital factor to help a student carrier through graduate to the postgraduate level. Considering the importance of the research many students are involving in research activities. This is not only helping to develop conducting the research efficiently but also help in developing and understanding the newer aspect in clinical acumen and practice.

Though the research is being introduced in graduate curriculum, attitude towards the same to conduct and getting involved is equally important. Many previous studies done among the health professional student showed the right attitude and interest. The main reason for getting involved in the research is the mandatory requirement or for the progress in courier [8,9].

Interns and postgraduate students form an important part of the student group in terms of research because, they have imbibed the knowledge of conducting research through their undergraduate carrier and utilizing the knowledge with right supervision helps to reach their goals of publication. In the present study thus, these two groups have been included to compare the opportunities they have and difficulties they face to conduct the research.

A valid questionnaire was used here with closed ended questions. This type of surveys is well accepted by the subjects involved as it consumes less time. Opportunities felt by the interns and postgraduates showed that the top three were 'enhance your chance for admission to higher studies', followed by 'aware of the scope for conversion of theoretical knowledge to practical aspect in conducting the research', 'and aware of faculty support you can avail to conduct the required study in our university'. Similar finding was noted in the previous studies where they have felt need to conduct the research for the carrier progression [15]. Griffin et al. (2011) pointed out similar reports of their study with the medical students. They found that, carrier progression is being the major motivation for conducting research among the undergraduate medical students. Students' long-term thinking and need to have post-graduation degree is greatest motivation for conducting the research.

However, certain difficulties have been listed in many previous studies which need to be addressed. Many of the studies quoted lack of adequate knowledge and curiosity that need to be addressed for promoting research culture

in the institutes. Other than these, lack of resources, finding a mentor are other reasons for the making the student prevent from pursuing their interest in conducting a scientific research. In the present study too, the top three difficulties in conducting research found to be 'lack of research funding', 'lack of rewards', and 'lack of facilities' and 'lack of proper mentoring'. Research funding is major barrier for conducting the research especially in dentistry. Many of the in vitro and in vivo studies involve materials which are expensive. One of the other common difficulties found is lack of proper motivation and mentor. One of the studies among the postgraduate teaches have shown that the demand and need for the training in conducting the research. When the mentor is professionally trained, student will be guided with proper direction [11,12].

A comparison of the responses among the interns and postgraduates and between the genders showed some interesting facts. Interns were more aware about the patents and how the office of the patent can guide in getting patent compared to the postgraduates. This could be because of the present generation of dental students better exposed to research and related aspects compared to the students who have completed the undergraduate program few years ago. Over the past few years, the importance given by the institution to the students regarding research is peaking up. It was also seen in the present study that females were more aware about the infrastructure than the male counterparts. Recent study about the gender and its relationship with research has pointed out the gender specification and research more leaned towards females [16].

Difficulties expressed to conduct the research compared among interns and postgraduates too have pointed out different aspects. Interns felt that inefficient knowledge of faculty is a major barrier and losing interest in research. However, postgraduates felt lack of time, knowledge and skill is responsible for conducting research. Similarly, male interns of opinion, matches with the total intern opinion. However, females felt that lack of time and lack of reward are the major barriers. Though not specifically comparing interns and postgraduates many previous studies reported similar difficulties in conducting research. Habib et al. (2018) also discussed similar observations. Similar observations were seen in the many other studies too [17]. This similarity in the present study and all the above studies indicate that barrier or difficulties are almost same across the studies.

Health care research is useful for implementing prevention, aiding diagnosis, and introduces the new treatment strategy in treating the diseases. At present, all the health care universities have given a lot of importance to scientific research, and it has been integrated as one of the important subjects in healthcare curriculum. Linking research and teaching is important for healthcare policy and introducing evidence-based dentistry [18,19].

CONCLUSION

Within the limitation of the study, this study has shown many opportunities and difficulties faced by the interns and postgraduates. Understanding this fact helps in improving the student need and bringing the research close to the student, so that, interest in the student naturally builds up. Further study is required after implementing the key points of this study and compares the data of the present study with the later studies.

COMPETING INTERESTS

No.

ACKNOWLEDGMENTS

None.

REFERENCES

1. Amar-Singh H, Bakar A, Sararaks S. The medical research handbook: Planning a research project. Kuala Lumpur. 2008; 10:38-47.
2. Normile D. The promise and pitfalls of clinical trials overseas. *Science* 2008; 322:214-216.
3. Aslam F, Shakir M, Qayyum MA. Why medical students are crucial to the future of research in South Asia. *PLoS Med* 2005; 2:e322.
4. Pratap K, Padma TM, Sandhya MP, et al. Knowledge and attitude toward evidence-based dentistry among postgraduate students of a dental college in South India. *Indian J Health Sci Biomed Res* 2014; 7:88-92.
5. Murillo H, Reece EA, Snyderman R, et al. Meeting the challenges facing clinical research: Solutions proposed by leaders of medical specialty and clinical research societies. *Acad Med* 2006; 81:107-112.
6. Rash EM. A service learning research methods course. *J Nurs Educ* 2005; 44:477-478.
7. Amin TT, Kaliyadan F, Al Qattan EA, et al. Knowledge, attitudes and barriers related to participation of medical students in research in three arab universities. *Educ Med J* 2012; 4:47-55.
8. Khan H, Khawaja MR, Waheed A, et al. Knowledge and attitudes about health research amongst a group of Pakistani medical students. *BMC Med Educ* 2006; 6:54-59.
9. Oliveira CC, De Souza RC, Abe ÉHS, et al. Undergraduate research in medical education: A descriptive study of students' views. *BMC Med Educ* 2014; 14:51-56.
10. Griffin M, Hindocha S. Publication practices of medical students at british medical schools: Experience, attitudes and barriers to publish. *Med Teacher* 2011; 33:e1-e8.
11. Becher Al-Halabi YM, Hasan M, Alkhadhari S. Extracurricular research activities among senior medical students in kuwait: Experiences, attitudes, and barriers. *Adv Med Educ Practice* 2014; 5:95-101.
12. Deniz KZ, Çıtak GG. The investigation of factors affecting university students' attitudes towards participation in scientific research. *Procedia-Social Behavioral Sci* 2010; 2:5183-5189.
13. Alsayed N, Eldeek B, Tayeb S, et al. Research practices and publication obstacles among interns at king abdulaziz university hospital, Jeddah, Saudi Arabia, 2011-2012. *J Egyptian Public Health Assoc* 2012; 87:64-70.
14. Basudan A, Nazish M, Aisha Q, et al. Attitudes and barriers toward conducting research among dentists in national guard health affairs, riyadh. *Int J Dent Oral Health* 2019; 5:01-08.
15. Basakran AM, Banjari MA, Almarghoub MA, et al. Medical graduates' research practices and perceptions: A comparative cross-sectional study between 2015 and 2017 graduates of king abdulaziz university. *Sultan Qaboos University Med J* 2019; 19:e32-e37.
16. Tannenbaum C, Greaves L, Graham ID. Why sex and gender matter in implementation research. *BMC medical research methodology*. 2016; 16:145-152.
17. AlGhamdi KM, Moussa NA, AlEssa DS, et al. Perceptions, attitudes and practices toward research among senior medical students. *Saudi Pharmaceutical J* 2014; 22:113-117.
18. Vujaklija A, Hren D, Sambunjak D, et al. Can teaching research methodology influence students' attitude toward science? Cohort study and nonrandomized trial in a single medical school. *J Investigative Med* 2010; 58:282-286.
19. Zehra N, Hassaan A, Mushtaq S. Research amongst junior and senior medical students. *Professional Med J* 2015; 22:117-112.