Section: Community Medicine

Original Research Article

EXPLORING THE RESEARCH LANDSCAPE: A STUDY OF NEWLY ENROLLED MEDICAL POSTGRADUATE STUDENT'S UNDERSTANDING AND ATTITUDES TOWARD RESEARCH

Sachin Chandramohan[1], Maliakel Steffi Francis[2], Sruthi CM[2], C R Saju[3]

[1]Senior Resident, Department of Community Medicine, Amala Institute of Medical Sciences, Thrissur, India
[2]Assistant Professor, Department of Community Medicine, Amala Institute of Medical Sciences, Thrissur, India
[3]Professor, and Head, Department of Community Medicine, Amala Institute of Medical Sciences, Thrissur, India

Received : 25/11/2023
Received in revised form : 25/02/2024
Accepted : 13/03/2024

Keywords:
Education, Medical, Graduate, Research.

Corresponding Author:
Dr. Sruthi CM,
Email: sruthicm23@gmail.com

DOI: 10.47009/jamp.2024.6.2.167

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2024; 6 (2); 810-813

Abstract

Background: Research constitutes an integral part in the process of progress in health care. Medical students are required to develop research competencies, but studies have reported lacunae in research knowledge and negative attitudes among medical students in India. This study aimed at assessing the research preparedness among postgraduate medical students in transition from undergraduate training. **Materials and Methods:** Research knowledge, attitudes, experience, and perceived barriers were assessed using the mixed methods approach among 45 newly enrolled postgraduate students in one of the medical colleges in India. Quantitative data were collected using a pre-validated questionnaire. Similarly, qualitative data were collected through open responses and in-depth interviews with a subset of students. **Result:** Poor understanding of research methodologies was reported in most students (60%). Only 26.7% had experience in research prior to participation in the program. Although 89% believed research to be essential in medical education, 40% of them also felt a lack of confidence to do independent research. Reasons for not taking up research in the undergraduate training included lack of time (48%), lack of interest (24%) and inadequate mentorship (15%). The qualitative findings reiterated limited hands-on experience, focus on entrance exams, and an absence of dedicated research curriculum as barriers. **Conclusion:** The study revealed huge gaps in research competencies among postgraduate students on account of the absence of effective research training in the undergraduate medical education curriculum. Efforts through mandated structured teaching of research methodology, hands-on research, mentorship, and early success that enforces self-efficacy would be some good competency-building strategies. Concerted efforts need to be made towards empowering upcoming physician-scientists to help advance healthcare through leadership in research.

INTRODUCTION

Research has the core of building medical science and advancing patient care. It increases our knowledge of disease mechanisms, informs the development of new diagnostics and treatments, and supports evidence-based clinical practice. Thus, the growth of a research-focused workforce is imperative to propel healthcare.

Medical schools definitely have a role inculcating positive research attitudes and developing research competencies in the minds of budding physicians. However, different studies from India have pointed out deficiencies in the training of undergraduate students in research.[1,2] A study done by Pawar et al showed that majority of the participants were found to be deficient in their knowledge pertaining to basics of research and attitude was negative towards research.[3] Another study by S B Javali et al showed that the participants were poor in knowledge about methodology of research and biostatistics.[4]

Moreover, these gaps can have a downstream impact on research engagement during postgraduate training and beyond. Post-graduation marks a critical period within which research experience and mentorship can empower the upcoming clinicians in acquiring the necessary skills to be able to integrate research into practice. The National Medical

Commission (NMC) prescribes submission of the thesis as a mandatory requirement for postgraduates in Medicine and Surgery.[5] Moreover, the 2-year period of Doctor of Medicine (MD) and Master of Surgery (MS) training suffices for a reasonable quantum of hands-on research activity under guidance.

However, studies have found variable levels of research knowledge and interest among postgraduates. In a study by Giri et al, postgraduates showed suboptimal knowledge and unfavourable attitude towards research.[6] In another study by Daniel et al, postgraduates exhibited poor knowledge about the research methodology.[7] These results are suggestive that the lacunae in research competencies might continue from undergraduate into postgraduate training.

