PERCEPTION, ATTITUDES AND BARRIERS IN UNDERGRADUATE MEDICAL STUDENTS TOWARD MEDICAL RESEARCH AT REHMAN MEDICAL COLLEGE, PESHAWAR, PAKISTAN

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ABSTRACT

OBJECTIVE: To identify the perception, attitude and barriers of undergraduate medical students toward medical research at Rehman Medical College, Peshawar, Pakistan.

METHODS: This descriptive cross-sectional study was conducted in undergraduate medical students of Rehman Medical College, Peshawar, Pakistan from 15th May to 15th June 2016. A pretested questionnaire was completed by 150 medical students. The questionnaire consisted of 16 questions. The students' response was recorded on a Likert Scale from strongly agree (1) to strongly disagree (5). The collected data was analyzed by SPSS version 17.

RESULTS: Of the 400 students enrolled 150 of the student's responded. The response rate was 37.5%. Seventy percent of the students had previous experience in research and 92% had agreed upon that research is an important component of medical education while 88.6% considered research as a mandatory component of medical school curriculum. The motives of the student's behind conducting research during medical school made research mandatory in curriculum (88.6%), facilitating acceptance to residency program (40.7%), appreciation and acknowledgement by teachers (47.3%) and research by peer (46.7%). The barriers were lack of interest (16.7%), lack of time due to extensive medical curriculum (58%), exam phobia (49.3%), lack of training in scientific literature search (31.4%) and research methodology (25.3%).

CONCLUSION: The majority of students in the study showed diverse attitudes and perceptions toward medical research. Addressing perceived students' barriers can help in an improvement in research activities among medical students.

KEY WORDS: Undergraduate Medical Students (Non-MeSH); Research (MeSH); Attitudes (MeSH); Perception (MeSH); Barrier (Non-MeSH).

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INTRODUCTION

This is an era of evidence based practice and research is an important component of medical practice. Without research no new development would have come in health care. Medical students exposed to research have the advantage of getting residency in prestigious training programs if they have scientific publications. For post-graduation diploma in Pakistan, College of Physicians and Surgeons of Pakistan (CPSP) requires either two published papers in an indexed journal or a dissertation as a pre-requisite to appear in exit exam.[1] The Pakistan Medical and Dental Council views research qualifications at par for appointments in teaching medical institutions.[2] The Higher Education Commission, Pakistan is now working towards a strong research culture on national level and research papers are required for promotion in professional career.[3]

Understanding the basics of medical research and critical evaluation of the published research is vital for any physician in decision-making during clinical practice. Physicians play a key role in clinical and translational research by increasing the collaboration in clinical trials, facilitating the recruitment of research participants and advocating the importance of clinical trials.[4] However, over the last couple of decades, number of physician-scientist has declined and about one-fourth less physician-scientists are in faculty of medical schools as compared to the past.[5] The possible reasons for this decline were less monetary benefits, primary care or hospital-based specialties, family, gender disparity, practice philosophy and insufficient exposure to research prior to start a career.[5-8]

Various strategies have been adopted to reverse the trend of decline in the number of physician-scientists, focusing mainly on MD/PhD programs and subspecialty fellowships.[7] Although research was included as one of the core competencies of postgraduate specialty training, but it has been shown that almost 75% of residents prefer to do other academic activities as compared to research.[9] In Pakistan, the knowledge and attitude of postgraduate residents was seriously compromised, even in the best center of the country.[10]

The main emphasis is now placed on incorporating research in undergraduate medical curriculum.[4,7,11] Involvement of undergraduate students in research activities can be determinants of future contribution in clinical research.[6] A local study from Karachi showed that undergraduate medical students and fresh graduates show a keen interest

and involvement in research.[12] This study was planned to identify the perception, attitude and barriers of undergraduate medical students toward medical research at Rehman Medical College, Peshawar, Pakistan.

METHODS

This study was conducted at Rehman Medical College, Peshawar, Pakistan from 15th May 2016 to 15th June 2016. It was a descriptive cross-sectional study. The study population comprised of first, second, third and fourth professional's undergraduate medical students with a total of 400 as there are 100 students in each MBBS class. Sampling technique was non-probability convenience sampling.

Inclusion criteria was all undergraduate medical students from 1st year to 4th year MBBS. Exclusion criteria include post-graduate medical students and students not giving informed consent.

