JPUMHS

Open Access ORIGIONAL ARTICLE

BARRIERS IN RESEARCH AMONGST UNDERGRADUATE MEDICAL STUDENTS IN PAKISTAN.

Kainat Javed[1], Absar Nazir[2], Zeeshan Malik[3], Umair Bin Nasir[4].

Abstract

Introduction: Medical research has an impact on disease prevention, diagnosis, and newer treatments. It has resulted in policy changes for health-care programmes. Because undergraduates were underrepresented in research, this study was designed to identify the factors and their opinions towards them. **Objective:** The study's goal was to evaluate the knowledge, attitude, experience, and research hurdles of medical undergraduates. palce and duration of the study: In May 2022, this study was carried out at the University Faculty of Medicine and Dentistry in Lahore. Methods: A cross-sectional questionnaire-based study was carried out with institutional ethics committee approval and written informed consent from the students. A verified pre-designed questionnaire with 34 questions was used in this study. From UCMD, we received completed questionnaires from first to Final year medical students of MBBS programmes. Descriptive statistics were used to analyse the data. **Results:** Data was collected from 674 students out of 785 students and the response rate was 86%, out of which 595 were females. 67% students totally agreed that research should be part of undergraduate curriculum. 60% students thought that it would improve clinical practice and better understanding of subject. Almost 69% believed that research was not a waste of time and did not interfere with studying. Funding (49%), Lack of awareness (53%), time (63%), follow up (77%), interest (54%) were the main barriers to research. 62% of students were dissatisfied with the faculty's lack of encouragement. **Conclusion:** The majority of students were knowledgeable about research and indicated a good attitude toward participating in research activities. Some barriers, which undergraduates faced, were lack of awareness, time and funding.

Keywords: research, undergraduates, medical, awareness, knowledge, barriers

1. Assistant Professor DME, UCMD, UOL, Lahore.
2. Assistant Professor Surgery, FJMU, Lahore.
3. Assistant Professor Cardiology, UCMD, UOL, Lahore.
4. MPH student, UIPH, UOL, Lahore.

Corresponding Author: Kainat Javed Assistant Professor DME, the University Of Lahore drkainatjaved@hotmail.com 03235103473

How to cite this article: Javed K[1], Nazir A[2], Malik Z[3], Nasir UB[4]. **BARRIERS IN RESEARCH AMONGST UNDERGRADUATE MEDICAL STUDENTS IN PAKISTAN.** *JPUMHS; 2023: 13:01, 50-57* http://doi.org/10.46536/jpumhs/2023/13.01.386

Received Febuarry 14, 2023, Accepted On 15 March 2023, Published On 31 March 2023.

INTRODUCTION

Considerations about scientific research have grown in both underdeveloped and advanced nations, because medical technology has the potential to enhance medical care. Because they will eventually have to practise evidence-based medicine in patient care as well as cutting-edge technology in basic sciences, medical students should be knowledgeable with research procedures. Currently, research is playing a crucial role in the medical field [1]. Every doctor must do research in the modern era of medical science in order to contribute to the production of evidence [2]. The motivational factor for most clinicians and researchers are the undetermined or unexplored medical queries and issues that consequentially improve patient care[3]. Scientific research is the methodical process of establishing or refuting assumptions and hypotheses. Medical research has a great impact on disease prevention, diagnosis, and improved therapy. It has resulted in policy changes for health-care programmes in Pakistan. Basic, experimental, and applied research that is conducted to aid and encourage the growth of knowledge in the field of medicine can all be categorised as medical research. Early exposure to health training research is encouraged in undergraduate education. According to the literature, the essential components in research are knowledge, attitude, experience, and hurdles in research. A research culture is being promoted among postgraduate as well as undergraduate students in Pakistan by regulatory organisations like the Pakistan Medical and Dental Council (PMDC), College of Physicians and Surgeons Pakistan (CPSP), Higher Education Commission (HEC), and Pakistan Medical and Research Council (PMRC). The role of undergraduate research assistants is unobjectionable [4]. Implementing and encouraging research activities in medical students can help to increase the decreasing trend in medical scientists. In this way, developing countries can enhance their research productivity [5]. When conducting research, it is essential to have a broad knowledge base, practical abilities, and the development of the factual approach. [6]. Health research training is fundamental to medical education and obligatory in development of physician research skills [7].

