

Breaking Down Barriers: Exploring the Knowledge and Attitudes of Medical Students towards Research

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Abstract:

Background: Medical research is fundamental to advancing healthcare, yet medical students often encounter various barriers that affect their engagement in research activities. This study aims to investigate the knowledge, attitudes, and barriers related to research among medical students. Understanding these factors will be crucial for enhancing research participation among future healthcare professionals. This study aims to find out the current state of research knowledge among medical students.

Methods: A cross sectional study was conducted among students. A questionnaire-based interview was conducted to collect data from medical student using purposive samplings. A total of 300 participants completed a structured questionnaire. All the data were collected through google form and downloaded in excel format for analysis.

Results: The results of the study found that 74% medical students had knowledge towards research, but there were gaps in their knowledge and skills necessary for conducting research effectively. The mean age was 23.45 and age range between 22-25 years. Majority of them were male compare to female. More than 70% adequate knowledge but only 21% had attitude towards research. Moreover, several barriers were identified, including lack of time, limited research facility, and a lack of mentorship. These barriers delayed students from actively participating in research projects. Furthermore, it emphasizes the importance of providing mentorship and support systems to address the identified barriers. By addressing these issues, medical colleges can promote knowledge on research to students.

Conclusion: This study results shows that even though many students had a good knowledge about research only few students have participated in the research projects. This research through light on the existing challenges and opportunities in research among medical students. It offers valuable insights into the knowledge, attitudes, and barriers on research.

Keywords: Knowledge, Medical Research, Barrier in Research.

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Introduction

Currently, the research status within a country's scientific communities stands as a key indicator of its scientific advancement. [1] Medical research serves as the cornerstone of scientific advancements in the field of healthcare, contributing to the development of innovative treatments, the understanding of diseases, and the improvement of patient outcomes. However, for the next generation of healthcare professionals, namely

medical students, active involvement in research remains a pivotal but often challenging aspect of their academic journey. [2] Health research significantly influences disease prevention, diagnosis, treatment, and notably shapes policies for healthcare programs. Understanding the dynamics of knowledge, attitudes, and the array of barriers surrounding research participation among medical students is crucial to harnessing their

potential as future contributors to medical science. In an era where evidence-based medicine is paramount, fostering research skills early in medical education is imperative. [3]

Medical students represent a cohort of individuals poised to shape the future of healthcare, making it essential to examine their preparedness and willingness to engage in research endeavours. Knowledge and competency in research not only empower students to critically evaluate emerging medical literature but also enable them to contribute meaningfully to on-going research initiatives, which in turn benefits the entire healthcare ecosystem. [4]

This exploration embarks on a journey to dissect the intricacies of research engagement among medical students. It delves into their current level of knowledge, the attitudes they hold towards research, and the barriers they encounter that may inhibit their active involvement. [5,6]

By gaining insights into these components, we can identify areas for improvement and development, subsequently facilitating the growth of a more research-oriented medical community. [7]

In the literature, three primary factors observed to influence research success are: the mindset towards research, understanding of it, and obstacles encountered in conducting research. [8,9] Health research is an imperative force which drives the improvement of health care worldwide. [10] We can empower the upcoming generation of health care professionals by integrating research training into medical education which will also leads way for a more innovative, equitable and informative global health care techniques. [11]

Hence, this study aims to assess the knowledge of research among medical students, providing the factors influencing their role in medical research. The knowledge, attitudes, and barriers identified herein not only provide light on the current scenario but also pave the way for tailored interventions that can empower medical students to become not just proficient clinicians but also

research professionals capable of enhancing many innovations in medical science.

Methods

A cross-sectional study was carried out in a private teaching hospital at Chennai to comprehensively investigate the knowledge, attitudes, and barriers associated on research among medical students. The study employed quantitative data collection which was carried out through field survey.

The study population comprised of 300 medical students doing under graduate and post graduate medical course. A purposive sampling method was performed to ensure a representative mix of the participants. A structured questionnaire was developed to assess participants' knowledge about research methods, their attitudes toward research, and barriers in doing research projects. The face validity of the questionnaire was vetted by epidemiologist, clinical psychologists and teachers from Medical educational unit. The reliability of the questionnaire was assessed using test-retest method which yielded the score of .8 which is an acceptable means of internal consistency.

