INVOLVEMENT AND BARRIERS TO RESEARCH AMONGST STUDENTS OF KHYBER MEDICAL COLLEGE

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ABSTRACT

Objectives: *To find the involvement in research amongst students of Khyber Medical College and to identify reasons for not doing research.*

Methodology: *A cross-sectional study was performed in which medical students (n=160) from different years of study were asked to fill a questionnaire. Stratified random sampling was done as 20 male students and 20 female students from each year answered the 10-question. Total positive score was calculated.*

Results: *One-hundred and sixty students completed the survey. There were equal male and female respondents (80 each). The students were from 2nd, 3rd, 4th and final year. Among the respondents, only fifteen (9%) were involved in a research project; one hundred and thirty students (81.2%) believed that research is easy if proper guidance is given. One hundred and one students (63%) thought that research could enhance understanding of the subject. Most students disagreed with the idea that research could only be done by intelligent students (139, 86.8%). One hundred and forty students (87.5%) replied that they are interested in doing research, provided proper guidance is given.*

Conclusion: *In this study, we found out that very few students of Khyber Medical College are involved in research. Lack of awareness regarding importance of research and lack of guidance for undertaking research were identified as main barriers for doing research. The concerned authorities need to take steps to encourage students and should involve teachers to streamline the process.*

Key Words: *Research involvement, Medical students, Pakistan.*

This article may be cited as: Shahab F, Ali MA, Hussain H. Involvement and barriers to research amongst students of Khyber Medical College. J Postgrad Med Inst 2013; 27(3):297-302.

INTRODUCTION

Research is an essential component of medical training in developed countries, as it inculcates critical analysis and evaluation skills[1]. Medicine is a rapidly progressing field, with numerous clinical advances made every day. Unfortunately, these are made mostly in the developed countries, with the result that our entire health services infrastructure is dependent on physician scientists and pharmaceutical based research companies operating in the developed countries. It is hence of utmost importance to consider research as imperative to the improvement of our health system[2] . The knowledge gained from clinical research trials can be integrated into practice, thereby, improving patient care and health in general[3].

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Date Received: October 16, 2012
Date Revised: April 12, 2013
Date Accepted: April 15, 2013

Unfortunately, the quality of research in our region is compromised because many of our physicians do not have the necessary research skills and relevant knowledge[4]. There is also a lack of positive action at the higher levels, and failure to implement the knowledge in making health policies. This may be due to insufficient knowledge on behalf of the policy makers, or due to a failure to understand and interpret the research findings.

Research should be considered an indispensable

component of undergraduate training, as it helps students to develop a positive attitude towards scientific research later in their careers[5]. It is also necessary for acquiring the necessary logical reasoning and interpretational skills, which are of vital importance for the modern clinician. Undergraduate research helps clinicians in future as they are more likely to undertake more research initiatives and publication compared to their peers[6].

The role of faculty (mentors) is very important in developing research capacity among medical students[7]. Good mentorship can enhance interest while inadequate mentoring can lead to diminished interest in research[8]. It is also important for mentors to involve students in various stages of research i.e. designing, conducting, literature review to maximize their exposure to research (6)

There is data regarding involvement in research and problems faced by medical students to conduct research in certain parts of Pakistan but very little data from Khyber Pakhtoonkhwa province[9, 10]. The aims of this study were to find the involvement in research and to identify barriers for doing research amongst medical students of a public sector Medical College.

METHODOLOGY

A cross-sectional study was performed from 15th April, 2009 to 30th April, 2009 in Khyber Medical College, Peshawar which is the leading public sector medical college in the Khyber Pakhtoonkhwa province. It is affiliated with Khyber Medical University. The study was approved by the Institute Review and Ethics Board (IREB) of Khyber Medical College.

A sample size of 160 students was selected for this study. Students from 2nd to final year were included in the study (Forty students from each year i.e. 2nd , 3rd, 4th and Final). Students from 2nd and 3rd year of study were designated as 'Pre-Clinical Students' while students from 4th and final year were designated as 'Clinical Students'. Stratified random sampling technique was used. Students were divided into strata based on the year of study (4 strata) and then on basis of gender (total 8 strata). There was equal representation of both male and female participants (20 each from every year). Students were then randomly selected via a random number on their college roll number list.

The authors developed a self-administered questionnaire in English language which is the medium of instruction in medical school. The questionnaire was designed incorporating parameters after literature review of PubMed database. After consensus of all study investigators, questions relating to our local scenario were also added. Questions concerning the individual's knowledge about ongoing research activities in medical college were included. In all, 10 questions were included in the study questionnaire, which were regarding study participants' knowledge, involvement, barriers and perceptions regarding research.. These were closed ended questions. In addition, there was one open-ended question designed to inquire regarding students' input.