Permission to conduct the study was taken from Institutional Ethical Board. Data was collected through a pretest structured questionnaire. The questionnaire consisted of 16 questions. Questionnaire was developed after pilot questionnaire on 10 students. Students response was recorded on the Likert Scale for each question from strongly agree (1) to strongly disagree (5).

The questionnaire was distributed to about 400 participants after their informed consent ensuring about their confidentiality and anonymity. It was distributed among first, second, third and fourth professional MBBS classes during break and was also supplemented by emails to all respective students having email accounts so as to get maximum response. Reminders at weekly intervals were sent by email to all participants to submit the filled in questionnaires.

Data was analyzed by Statistical Package of Social Sciences (SPSS) version 17. Frequencies and percentages were calculated for categorical variables. Means and standard deviations were calculated for numerical variables.

RESULTS

Of the 400 students, 150 students responded and returned the questionnaire. The response rate was 37.5%. Out of 150 students, first year MBBS students were 22 (14.7%), 2nd year students were 49(32.7%), 3rd year were 26 (17.3%) and 4th year students were 53 (35.5%). The Table I shows gender and age-wise distribution and previous experience of students in research. The mean age of the students was 21.67±1.29 years.

Seventy percent of the students had some previous experience in research (Table I).

During the study the majority (92%) of the students agreed that research is an important component of medical education. About 88.6% of the students believe that research should be a mandatory component of medical school curriculum, where as 4.7% disagreed with it and 6.7% had a neutral response (Table II). Nearly 41% of the students considered that research experience should be important criteria for accepting residency while 48.7% disagreed to it.

The motives of the students behind conducting research during medical school included research being mandatory in curriculum (88.6%), facilitating acceptance to residency program (40.7%), appreciation and acknowledgement by teachers (47.3%) and research by peer (46.7%).

The barriers to conducting research varied widely. The barriers were lack of trainings in scientific literature and research methodology, lack of interest, lack of time and exam phobia.

Lack of training in research methodology and in reviewing scientific literature was one of the barrier. Majority of the students (50.6%) in Rehman Medical College thought that they had adequate training in research methodology, 24% had neutral response and 25.3% believed in lacking of trainings.

For adequate training in reviewing scientific literature 33.3% had a neutral response where as 35.4% thought their training is adequate and 31.4% disagreed to it.

Research mentors are easily available to medical students in Rehman Medical Institute (RMI) in 43.3% of the students where as 51% disagreed to it and 22.7% remained neutral. According to 50% of students' supervisors offer good training and guidance where as 28% of the students disagreed to it and 26% had a neutral response. Fifty-eight percent of the students thought that they don't have adequate time in medical school to pursue research.

Exam phobia was another barrier to conducting research. 49.3% thought that because of examination phobia they cannot perform research, 34.7% disagreed to it and 16% had neutral response.

Majority of the medical students at Rehman medical college thought that they had adequate opportunity to present (66%) and publish (45.4%) research during medical school.

TABLE I: GENDER AND AGE DISTRIBUTION OF STUDENTS

Parameters		Frequency (n=150)	%age
Gender	Male	81	54
	Female	69	46
Age (years)	19	13	8.7
	20	27	18
	21	47	31.3
	22	63	42
Previous experience in research	Yes	105	70
	No	45	30

DISCUSSION

Research is an important component of advancement and improvement in health care services. Understanding the perception of medical students will help us in devising methods to improve research practices in future doctors. Research is now being incorporated as integral part of the medical school curriculum in many developed count-