The survey used a semi-structured questionnaire, allowing participants to elaborate on their experiences, attitudes, and perceived barriers to research participation. Ethical approval was obtained from institutional review boards. Informed consent was obtained from all participants, ensuring that they understand the study's purpose and the confidentiality of their responses. Steps were taken to protect the anonymity and privacy of participants throughout the study. Quantitative data were analyzed using descriptive statistics, frequencies, and percentages. Inferential statistics, such as t-tests employed to identify associations of research involvement.

Results

Totally 300 medical students were enrolled in this study. Around 62% were male and 48% were female. 56% were fall in the age group 20-25 years with the mean age of 23.45, 48% were from government medical college.

Table 1: Basic characteristics of the students

Variables	Frequency (n=300)	Percentage (%)
Gender		
Male	188	62
Female	112	48
Age group (mean age 23.45 ± 1.50)		
20-22	167	56
23-25	133	44
Course		
Undergraduate	124	41
Postgraduate	176	59
College		

Government	145	48
Private	155	52

Table 2: Knowledge and attitude towards research

Variables	Frequency	Percentage (%)
Knowledge		
Adequate	223	74
Inadequate	77	26
Attitude		
Involved in research	62	21
Present in conference	54	18
Published paper	18	6
Nil	216	72
Applied for research fund		
Yes	5	2
No	295	98

Majority of the student had adequate knowledge on research but 26% students had inadequate knowledge, only 21% student had involved in research of which presenting paper in conferences (18%) and only 6% published research papers, 6% published research papers and 2% applied for research fund.

Table 3: Barriers in doing research

Types of barriers	Frequency	Percentage (%)
Lack of fund	106	35
Inadequate facility	43	15
Lack of interest	90	30
Lack of mentor	49	16
Inefficient faculty	12	4

Majority of the students said that (35%) lack of fund, 30% said lack of interest and around 15% stated that inadequate facility and lack of mentor.

Discussion

Currently, there's a worldwide trend in medical education towards a globalized approach to scientific studies, resulting in a rise in the volume of articles published globally. This could be attributed to the substantial workload carried by postgraduate students engaged in both research and academic studies, along with the responsibilities of marriage. [12] Additionally, there is a perception that research may play a limited role in shaping their future careers.

In the present research, female students demonstrated higher knowledge and compared to males. Similarly, in Ibrahim et al.'s study, gender did not exert a significant impact on students' knowledge or attitudes. On the other hand, In Amgad et. al study, [13] males had a higher probability in the publishing of research projects than females. Similar to the previous findings, in study conducted in Saudi Arabia, Female students showed significantly more positive attitude towards research. In this study, majority of the post graduate student involved in research and only few undergraduate students involved in research. Since research is mandatory for post graduate they are involved in research. Most of them said no fund to do research and the faculty is also not interested in

research, Mentor is not available for proper guidance is a main barrier to start research. Furthermore, it emphasizes the importance of providing mentorship and support systems to address the identified barriers. By addressing these issues, medical colleges can promote knowledge on research to students.

A study done by A. Sivakumar and G. Singaravelu in Agricultural University found that many students were not involved them in research mainly because of lack of interest. Our study results also showed 30 % of students are not involving them in research because of lack of interest. [14] Ossia Edmund Ndudi et al done a study in Nigeria said that the students had good perception of knowledge regarding research still minor proportion students participated in research. This finding also matched our study finding. [15] Vairamani CB et al said that the students not involving themselves in health research is mainly because of lack of knowledge and inadequate facility for research. In our study result also 35% of the students finds lack of fund and 15% said inadequate faculty is the reason for not participating in health research. [16]

Conclusion

In conclusion, medical student had sufficient knowledge about research, yet a notably deficient attitude prevails. Also, very few students are interested in pursuing their career in research. Barriers in research involved a lack of funding and

time, absence of mentorship, and the incapacity of faculty members. It shows that the medical students need more motivation and career guidance towards health research.

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