After seeking signed-informed-consent from participants, the questionnaires were distributed and students were asked to return it to class representatives. The questionnaire was anonymous to ensure the confidentiality of the data.

Data was inserted in Microsoft Excel Worksheet.] Fisher's Exact Test was applied to test the association. Results were recorded as frequencies, means ± standard deviations (SD) and p-values. For all purposes, a p-value of <0.05 was considered as the criteria of significance.

RESULTS

In all, 160 eligible study participants were approached; all of whom responded (response rate - 100%). Forty-six (28.7%) students were found to be either currently involved or previously completed a research project. Out of these, only 13 students cited a non-mandatory research initiative. One hundred and fourteen students (71.3%) were never involved in any research.

The main barriers identified by study participants for lack of participation in research activities are as follows; 47% replied that it was due to lack of guidance, 28% replied that it was because of lack of awareness, whereas 25% replied that they were not interested in research work.

Regarding the students' knowledge about ongoing research activities in the institute, 43% (69) replied in negative, 18% (29) replied in affirmative, whereas 39% (62) were unaware of any such activities.

Regarding students perception about faculty's involvement in research, eleven students (6.8%) were of the opinion that the teachers in KMC were very cooperative, sixty-nine students (39.3%) thought that the teaching staff was not interested in such activities, whereas eighty six students (53.7%) had never asked the faculty members for any guidance in this regard. Students from clinical years were of the opinion that their teachers are more encouraging (P-Value: 0.0092)

Majority of the students (81.25%) were of the opinion that research was easy if proper guidance was given. Distribution with respect to gender and study year (2nd to final year) varied; in general it was seen that the optimistic approach towards research decreased somewhat with seniority, with 67.5% of students of final year believing that research was easy with proper guidance, compared to 85% in 2nd year.

Eighty-six percent students were of the opinion that participation in research has a positive impact, whereas 14% students believed that it has a negative impact on study and time. On average 78.9% students believed that research can enhance understanding of the subject and 29.68% students were of the opinion that research activities can help to make the medical subjects more interesting and palatable; 10.1% students however believed that indulging in research activities was a waste of time and 6.84% students believed that participation in research activities will adversely affect their study, as it will take up their valuable time.

Regarding the importance of research at undergraduate level 74.9% were of the opinion that research was important in order to practically implement the theoretical knowledge, 54.8% believed that participation in research activities at undergraduate level was important to gain first-hand experience of research, 17.3% believed that it would have a good impact on Curriculum Vitae, whereas 11.7% were of the opinion that research was not important at the undergraduate level. 87% (140) students were willing to perform research; while 13% (20) were not interested at all.

On average, 48% (77) students were familiar with the research format; IMRaD, Introduction, Material and Methods, Results, Discussion), whereas 52% (83) were not. It was observed that on average male students were more aware of the format as compared to the female, p-value 0.34. On the other hand, clinical students (year 3, 4, and 5) were more aware of the research format as compared to the preclinical students (year 1, 2), p-value<0.0001

On average, 71.25% students had never participated or carried out any research work, whereas 19.37% students had been involved in research previously, and 9.4% students were currently involved in research. Male students are more involved in research compared to female students P-Value 0.002; and clinical students are more involved in research compared to pre-Clinical students P-Value 0.008

Table I and II compare the involvement, awareness and interest in doing research amongst male versus female students and clinical versus preclinical students.

Table 1: Comparison between male and female students

	Male Students	Female Students	p value
Involvement in Research	32 (40%)	14 (17.5%)	0.0028
Awareness about Research	55 (68.75%)	19 (23.75%)	<0.0001
Interest in doing Research	67 (83.75%)	73 (91.25%)	0.2315

Table 2: Comparison between clinical and pre-clinical students

	Clinical Students (%)	Pre-Clinical Students (%)	p value
Involvement in Research	33 (41.3%)	15 (19%)	0.0008
Awareness about Research	48 (60%)	26 (32.5%)	0.0008
Interest in doing Research	69 (86.25%)	71 (88.75%)	0.2315

DISCUSSION

Our main study findings showed that very few students in Khyber Medical College were involved in research. Few students considered research unimportant and were not interested. Although majority of students were aware of the positive impact of undergraduate research and were keenly interested in undertaking research initiatives but were hampered due to either lack of awareness or lack of guidance regarding research procedures.

