

Original article:

Attitudes and Practices of Postgraduate Students towards Medical Research

Dr Muralidhar Reddy Sangam*

Professor of Anatomy , NRI Medical College, Chinakakani, Guntur, Andhra Pradesh

Corresponding author*

Abstract:

Introduction: Medical research is essential in improving the health care. It is particularly valuable to the physician in evidence based medical practice as it imparts the skill in review of literature, collection and analysis of the data and critical appraisal of evidence.

Material and methods: A cross sectional study was carried out on the postgraduates of various specialties in the period 2013-14 after getting an approval from Institutional Ethics Committee. Out of 64 postgraduates approached, 58 students gave consent and they were included in the study. 15 were from nonclinical specialties and 43 were from clinical specialties.

Results: Though the level of attitude towards research (mean score 57.41 ± 24.96) better, we report a poor level of knowledge towards research (mean score 45.51 ± 20.44) and poor participation of the postgraduates in medical research (mean score 35.51 ± 20.53).

Conclusion: Limited time is the most important obstacle cited for not being able to engage in research.

Introduction:

Medical research is essential in improving the health care. It is particularly valuable to the physician in evidence based medical practice as it imparts the skill in review of literature, collection and analysis of the data and critical appraisal of evidence [1, 2]. It is widely accepted that evidence based medicine has a significant contribution to the advancement of medical science. By conducting research the physician should be able to generate the evidence [3]. For carrying out research, adequate knowledge in research methodology, practical skills and development of positive attitude are crucial [4].

Despite the importance of research, the number of articles published in medical science by Indian physicians is very few. For most of the times the Indian physicians depend on the Western literature

for various clinical conditions. But the same knowledge cannot be used to treat the local diseases. Hence there is lot of need to improve the quality and quantity of research in this field. For this the physicians should be trained properly in research methodology during the course of their medical education so that it can be implemented in their practice.

Unfortunately, the research methodology is not incorporated in as a part of the curriculum in medical education in India. At undergraduate level there is no training in research methodology. Even though there is a lot of output from various medical colleges in India, only 0.9% of undergraduates are involved in various research programmes [5]. As per the Medical Council of India guidelines, a postgraduate student has to carry out a dissertation project during the study

period of 3 years. Research training is currently being incorporated as a part of the curriculum to build a task force of competent physician scientists. In order to encourage the research, currently Medical Council of India has made it mandatory to attend and present a scientific paper in at least one national or international conference and to send the article for publication.

In order to evaluate whether the efforts to promote research are paying off, there is a need to assess the level of research knowledge, practices and attitudes of postgraduate students. This may help in identifying the various difficulties and challenges faced by them during research and at the same time it helps the experts to build a proper research facilitating curriculum.

A review of literature reveals that there is a very scanty data available regarding the attitudes of postgraduate students towards medical research particularly in South India. So the present study has been taken up to assess the existing knowledge and attitudes of postgraduates towards medical research and to determine their involvement and practice in research.

Material and methods:

A cross sectional study was carried out on the postgraduates of various specialties in the period 2013-14 after getting an approval from Institutional Ethics Committee. Out of 64 postgraduates approached, 58 students gave consent and they were included in the study. 15 were from nonclinical specialties and 43 were from clinical specialties.

A pre tested structured questionnaire was administered to the postgraduate students after seeking their consent. A questionnaire was developed based on the objectives of the study and guidance of previous studies [6, 7, and 8]. It was adapted after a

peer review and then pre tested to validate its contents. Further modifications were made to develop a final questionnaire.

The questionnaire contained 5 questions assessing knowledge, 10 questions assessing attitude and questions assessing the practices

Questions assessing the knowledge of postgraduates in research methodology were as follows.

1) How would you define a scientific hypothesis?

- a) A proposed idea or thought
- b) An answer or solution to a question
- c) **An answer to a question which has a capacity of verification or empirical demonstration**
- d) Logical deduction of the premises that may or may not be verified empirically

2) Define a scientific truth

- a) Facts taught by your professors
- b) Truth that will be reached through scientific research
- c) Facts that can be found in the textbooks
- d) **Consensus of competent experts**

3) A scale from 1 to 5 (like grades on an examination) is called

- a) Ratio scale
- b) **Ordinal**
- c) Interval
- d) Nominal

4) MEDLINE is

- a) First and best known "online" medical journal
- b) **Medical database**
- c) Abbreviation that lists the parts of the research article
- d) Printed form of the Excerpta Medica

5) The part of scientific paper is

- a) Author's curriculum vitae
- b) Letter to the editor enclosed with the paper
- c) Description of the time line

d) Acknowledgement to persons who assisted you during the research

For each respondent, the percentage of correct answers was calculated as a representative of knowledge score.

Questions assessing the attitude of postgraduates in research methodology were as follows.

- 1) Research is not relevant to medical education.
- 2) I have interest in research.
- 3) Research is useful to my career.
- 4) I will employ research approaches in my profession.
- 5) Review of literature and research is waste of time in medical education.
- 6) Mandatory research time should be set in medical curriculum.