TABLE II: STUDY QUESTIONNAIRE AND STUDENTS' RESPONSE

Parameter	Strongly agree (%)	Agree (%)	Neither agrees nor disagree (%)	Disagree (%)	Strongly Disagree (%)
I consider research as important component of medical education	72 (48)	66 (44)	6 (4)	5 (3.3)	1 (0.7)
I am involved in research because it is mandatory	53 (35.3)	80 (53.3)	10 (6.7)	6 (4)	1 (0.7)
I have no interest in research	7 (4.7)	18 (12)	26 (17.3)	57 (38)	42 (28)
I consider research as a part of long term career goals	65 (43.3)	71 (47.3)	8 (5.3)	2 (1.3)	4 (2.7)
I consider research to be an important criteria for acceptance to residency	16 (10.7)	49 (32.7)	24 (16)	43 (28.7)	18 (12)
I think that medical school curriculum should have mandatory time for research	71 (47.3)	51 (34)	21 (14)	5 (3.3)	2 (1.3)
I have adequate time in medical school to pursue research	3 (2)	41 (27.3)	19 (12.7)	41 (27.3)	46 (30.7)
I am involved in research because it is beneficial in post graduate education	63 (42)	61 (40.7)	21 (14)	3 (2)	2 (1.3)
I receive adequate training in research methodology in medical school	17 (11.3)	59 (39.3)	36 (24)	30 (20)	8 (5.3)
I receive adequate training in reviewing scientific literature	7 (4.7)	46 (30.7)	50 (33.3)	31 (20.7)	16 (10.7)
Research mentors are easily available to me	12 (8)	53 (35.3)	34 (22.7)	36 (24)	15 (10)
Research supervisors offer good training and guidance to me	12 (8)	57 (38)	39 (26)	24 (16)	18 (12)
I have adequate opportunities to present research in medical school.	18 (12)	72 (48)	30 (20)	26 (17.3)	4 (2.7)
I have adequate opportunities to publish research during medical school	13 (8.7)	55 (36.7)	42 (28)	4 (22.7)	6 (4)
Appreciation and acknowledgment by teachers to do research is sufficient	17 (11.3)	54 (36)	40 (26.7)	28 (18.7)	11 (7.3)
I am not interested in research because of exam phobia.	30 (20)	44 (29.3)	24 (16)	37 (24.7)	15 (10)
I am doing Research because my peers are doing it.	9 (6)	61 (40.7)	39 (26)	32 (21.3)	9 (6)

ries.[13-15] In our institute research is a mandatory component of medical school curriculum. Majority of students in our study showed diverse attitudes and perceptions toward medical research.

Seventy percent of the students at our institute said that they are aware of research which is comparable to study performed by Meraj et al.[16] In our study 92% of the undergraduate medical students were of the view that research is an important component of medical education agreeing with AlGhamdi KM, et al in which 97.1% had the same opinion.[17] In the same study a total of 67.4% believed that conducting research should be mandatory which is comparable to our study results (88.6%).

The different barriers to participating in research in our study were lack of interest (16.7%), lack of time due to extensive medical curriculum (58%), examination phobia (49.3%), lack of training in scientific literature (31.4%) and research methodology (25.3%). The barriers reported are similar to those reported in the literature.[16-22]

They are also similar to the study performed by AlGhamdi KM, et al[17] in which lack of professional supervisor (84.7%), lack of training (88.8 %), lack of time (54%) and lack of interest (54%) were different barriers.

Lack of time (58%) was seen as an important barrier in persuading research because of extensive medical curriculum. Our results in this regard are also comparable to the study performed by Siemen et al 2010[18] in which lack of time was a significant barrier to pursing research during medical school however 31% of the respondent felt that there was adequate time for research projects. The extensive medical curriculum is physically and mentally demanding and the frequent clinical exams force students to prioritize the major demands of the curriculum ahead of research activities. These circumstances will result in a decreased interest to conduct research. Allocating a fixed-time in the academic calendar for student research may minimize the time obstacle and enable more interaction between students and their supervisors.[20]

The limitation of the study is that results are limited only to the local institution and it's not possible to generalize the findings. Verification of the data is not possible. It does not represent research attitude trends and class attendance has affected the response rate.

CONCLUSION

The student's perceptions about research at Rehman Medical College, Peshawar, Pakistan were diverse. Majority of the students considered research helpful in achieving their career goals. However; lack of time and extensive curriculum at medical school are important barriers in persuading students for doing research. Addressing perceived students' barriers can help in improvement in research activities in medical students.