In this study, majority of students considered undergraduate research to be very beneficial. They believed that research could enhance understanding of the subject by making it more interesting and palatable. Houlden et al emphasized the importance of research at undergraduate level by stating that, it instills critical thinking, reasoning skills and develops a positive attitude amongst students towards scientific research from the very beginning of their medical career[1].

In this study, students considered research to be important at undergraduate level for their future careers. About 55% of respondents answered that it is important to have firsthand experience of research. Involvement in research as a medical student is strongly associated with postgraduate research initiatives, which is of utmost importance in our setup. Reinders et al observed that physicians who were involved in research during their medical school produced four times as many publications as their peers[6].

Clinician's involvement and interest in research has declined over the past several years[11]. It is thus very important that medical students should be trained and equipped with skills for undertaking research initiatives, as they are more likely to continue and be involved in postgraduate research activities. This is even more important in developing countries, like in South Asia so as to enhance research capacity to efficiently tackle our local health problems[12]. Lloyed et al in his study of 428 graduates from USA noted that 66% of doctors were not participating in research. Amongst those doctors who were participating in research, almost half of them had at least one undergraduate research project[13].

It was observed in this study that majority of students (80%) considered research to be easy, if proper guidance was given and believed that anyone who is willing can do research. It was also found in this study that less than 5% students were involved in non-mandatory research initiatives. This raises the question that if students know that research is important and it is also simple to do then why majority of students does not perform research? It has been found by several authors that lack of awareness, guidance, time, interest and financial constraints and lack of infrastructure support are acting as barriers and hampering undergraduate students from performing research [14, 15 ,16]. In the current study, students who were never involved in any research cited lack of guidance (47%), awareness (28%) and interest (24%) as the main barriers in doing research. Institutional influence and infrastructure for undergraduate research plays a significant role in developing interest and involvement of medical students in research. Ejaz et al in a study of final year students from five public and private medical colleges in Pakistan found institutional research infrastructure and students' future plans to be the driving factors for conducting research[9].

It was observed in this study that clinical students were more aware of research as compared to pre clinical students (41% vs. 19%). The main reason for involvement in research of clinical year students is mandatory community medicine research projects, which students have to undertake in their 4th year. Apart from the mandatory research initiative, less than 5% of students were involved in research. This makes it mandatory to initiate steps to inculcate research skills from the very beginning and encouraging the students to perform independent research under a mentor. If students are unable to perform a research either alone or under supervision, then they should be involved in literature review or encouraged to write case reports, as these can be stepping stones for students to initiate research[17]. Khan et al in their study found that, initially there was moderate interest shown by medical students towards research, yet after intense training in research methodology; there was significant improvement in knowledge and attitude towards research[10].

In this study, it was observed that there was a significant difference in awareness and involvement in research amongst the male and female students. Female students should be properly guided, to compensate for the dearth of female research physicians in this region. Lack of female physicians is an issue even in developed countries like USA. In a survey conducted in USA, male vs. female involvement in clinical research was found to be 3:1[10]. Bakken et al reported lower self-perceived competency among female researchers compared to male researchers[18]. Khan et al in a study in Karachi, Pakistan did not found gender to be a significant predictor of knowledge about health research[10].

Some students perceived undergraduate research to have a negative impact on their studies. Few (10%) considered it to be a waste of time while

others (6%) cited adverse affect on studies as main reasons for not doing research. A study carried out in four medical universities/teaching hospitals in Karachi, Pakistan found that many doctors considered research cumbersome and difficult to conduct; but this opinion was more prevalent among those doctors who were currently not involved in research[19].

It was of concern to note that only 7% students in this study responded that teachers were encouraging for research initiatives. Although, 53% students responded that they never consulted teachers for help in this regard but it does call for appropriate steps to enhance research capacity amongst faculty members to promote undergraduate research. Mentored-students projects are an effective way of enhancing participation of medical students in research. Group of students choose a research topic and are helped by a faculty member/mentor throughout the duration of project. Such projects yield encouraging results. Devi et al in his survey of a similar program in India reported improved attitudes towards research amongst medical students participating in such programs[20].

There were a number of limitations in this study. The study involved a small sample size. First year medical students were not involved in the study. It was a single institution based study and no comparisons were made between students from other public/private medical colleges. A validated questionnaire was not used for this study.

We recommend addressing the gaps and barriers identified by study participants with effective interventions. Inculcating research methodology in curriculum for pre-clinical students should be done. Students should be made aware of importance of research from beginning of their medical careers. Teaching and training in research should be made compulsory during undergraduate as well as post-graduate studies. Giving some protected research time and participation in research methodology workshops and courses should be made readily available for faculty, with provision of statistical assistance. In addition, availability and support of supervisors and mentors should be assured. This work also paves way for further such studies at a larger scale that can look at the quality of research training and output resulting from it.