Results:

Table 1 shows the proportion of postgraduates with correct answer for each question on the knowledge questionnaire.

Question	% with correct response
How would you define a scientific hypothesis	50%
Define a scientific truth	46.5%
A scale from 1 to 5 (like grades on an examination) is called	51.7%
MEDLINE is	39.6%
The part of scientific paper is	39.6%

The mean knowledge score \pm SD is 45.51 \pm 20.44.

7) Medical literature influences the way in which medicine is practiced.

8) Most students benefit from research.

9) Training in research methodology should be made compulsory right from UG course.

10) It is a good idea to implement the rule of having at least one research publication to appear for the university examination.

Negative questions were reframed. For questions on attitude, each answer was scored 0 for unfavorable attitude and 1 for favorable attitude. For each respondent, the score of questions was summed and converted into percentage to represent attitude.

Data was analyzed and expressed in percentage. Numerical variables are expressed as mean \pm standard deviation.

Table 2 shows the proportion of postgraduates with positive response for each question on attitude questionnaire.

Question	% of positive response
Research is relevant to medical education	60.3%
I have interest in research	67.2%
Research is useful to my career	60.3%
I will employ research approaches in my profession	43.1%
Review of literature and research is useful in in medical education	53.4%
Mandatory research time should be set in medical curriculum	65.5%
Medical literature influences the way in which medicine is practiced	53.4%
Most students benefit from research	75.8%
Training in research methodology should be made compulsory right from UG course	63.7%
It is a good idea to implement the rule of having at least one research publication to appear for the university examination.	27.5%

The mean attitude score \pm SD is 57.41 ± 24.96 .

Table 3 shows the response of postgraduates towards research practices

Statement	%
Involved in any research project other than dissertation	5.17%
Have publication in national/international journal	5.17%
Have a paper / poster presentation in scientific conference	44.8%
Have the habit of reading scientific journals regularly	20.6%
Participated in a workshop on research methodology	100%

The mean practice score \pm SD is 35.51 ± 20.53 .

Table 4 shows obstacles preventing postgraduates from doing medical research

Obstacle preventing from doing research	%
Lack of faculty	6.8%
Inadequate mentors	10.3%
Lack of research curriculum	31%
Inadequate financial support	27.5%
Lack of time	64.8%
Inadequate facilities for research	12%
Personal commitments	20.6%

Discussion:

There is a disparity regarding the participation in the research by the postgraduates and their attitudes towards research in the present study. Though 67.2% stated that they have interest in research and 60.3% agreed that research is useful to their career, only 27.5% felt that it is a good idea to implement the rule of having at least one research publication to appear for the university examination.

Though the level of attitude towards research (mean score 57.41 ± 24.96) better, we report a poor level of knowledge towards research (mean score 45.51 ± 20.44) and poor participation of the postgraduates in medical research (mean score 35.51 ± 20.53).

In India, as per the guidelines of Medical Council of India (MCI), postgraduates are introduced to the concept of designing and conducting research in the first few months of their course. But the medical research carried out by postgraduates in India is disappointing as compared to developed countries. India holds twelfth rank among productive countries in medical research consisting of 65,745 articles with a global publication share of 1.59% [9]. In Germany where research is an integral part of undergraduate medical curriculum, medical students were involved in 28% of publications in an institution, including first authorship in 7.8% of papers [10]. A study reported that in a European country, Croatia, 23% of undergraduates were involved in research projects [11]. Research is not considered as a part of medical curriculum in many developing countries. In a study from India, 91% of interns reported no research experience in medical school [12]. Thus students in India rarely get exposed to the research development when such exposure could encourage further research after qualification [13]. Faculty across South Asia themselves seldom engage in research, the reasons

may be lack of incentives, work load, poor pay, and minimal research demand in clinical practice from patients, fellow physicians and policy makers [13]. This shows that there is a need to improve the existing medical education system to foster research culture.

In the present study, the attitude of postgraduates towards research is better, but their knowledge and participation in research is very poor. All the postgraduates included in the present study participated in research methodology program as per MCI guidelines in the early part of their course. But the level of knowledge in research is disappointing. The reason may lack of immediate implementation of the knowledge in practice. Soon after their training in research methodology, the faculty should encourage the student's short term projects and guide them.

Some studies have shown that frequent journal club activity helps trainees stay abreast with current literature, improve knowledge of research methodology, biostatistics and impart critical thinking skills [14, 15]. Lack of knowledge in research methodology among some postgraduates may be due to lack of teaching of critical reading skills in club activity and lack of frequent effective club activity. Knowledge can be improved by organizing regular journal club activities with mandatory attendance along with special workshops in critical reading and manuscript writing [7].

Though 75.8% agreed that most students benefit from research, only 5.17% had research projects other than dissertation with publications. Negative attitudes towards research may be the obstacle for poor performance in research. These negative attitudes can be overcome by attending the conferences and research methodology training workshops and attaining proper knowledge on how to

write and organize research papers. The significant reason for less number of students participating in research with interest is lack of time. If the basic knowledge in research methodology is incorporated in undergraduate curriculum as in countries like Germany, the student can step into postgraduate course with minimum concept in research and can take up projects without waste of time immediately after admission.