REFERENCES

1. College of Physicians and Surgeons of Pakistan. Research and training Monitoring Cell, [Online] [Cited on: 2007 April 18]. Available from: URL: http://www.cpsp.edu.pk/
2. Pakistan Medical and Dental Council. Regulations [Cited on: 2007 April 19]. Available from: URL: www.pmdc.org.pk/
3. Higher Education Commission, Pakistan. Quality assurance. Faculty appointment criteria. [Cited on: 2007 April 19]. Available from: URL:

http://hec.gov.pk/english/services/universities/QA/Pages/Faculty-Appointment-Criteria.aspx

4. Zier K, Friedman E, Smith L. Supportive Programs Increase Medical Students' Research Interest and Productivity. J Investig Med 2006 May;54(4):201-7. DOI: 10.2310/6650.2006.05013.
5. Varki A, Rosenberg LE. Emerging opportunities and career paths for the young physician-scientist. Nat Med. 2002 May; 8(5):437-9.
6. Lloyd T, Phillips BR, Aber RC. Factors that influence doctors' participation in clinical research. Med Educ 2004;38(8):848-51.
7. Solomon SS, Tom SC, Pichert J, Wasserman D, Powers AC. Impact of medical student research in the development of Physician-scientists. J Investig Med 2003;51(3):149-56.
8. Neilson EG. The role of medical school admissions committees in the decline of physician-scientists. J Clin Invest 2003;111(6):765-7.
9. Silcox LC, Ashbury TL, Van Den Kerkhof EG, Milne B. Residents' and program directors' attitudes toward research during anesthesiology training: a Canadian perspective. Anesth Analg 2006 Mar; 102(3):859-64.
10. Khan H, Khan S, Iqbal A. Knowledge, attitudes and practices around health research: the perspective of physicians-in-training in Pakistan. BMC Med Educ 2009 Jul 17;9:46. DOI: 10.1186/1472-6920-9-46.
11. Langhammer CG, Garg K, Neubauer JA, Rosenthal S, Kinzy TG. Medical student research exposure via a series of modular research programs. J Investig Med 2009 Jan;57(1):11-7. DOI: 10.2310/JIM.0b013e3181946fec.
12. Ejaz K, Shamim M, Shamim M, Hussain S. Involvement of medical students and fresh medical graduates of Karachi, Pakistan in research. J Pak Med Assoc 2011; 61(2):115-20.
13. Ogunyemi D, Bazargan M, Norris K, Jones-Quaidoo S, Wolf K, Edelstein R, et al. The development of a mandatory medical thesis in an urban medical school. Teach Learn Med 2005; 17:363-9.
14. Fennimore TF. Structured research activity as a vehicle for fostering reflective Practice among Medical students. Med Sci Educator 2009; 19(2S): 7-16.
15. Davis DP, Poste JC, Kelly D. The UCSD research associate program: a recipe for successfully integrating undergraduates with emergency medicine research. J Emerg Med 2005; 28:89-93.
16. Meraj L, Gul N, Zubaidazain IA, Iram F, Khan AS. Perception and Attitude towards research amongst medical students at Shifa College of Medicine. J Pak Med Assoc 2016;66(2):165-9.
17. Al-Ghamdi KM, Moussa NA, Al-Essa DS, Al-Othimeen N, Al-Saud AS. Perceptions, attitudes and practices toward research among senior medical students. Saudi Pharm J 2014;22(2):113-7.
18. Siemens DR, Punnen S, Wong J, Kanji N. A survey on the attitudes towards research in medical school. BMC Med Educ 2010;10:4. DOI:10.1186/1472-6920-10-4.
19. Al-Shalawy FAN, Haleem A. Knowledge, attitudes and perceived barriers towards scientific research among undergraduate health sciences students in the Central Province of Saudi Arabia. Educ Med J 2015;7(1):16-21.
20. Gharaibeh A, Mousa YS. Should research thesis be a prerequisite for doctor of medicine degree? a cross-sectional study at Jordan university of science and technology. Int J Med Stud 2014;2(1):8-12.
21. Khan H, Khawaja MR, Waheed A, Rauf MA, Fatmi Z. Knowledge and attitudes about health research amongst a group of Pakistani medical students. BMC Med Educ 2006;6(1):54.
22. Sabzwari S, Kauser S, Khuwaja AK. Experiences, attitudes and barriers towards research amongst junior faculty of Pakistani medical universities. BMC Med Educ 2009;9(1):68.

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

FR: Concept & study design, acquisition, analysis & interpretation of data, drafting the manuscript, final approval of the version to be published

QN: Acquisition of data, critical review, final approval of the version to be published

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICT OF INTEREST

Authors declared no conflict of interest

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