CONCLUSION

It was concluded that very few students of Khyber Medical College are involved in research. 'Lack of awareness regarding importance and impact of research on future' and lack of guidance for undertaking research were identified as main barriers for doing research. Adequate steps need to be taken by concerned authorities to encourage students to do research especially by involving the faculty in the process. This not only includes providing guidance regarding the research format and methodology, but also apprising the students of the importance of research at undergraduate level and later in professional life.

ACKNOWLEDGEMENT

The authors would like to thank students of Khyber Medical College, Peshawar who participated in study. Special thanks to Javeria Hyatt, Hamdan Gul, Mohammad Syed, Jawad Mufti, Shehla Jamil, Arham Javed and Arslan Inayat for distribution and collection of questionnaires.

REFERENCES

1. Houlden RL, Raja JB, Collier CP, Clark AF, Waugh JM. Medical students' perceptions of an undergraduate research elective. Med Teach 2004;26:659-61.

2. Lavis JN, Oxman AD, Moynihan R, Paulsen EJ. Evidence-informed health policy 1 - synthesis of findings from a multi-method study of organizations that support the use of research evidence. Implement Sci 2008;3:53.

3. Lewis SJ, Orland BI. The importance and impact of evidence-based medicine. J Manag Care Pharm 2004;10:3-5.

4. Hennink M, Stephenson R. Review using research to inform health policy: barriers and strategies in developing countries. J Health Commun 2005;10:163-80.

5. Aslam F, Shakir M, Qayyum MA. Why medical students are crucial to the future of research in South Asia. PLoS Med 2005;2:322.

6. Reinders JJ, Kropmans TJB, Cohen-Schotanus J. Extra curricular research experience of medical students and their scientific output after graduation. Med Educ 2005;39:237.

7. Hendrix D. An analysis of bibliometric indicators, National Institutes of Health funding, and faculty size at Association of American Medical Colleges medical schools, 1997-2007. J Med Libr Assoc 2008;96:324-34.

8. Diez C, Arkenau C, Meyer-Wentrup F. The German medical dissertation--time to change? Acad Med 2000;75:861-3.

9. Ejaz K, Shamim MS, Shamim MS, Hussain SA. Involvement of medical students and fresh medical graduates of Karachi, Pakistan in research. J Pak Med Assoc 2011;61:115-20.

10. Khan H, Khwaja MR, Waheed A, Rauf MA, Fatmi Z. Knowledge and attitudes about health research amongst a group of Pakistani medical students. BMC Med Educ 2006;6:54.

11. Pasko T, Smart D. Physician characteristics and distribution in the US. United State: American Medical Association Press; 2004.

12. Basnyat B, Rajapaksa LC. Cardiovascular and infectious diseases in South Asia: the double whammy. BMJ 2004;328:781.

13. Lloyd T, Phillips BR, Aber RC. Factors that influence doctors' participation in clinical research. Med Educ 2004;38:848-51.

14. Rosemann T, Szecsenyi J. General practitioners' attitudes towards research in primary care: qualitative results of a cross sectional study. BMC Family Pract 2004;5:31.

15. Jowett SM, Macleod J, Wilson S, Hobbs FD. Research in primary care: extent of involvement and perceived determinants among practitioners form one English region. Br J Gen Prac 2000;50:387-9.

16. Agha R, Howell S. Intercalated BSc degrees - why do students do them? Clin Teach 2005;2:72-6.

17. Metcalfe D. Involving medical students in research. J R Soc Med 2008;101:102-3.

18. Bakken LL, Sheridan J, Carnes M. Gender differences among physician-scientists in self-assessed abilities to perform clinical research. Acad Med 2003;78:1281-6.

19. Sabzwari S, Kauser S, Khwaja AK. Experiences, attitudes and barriers towards research amongst junior faculty of Pakistani medical universities. BMC Med Educ 2009:9;68.

20. Devi A, Abraham RR, Adiga A, Ramnarayan K, Kamath A. Fostering research skills in undergraduate medical students through Mentored Student Projects: example from an Indian medical school. Kathmandu Univ Med J (KUMJ) 2010;8:294-8.

CONTRIBUTORS

FS and HH conceived and designed the study, analyzed and interpreted the data. FS and MA collected data and wrote the manuscript. All authors have approved the final manuscript that was submitted to the journal.