MATERIALS AND METHODS:

This cross-sectional study, which used questionnaires, was carried out at the University Faculty of Medicine and Dentistry, UOL. After receiving ERB permission, the study was undertaken in May 2022 with all first- to fourth-year undergraduate MBBS students as the target group. Thirty-four questions on a validated questionnaire with a total of thirty-four answers were used to assess knowledge, attitude, and impediments to the research. Incomplete replies were omitted from the study. Data were gathered using Google Forms, and a link was created and distributed to the students in their WhatsApp groups for class. Age, gender, and the year of the study were among the demographic questions in the questionnaire's initial section. The second section included 13 open-ended questions about research expertise such as diverse study designs, hypotheses, protocol, and governing bodies. It was graded by assigning a one to the correct response and a zero to the erroneous response. The highest score was 13 and the lowest was zero. Finally, the final score was obtained by evaluating the responses. The third section of the questionnaire was used to collect data on the views and experiences of the research participants. The comments were scored on a Likert scale with 1 being strongly disagreed with and 5 being highly

agree (point 5). The attitudinal statements were evaluated between +1 and 1. The center 0 on the Likert scale refers to a neutral response (neither agree nor disagree), +1 to completely agree and agree, and 1 to completely disagree and disagree. The questionnaire comprises five attitude statements, with a maximum score of +5 and a minimum score of 5. Individual results were used to produce a mean score for all of the attitude statements evaluated. The research experience of students was evaluated using open-ended questions. In the questionnaire's final section, which had six statements, the impediments to research were evaluated. The replies were scored on a 5-point Likert scale, with 1 being the strongest disagreement and 5 being the strongest agreement (point 5). The questions addressed concerns about the research's constraints, such as inadequate awareness about the research, a lack of self-interest, inadequate funds, and a lack of motivation, and time restraints challenges. The reliability coefficient was accessed by Cronbach alpha which was 0.87 for the knowledge, 0.81 for barriers and 0.75 for the attitude. Statistical analysis was done by the SPSS version 25, the score of students based on gender was evaluated by using Fishers test. P value < 0.005 was considered significant statistically. The attitude of the students towards research was calculated by two way ANOVA followed by post hoc turkey's test.

RESULTS:

In this study, the response rate was 55% (371) across female students, 45%(303) among male students, and 86% (674/785) overall.

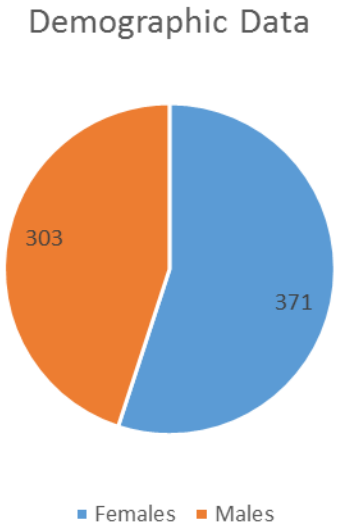

Figure 1: Demographic data (male and females participants of the study)

78% was the overall knowledge score for understanding the concept of research and its methods. Students in the first (43%), second (68%), third (76%), fourth (77%) and final year (79.6%) received the highest overall knowledge scores.(table-1)

Table 1: Participant's knowledge scores comparison: years wise and gender wise

Year	Gender	Correct response	Incorrect response	*p-Value*
First year MBBS	Female	58	49	0.235
	Male	68	54	
Second year MBBS	Female	64	57	0.001
	Male	70	61	
Third year MBBS	Female	59	48	0.2035
	Male	76	65	
Fourth Year MBBS	Female	62	58	0.2001
	Male	69	65	
Final Year MBBS	Female	60	57	0.001
	Male	88	85	

Table 2: scores of research attitude scale

Questions	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Research should be part of MBBS curriculum	2.09	2.56	8.50	38.46	48.57
Research will help in better understanding of subject	3.54	5.2	11.01	36.68	43.57
Research will help ones clinical practice later	6.81	6.49	14.68	42.22	29.08
It is an extra burden to do research	20.10	24.46	18.11	18.22	19.11
It is not waste of time and does not disturb studies	6.36	14.60	23.22	51.3	4.49

The student's attitude scores shown in table 2 and the average attitude score among the male participants (2.26±2.11) and female (2.51±2.18) shows the significant *p* value of 0.342.