Experience of prior research and successes in students can also boost their confidence regarding their ability to conduct research as well as their scholastic achievements as a whole. However, opportunities of research exposure in undergraduate curriculum are still abysmally low. The barriers identified are lack of time, dedicated curriculum for research, and dedicated mentoring.[8] Integration in the medical school with increasing research methodology teaching and participation helps to build essential skills for research.

Some investigations should be conducted to evaluate baseline knowledge and attitudes about research, so that the areas of difference could be appreciated among students as they move into their postgraduate training. This awareness of current competencies, interests, and perceived barriers may guide attempts at capacity development in research during this important postgraduate period.[9] Yet, relatively few multidimensional studies from India have explored the issue.[10]

Thus, the present study was carried out to gauge the research knowledge, attitude, experience and perceived barriers among newly joined postgraduate students of a medical college in India. The findings could give a clear view of the existing gaps and would thus help in devising strategies to inculcate research experience during postgraduate training.

MATERIALS AND METHODS

This mixed methods study was carried out during a postgraduate orientation program in a medical college in Central Kerala. The 2-day orientation program was aimed at providing the newly joined postgraduate students an overview of the requirements and process for their mandatory PG thesis/dissertation. The quantitative component involved administration of a pre-validated questionnaire to assess the knowledge and attitudes related to research among the students joining their postgraduation. The questionnaire captured sociodemographic details, previous research experience, understanding of research methodologies, perceived value of research and confidence in conducting research independently. It was administered to the students on the first day of the orientation program.

The qualitative component included open-ended questions and in-depth interviews with a subset of students to gain deeper insights into their experiences, attitudes and perceived challenges regarding research. 5 students were purposively selected for the in-depth interviews on the second day, after completion of the orientation modules on research methodology and thesis protocol development.

The quantitative data was analyzed using descriptive statistics on SPSS version 23.0. Qualitative data from open-ended responses and interviews was coded and categorized into themes. The mixed methods data integration helped obtain a comprehensive understanding of the research preparedness among this cohort of postgraduate medical students.

RESULTS

Total number of newly joined postgraduate students who participated in this study was 45. 36 were females and 9 were males. Age of study participants ranged from 24 to 37 years old, with a mean age of 27.33 (2.67). Majority belonged to the age group of 24 – 27(66.67%).

Qualitative analysis

The in-depth interviews provided insights into the limited hands-on research experience during undergraduate training.

Lack of proper perspective and guidance:

A participant explained, "We had to do a research project in the final year but it was more of a formality with no real learning of research methods or analysis."

Another participant said, “I collected data for a professor's study in the course of internship, but my role was limited, leaving me less experienced in research design, research methodology, or paper writing."

Stress of MD/MS entrance exams:

The intense focus on postgraduate entrance exams was seen as a barrier to participating in research. A student said,

"I wanted to do an ICMR project during my MBBS days but couldn't because of preparing for entrances."

Another said, "My aim after getting MBBS was just clearing the final exam. I didn't want to divert focus to research in the crucial final year."

Lack of mentoring and a dedicated research curriculum:

The lack of mentoring and a dedicated research curriculum were highlighted as well. The following were the excerpts of a participant: "Our college had no faculty mentors or a student research committee. So despite having an interest, I was at a loss of how

ISSN (O): 2687-5365; ISSN (P): 2753-6556

to proceed with a study." The other participant was of the opinion: "We had no training in MBBS in any formal methods of research. So while interested, I lacked skills and confidence to independently conduct research."

Qualitatively, the findings showed that in general, under-graduate training exposure to research, lack of mentoring and the focus on success in entrance exams hampered the participation of the students in research projects during the undergraduate training.