Only 20.6% had the habit of reading the scientific journals regularly. The importance of local health research is invaluable as it is tailored to local needs and problems and serves to generate indigenous solutions. It has been shown that local journals are most likely to influence clinical practice in developing countries [16]. In order to strengthen the local literature, it must not only be properly utilized, but properly contributed as well. Therefore journal reading plays a crucial role in promoting critical literature reading.

Limited time is the most important obstacle cited for not being able to engage in research. This factor is the common significant barrier to pursuing research as described in previous studies [17]. During residency period, there is intense clinical training and a number of examinations at various levels of training. The levels of stress and work are physically and mentally exhaustive for the trainee. To overcome this mandatory research time may be set during the course for a period of 2-3 months to take up small projects other than dissertation.

References:

1. Goodman NW. Does research make better doctors? *Lancet* 1994, 343 (8888): 59.
2. Potti A, Mariani P, Saeed M, Smego RA. Residents as researchers: expectations, requirements, and productivity. *Am J Med* 2003, 115 (6): 510-514.
3. Sackett DL, Roseberg WM, Grey JA, Haynes RB, Richardson WS. Evidence based medicine: What it is and what it isn't. *BMJ* 1996, 312: 71-72.

The major reasons cited for poor research activity in Pakistan were poor research training and poor research awareness [18]. In contrast to this in the present study, the major obstacle is lack of time and lack of research curriculum. Few students stated that lack of infrastructure and poor funding are the obstacles from doing research. There is a need to encourage the students taking up research projects with scholarships.

The students should be sensitized to research by making them aware of why research is crucial to health care and undertaking mandatory course on research training project. Previous research experience should be given value during recruiting and selection of specialties for further studies. The curriculum should be updated by including teaching of research methodology and allotting specific mandatory time for research. Faculty should be trained and the faculty should encourage and motivate the students to participate in research.

Limitations:

This study was conducted at one institute involving limited number of postgraduates. So the findings cannot be generalized. The results are derived from a self-report survey on the knowledge, attitude and participation towards research and independent verification of the data is not possible. It is also not possible to observe change in attitude towards research as the students progressed through 3 year course.

4. Bhatt A. The challenge of growth in clinical research: Training gap analysis. *Pharma Bio World* 2005, 56-58.
5. Deo Mg. Undergraduate medical students research in India. *J Postgrad Med* 2008, 54: 176-179.
6. Vodopivec I, Vujaklija A, Hrabak M, Lukic IK, Marusic A, Marusic M. Knowledge about and attitude towards science of first year medical students. *Croat Med J* 2002, 43 (1): 58 – 62.
7. Hassan Khan, Sadaf Khan, Arshad Iqbal. Knowledge, attitude and practices around health research: the perspective of physicians-in-training in Pakistan. *BMC Medical Education* 2009, 9: 46.
8. Dattatray BP, Suchita RG, Padmaja AM. Awareness about medical research among resident doctors in a tertiary care hospital: A cross sectional survey. *Perspect Clin Res* 2012, 3 (2): 57 – 61.
9. Gupta BM, Bala A. A scientometric analysis of Indian research output in medicine during 1999 – 2008. *J Nat Sci Biol Med.* 2011; 2: 87 – 100.
10. Crusiefen C, Altunbas A. Contribution of medical student research to the Medline-indexed publications of a German medical faculty. *Med Educ* 1998, 32: 439 – 440.
11. Kolcic I, Polasek O, Mihalj H, Gombac E, Kraljevic V, Kraljevic I et al. research involvement speciality choice and emigration preferences of first year medical students in Croatia. *Croat Med J.* 2005; 46: 88 – 95.
12. Chaturvedi S, Aggarwal OP. Training interns in population – based research: learners’ feedback from 13 consecutive batches from a medical school in India. *Med Educ* 2001; 35 (6): 585 – 589.
13. Aslam F, Shakir M, Qayyum MA. Why medical students are crucial to the future of research in South Asia. *PloS Med.* 2005; 2 (11): e322.
14. Kellum JA, Rieker JP, Power M, Powner DJ. Teaching critical appraisal during critical care fellowship training: a foundation for evidence-based critical care medicine. *Crit Care Med.* 2000, 28 (80): 3067 – 3070.
15. Akhund S, Kadir MM. Do community medicine residency trainees learn through journal club? An experience from a developing country. *BMC Med Educ.* 2006, 6: 43.
16. Page J, Heller RF, Kinlay S, et al. Attitudes of developing world physicians to where medical research is performed and reported. *BMC Public Health.* 2003; 3: 6.
17. Siemens DR, Punnen S, Wong J, Kanji N. A survey on the attitudes towards research in medical school. *BMC Med Educ.* 2010; 10: 4.
18. 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; 54 (10): 534 – 536.