

## ORIGINAL PAPER

# Undergraduate medical students' knowledge about principles of research and publications

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### ABSTRACT

**Introduction:** Research makes students better scientists, a core part of being a physician, and better prepares them to lead during residency and in practice. It is widely recognized that research is vital for development of medical education. Studies on the benefits of research, over the medical education are rare. **Materials and Methods:** It was a cross sectional descriptive study. Sample size was 100 and was randomly picked up from the undergraduate student community who were in their basic science stage of medical studies at Malabar Medical College and Hospital, Calicut in the year 2015. To determine knowledge about principles of research, participants filled a pretext and pretested questionnaire. Informed consent was taken. The data thus obtained was analyzed using MS Excel. **Results:** 31(31%) students feel confident in interpreting and writing a research paper; 20(20%) students say yes that they have participated in a research project; 3(3%) said that they have written a scientific paper; 73(73%) students feel lack of mentor to be the cause of no publication; 59(59%) participants says that they can plan and conduct a research project and write a scientific paper while 60(60%) students feel that lack of facility is the cause of no publication or lack of research participations. Lack of fund as root cause of no scientific research was felt by 64(64%). 67(67%) participants say that they lack of required knowledge of research methodology. **Conclusion:** With the limited resources of this study, our findings will have highlighted low to moderate level of knowledge of undergraduate medical students in principles of research methodology and the important impact of research methodology workshops. These findings can be utilized for future health research planning to improve the situation in the field of medical education in India.

**Keywords:** Medical education, principles of research methodology, impact on performance

### INTRODUCTION

Currently it is widely acknowledged that research becomes critical for development of countries and innovations; and outcomes derived from basic and applied research tremendously benefit the community.<sup>1,2</sup>

Furthermore, shifting research paradigm considers physicians as crucial creators of science through clinical and translational researches. In this regard, medical students who play key roles in helping the progress of science as potential physicians are encouraged to contribute in research projects to promote their independent trainings and skills.<sup>3</sup> In other words, health research training is an important part of medical education. There is growing evidence on the importance of the involvement of students in research.<sup>4</sup>

This is more emphasized in developing countries where finance and human resources are limited and there is a critical need for research as a tool to make efficient decisions in order to prevent unnecessary waste. In this regard, it is important to remember that there is some evidence that students with extracurricular research programs and experiences are more likely to become future scientists or physician investigators.<sup>4,7</sup>

The development of strong research skills and the provision of medical care are inextricably linked. That's why the

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research experience is stressed during the undergraduate medical education program. Therefore, research methodology has been suggested in this study as integrated research into the core curriculum, as well as offering several programs for students to become involved throughout their years of study.

In this study, it has been aimed to assess undergraduate medical students' knowledge in principles of research methodology and its contributing factors.

### MATERIAL AND METHODS

It was a cross sectional descriptive study. Sample size was 100 and was randomly picked up from the undergraduate student community who were in their basic science stage of medical studies at Malabar Medical College and Hospital, Calicut in the year 2015. To determine knowledge about principles of research, participants filled a pre-text and pre-

tested questionnaire. Informed consent was taken. The data thus obtained was analyzed using MS Excel.

### RESULT

100 students were responded to the questionnaire; therefore, response rate of 100% was observed. 76 (76%) of participants were female and 24 (24%) were male as shown in **Table 1**.

**Table 1** Sex distribution of the study participants

Sex	No. of Students	Percent
Female	76	76.0
Male	24	24.0
Total	100	100.0

**Table 2** Principles of Research Knowledge of participants

Statement	No. of students (%)			
	Yes	No	Yes with support of seniors	Undecided
Do you feel confident in interpreting and writing a research paper?	31 (31)	15 (15)	40 (40)	14 (14)
Have you ever participated in a research project (apart from mandatory academic projects)?	20 (20)	79 (79)	1 (1)	0 (0)
Have you ever written a scientific paper?	3 (3)	97 (97)	0 (0)	0 (0)
Lack of mentor is the cause of no publication or lack of research participations?	73 (73)	14 (14)	0 (0)	13 (13)
Do you think UG can plan and conduct a research project and write a scientific paper?	59 (59)	8 (8)	30 (30)	3 (3)
Do you think that lack of facility is the cause of no publication or lack of research participations?	60 (60)	35 (35)	0 (0)	5 (5)
Lack of fund is the root cause of no scientific research or lack of publication?	64 (64)	30 (30)	0 (0)	6 (6)
Lack of knowledge of research methodology is the root cause of no publication or lack of research participations?	67 (67)	29 (29)	0 (0)	4 (4)
No future benefit or privileges from Govt. of doing research and scientific publication is the cause of all?	44 (44)	44 (44)	0 (0)	12 (12)
Lack of knowledge of seniors in research and publication is the cause of demotivation leading to all these problems?	39 (39)	45 (45)	0 (0)	16 (16)

Only 3 students have ever written a scientific paper and all the three has written one paper each.

## DISCUSSION

Our study shows undergraduate medical students have low-to-moderate knowledge about principles of research and publications. In line with this finding, in a study by Windish et al. on understandings of medical residents of biostatistics and interpretation of results, mean correct answer was 41.4%, indicating low-to-moderate knowledge of the residents in these issues.<sup>8</sup> Similar findings were observed among physicians practicing in an academic medical center<sup>9</sup>, medical students, first year Croatian medical students<sup>10</sup>, Pakistani medical students<sup>11</sup>, and medical students in South East Europe.<sup>12</sup>

Considering the fact that some chapters of medical curriculum are related to health and epidemiology basics, it was assumed that passing these courses would enormously improve students' knowledge on principles of research methodology. However, our findings indicate that medical curriculum is exclusively important in topics of understanding research and publication. Yet, other team works, motivation from seniors, source of fund, benefits of such works in regards to research achievements, etc. may also contribute to the knowledge of students' in principles of research and publications.

## CONCLUSION

In interpreting the results one should consider limitations of our study: First, the study was cross-sectional. Prospective studies would have been beneficial in overcoming this limitation. Second this study was performed over the students of a single medical college, did not evaluated the same in other institutions which may improve students' knowledge on principles of research and publications. Furthermore, similar academic and research potentials of these students have not been evaluated over the knowledge on principles of research.

Apart from the limitations, our findings highlight low-to-moderate level of knowledge of undergraduate medical students in research and publications and the important role of senior's guidance and others in improving students' knowledge. Hence we suggest further researches on students studying in different institutions and students at different stages of medical education which could provide useful information for education and research policy makers.

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**Author's contribution:** We declare that this work was done by the authors named in this article and all liabilities pertaining to claims relating to the content of this article will be borne by the authors.

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