Table 1: Educational characteristics of study participants (N=45)

	n	%
Place of undergraduate study		
Kerala	32	71.1
Outside Kerala	13	28.9
Type of institution of undergraduate study		
Government	10	22.2
Private / Deemed	35	77.8
Speciality taken		
Pre & Para clinical	8	17.7
Clinical	37	82.2

Table 2: Knowledge of study participants regarding medical research (N=45)

Sl. No.	Knowledge regarding	Response	Frequency (%)
1.	Understanding of research methodologies and study design	Fair	13(28.9)
		Good	2(4.4)
		Poor	27(60.0)
		Very poor	3(6.7)
2.	Participated in a research project or study before joining this workshop	Yes	12(26.7)
		No	33(73.3)
3.	Know to conduct literature review?	Yes	4(8.9)
		No	41(91.1)
4.	Have received a formal training in research methodology during your UG days	Yes	9(20.0)
		No	36(80.0)
5.	Value of research in advancing medical knowledge and patient care	Important	20(44.4)
		Somewhat important	1(2.2)
		Very important	24 (53.4)
6.	Research must to be an essential part of medical education	Agree	24(53.4)
		Strongly agree	14(31.1)
		Neutral	3(6.7)
		Disagree	4(8.3)
7.	Confidence in conducting independent research	Confident	3(6.7)
		Somewhat confident	24(53.3)
		Not confident	18(40.0)

Table 3: Reasons among postgraduate students for conducting or not conducting research during undergraduate period

Reasons for	Number*	Percentage
Conducting research	12	26
Beneficial for Career	8	66
Support from faculty	5	41
Interest in topic	2	16
Not conducting research	33	73
Not compulsory	26	78
Lack of time	16	48
Lack of interest	8	24
Inadequate support	5	15

*Multiple responses

DISCUSSION

This study was done to assess the research knowledge and attitudes amongst 45 newly joined postgraduate medical students in India. The results show poor understanding about research methodology with 60% having poor and 6.7% having very poor knowledge. This finding is supported by earlier studies that showed that medical students from India were in a position of limited research competency.[3,4] The largest gap, however, seems to exist in the area of a lack of formal research training during the period of undergraduate medical education. Only 20% students reported receiving structured teaching of research methodology during undergraduate years, pointing at a need for greater integration of research methodology in the curriculum.[11] Another very important finding was of low student participation in research, where only 26.7% of students have been involved in some or the other research experience prior to postgraduation. Hands-on research exposure through projects and dissertations provides invaluable learning experience and promotes future research interest.[12,13] This gap can be addressed by

ISSN (O): 2687-5365; ISSN (P): 2753-6556

making research experience mandatory in undergraduate programs. Although gaps existed in knowledge, most students acknowledged the necessity of research in pushing the boundaries of healthcare. There was no improvement in self-confidence with regard to research, however, with 40% still reporting low self-efficacy. Lastly, research self-efficacy needs to be nurtured through mentoring and early successes.[7] Other barriers that need to be taken care of equally are a lack of time, interest, and mentoring which can be initiated through actions like provision of protected academic time, improved infrastructure, and student-faculty collaborations.[8]

Strengths: Mixed method study focused on an important transition period of early post-graduation. Weaknesses: Sample size was too small; cross sectional nature of the study. Further multi-centric studies may throw more light. In conclusion, this study highlights the need for an increased focus on integrated research methodology teaching and hands-on research participation from the undergraduate level in order to inculcate the pursuit of medical research in the next generation of physician-scientists. This mixed methods study reveals poor research knowledge and hands-on research experience among the postgraduate medical students in India. Mainly, this is because of the absence of any formal teaching of research methodology in the undergraduate curriculum. The findings underline the importance for more emphasis on research teaching integration and involvement at medical school in order to develop skills and self-efficacy as mentioned in various studies.[13–15] Post graduation offers experience in how to apply research knowledge through mentoring and infrastructure support.[16] There is a need for concerted efforts to nurture the next generation of physician-scientists adequately empowered to realize their potential in shaping the health care of tomorrow through high-quality, relevant research. The small sample size of 45 students from a single institution restricts generalizability of the findings. Self-reported assessments can introduce response bias. Actual evaluation of research competencies through practical assessments could further validate the findings. The qualitative data obtained provides rich insights but saturation may not have been achieved.