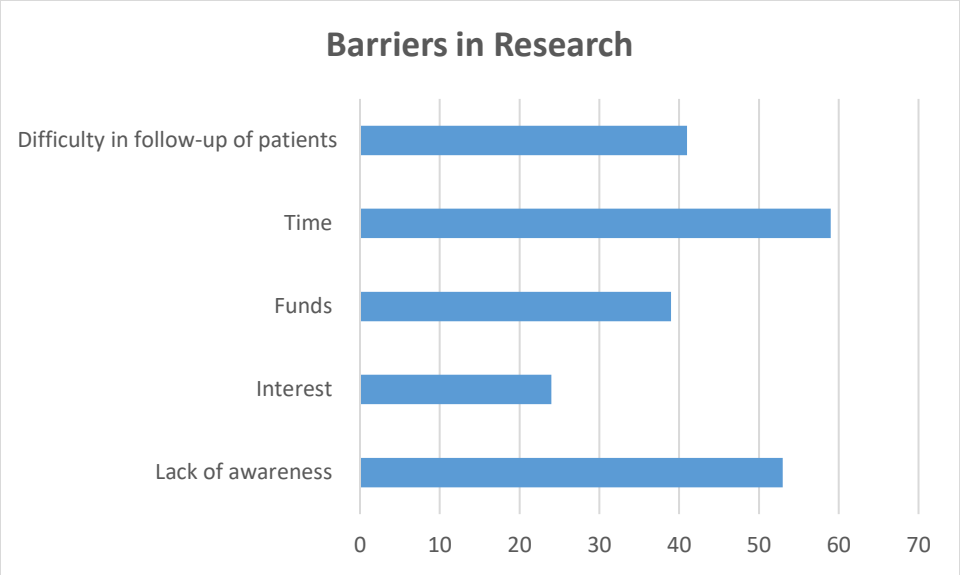

Figure-2: Barriers faced by undergraduate students in Research

According to participants, volunteering in research was motivated by their personal interests (54%), the ability to prepare for overseas competitive exams (36%), and societal pressure (10%). They preferred conducting research either independently (35.3%) or in small groups (64.7%). 5.6% of students had experience publishing their work, and 5% had presented their work in a scientific venue. Based on gender, there was no discernible difference among the motivated pupils. The majority (65.6%) of the overall motivated students were from the second year, followed by the first (38.3%), fourth (31.4%), and third year (14%). The participants improving knowledge (90%), clinical practice (21%), and improving analysis and lateral thinking (10%) listed the benefits of study.

DISCUSSION

The research abilities of undergraduate medical students were examined in this cross-sectional questionnaire study. The purpose of this study was to evaluate undergraduate students' knowledge, attitudes, and practises towards research at a private medical institute in Lahore, Pakistan. Medical educators and policy makers would be interested in this study's several major results. In this study, respondents demonstrate adequate knowledge and favorable attitudes towards research. These findings are similar to another study done in Pakistan by Hassan Khan et al, which showed poor knowledge towards research among postgraduate students[8]. Similarly, in a study conducted by Vodopivec et al [8] in Zagreb University School of Medicine, Croatia medical students showed good knowledge about research. In another study in Mumbai, India students showed favorable response towards learning statistics, ethics, protocol writing and good clinical practice [8]. Therefore, a research curriculum considering the fundamental elements of research, biostatistics and bioethics should be formulated for students so that the knowledge about research can be enhanced. Incorporating research into curriculum can lead to positive regarding the quality and quantity of research in the country[9]. The results showed favorable attitude responses. More than two thirds responded that patient outcome improves with continued medical research and research is helpful in clinical practice. Majority of the respondents were in favor of involvement in research, research training and mandatory research for passing examination. This suggests that formal