CONCLUSION

This study shows notable deficiencies in research abilities among Indian postgraduate medical students, which can be primarily attributed to a lack of formal training and research experiences during undergraduate medical school. It is necessary to incorporate mentored research projects and practical instruction in research methodology into the MBBS curriculum in order to promote interest in and development of skills related to medical research. Through infrastructure support and mentoring, the postgraduate period provides an important window of opportunity to empower the upcoming generation of physician-scientists in India. In order to promote researchers with a clinical background and increase research capacity, persistent efforts are essential.

REFERENCES

1. Garg R, Goyal S, Singh K. Lack of Research Amongst Undergraduate Medical Students in India: It's time to Act and Act Now. Indian Pediatr. 2017 May 15;54(5):357–60.
2. Verma R, Phalswal U, Shafquat N, George J. Funding opportunities for higher learning, medical and nursing research in India: An overview. J Family Med Prim Care. 2022 Aug;11(8):4240–5.
3. Pawar DB, Gawde SR, Marathe PA. Awareness about medical research among resident doctors in a tertiary care hospital: A cross-sectional survey. Perspect Clin Res. 2012 Apr;3(2):57–61.
4. Javali SB, Sunkad M. Comparison of Knowledge and Attitude towards Biostatistics among Oral Health Professionals. International Journal of Health Sciences. 2016;(9).
5. P.G. Medical Education Regulations, 2000 | NMC [Internet]. [cited 2024 Feb 20]. Available from: https://www.nmc.org.in/rules-regulations/p-g-medical-education-regulations-2000/
6. Giri PA, Bangal VB, Phalke DB. Knowledge, Attitude and Practices towards Medical Research amongst the Postgraduate Students of Pravara Institute of Medical Sciences University of Central India. J Family Med Prim Care. 2014 Jan;3(1):22–4.
7. Daniel B, Kumar V, Omar N. Postgraduate conception of research methodology: implications for learning and teaching. International Journal of Research & Method in Education. 2017 Feb 6;41:1–17.
8. Lin D, Schmidt RM, Shah C, Caruso A, Huang X, Staggers KA, et al. A Facilitated Peer Mentoring Program With a Dedicated Curriculum to Foster Career Advancement of Academic Hospitalists. MedEdPORTAL. 19:11366.
9. Kumar N, Singh S, Pal R, Kumar R. Lack of research aptitude in medical education. International Journal of Basic & Clinical Pharmacology. 2014;3(1):247–8.
10. Aslam F, Qayyum MA, Mahmud H, Qasim R, Haque IU. Attitudes and practices of postgraduate medical trainees towards research--a snapshot from Faisalabad. J Pak Med Assoc. 2004 Oct;54(10):534–6.
11. Mathieson S. Integrating research, teaching and practice in the context of new institutional policies: a social practice approach. High Educ. 2019 Nov 1;78(5):799–815.
12. Howell K. Enhancing research and scholarly experiences based on students' awareness and perception of the research-teaching nexus: A student-centred approach. PLoS One. 2021 Sep 27;16(9):e0257799.
13. Devi V, Abraham RR, Adiga S, Komattil R. Mentored student project for inculcating research skills. MEDEDUC [Internet]. 2010 May 1 [cited 2024 Jan 13];44(5). Available from: https://researcher.manipal.edu/en/publications/mentored-student-project-for-inculcating-research-skills
14. Lee GSJ, Chin YH, Jiang AA, Mg CH, Nistala KRY, Iyer SG, et al. Teaching Medical Research to Medical Students: a Systematic Review. Medical Science Educator. 2021 Apr;31(2):945.
15. Kumar D, Singh US, Solanki R. Assessment of a Group Activity Based Educational Method to Teach Research Methodology to Undergraduate Medical Students of a Rural Medical College in Gujarat, India. J Clin Diagn Res. 2015 Jul;9(7):LC01–3.
16. Success and the next generation of physician-scientists - PMC [Internet]. [cited 2024 Feb 20]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8057406/

ISSN (O): 2687-5365; ISSN (P): 2753-6556