evaluation should also be done during university examinations, to ensure that doctors learn the various aspects of research. Moreover, about half of respondents considered research as burden and just above 80% were in favor for separate allocation of time for research. Training in research methodology including statistics by workshops and separate time for research can help alleviate these problems. Almost 80% respondents planned to be engaged in future research projects. This should be considered as a matter of concern and caution. Two explanations can be given for this. Firstly, due to their poor knowledge, lack of training and other major hurdles like time shortage it is unfeasible for them to produce high quality local research. Secondly, literature shows that scholarly activity during medical training strongly predicts future involvement in research [10]. However this is not applicable in our study due to improper training and lack of opportunities by respondents of our study [11]. These results are related to expectation and literature. Studies in Pakistan by Hassan khan and colleagues [12], attitudes towards research by medical students and postgraduate students. Many of the studies conducted in the region and internationally have shown positive attitudes towards research. These findings are a concern for medical educationists and policy makers. Incorporating research into curriculum and providing adequate training should be considered mandatory. The blending of research into curriculum/medical studies/training can lead to significant improvements in knowledge, which can eventually lead to better attitudes and greater contributions towards scholarly productivity of the doctors of tomorrow. Regarding obstacles preventing students from doing research, time factor was found to be the greatest hindrance followed by funding, infrastructure, mentors and future benefit. Studies conducted by Pawar et al Khan et al [13] and a number of other studies have also revealed similar barriers to student research [14]. A comparable study was out in Pakistan revealed that inadequate research training was the biggest barrier [15]. There is a need to review the existing undergraduate and postgraduate curricula to incorporate interventions related to improving research awareness and training. Literature shows that the role of teachers in creating learning opportunities is very important. Training of teachers in research can lead to generation of newer opportunities without demanding additional resources [16]. Further investigations are recommended in this regard to enhance scholarly productivity in Pakistan, both in terms of quality and quantity. As time was listed as the main hurdle, So, the methodology should be discussed and the research study should be planned by the mentors before to beginning. Young researchers might be guided by mentors' regular evaluations and feedback. Medical colleges should offer training programmes to teach research technique. Awards for the finest studies should be proposed to motivate undergraduate and graduate students. Research can also be improved by holding conferences and workshops for graduate and undergraduate students. Journal editors can support student research by enforcing a rule that prioritises award-winning thesis pieces. Published research articles should be awarded extra points and preference while applying for jobs and super specialty courses. In other studies, the main stimulator for research has been found to be future benefit (desired specialty for undergraduate and better job options/ promotions for seniors). This should also be taken into account. The logic for incorporating research in curriculum is the development of research skills in students, which includes understanding of principles of research and critical judgement

of literature. Fostering basic or medical science research as an academic profession is another goal[4]. However, any medical school curriculum mainly emphasizes on provision of medical knowledge and skills. Hence, the time and effort required for any compulsory research project should be well balanced between demands of other critical skills. Various strategies have been suggested to reverse the trend of decrease in researchers at the level of undergraduates[12]. In short, adequate policy and planning can encourage and motivate students to perform research activities and the students' attitudes toward research to be reformed.

CONCLUSION:

Doctors in their first year of training showed strong knowledge and a pro-research mindset. However, for the majority of them, it did not convert into practise. To increase intellectual activity among Pakistani undergraduate medical students, it is important to adopt changes to improve the country's current educational system. Fostering research culture at medical school can increase research productivity at undergraduate level as well as in the future generation of postgraduates. This will eventually lead to increased research output at the national level contributing towards the homegrown evidence based medical practice.

Ethics approval: The ERC gave ethical review approval

Consent to participate: written and verbal consent was taken from subjects and next of kin

Funding: The work was not financially supported by any organization. The entire expense was taken by the authors

Acknowledgements: We are thankful to all who were involved in our study.

Authors' contributions: All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated in the work to take public responsibility of this manuscript. All authors read and approved the final manuscript.

Conflict of interest: No competing interest declared.

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