ORIGINAL ARTICLE
pISSN 0976 3325 | eISSN 2229 6816
Open Access Article
www.njcmindia.org

KNOWLEDGE, ATTITUDE AND PERCEPTION OF MEDICAL STUDENTS REGARDING COMMUNITY-ORIENTED RESEARCH

Anindo Majumdar[1], Ganesh Kumar S[2], Gautam Roy[3]

Financial Support: None declared
Conflict of interest: None declared

How to cite this article:
Majumdar A, Ganesh KS, Roy G. Knowledge, Attitude and Perception of Medical Students Regarding Community-oriented Research. Ntl J of Community Med 2015; 6(2):97-102.

Author's Affiliation:
[1]Senior Resident; [2]Associate Professor; [3]Professor and Head, Department of Preventive and Social Medicine, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry, India

Correspondence:
Dr. Anindo Majumdar
dranindomajumdar@gmail.com

Date of Submission: 07-01-15
Date of Acceptance: 19-03-15
Date of Publication: 30-06-15

ABSTRACT

Objective: Objective of the study was to assess the knowledge, attitude and perception of medical students regarding community-oriented research.

Method: This was a cross-sectional study conducted among all 5th semester MBBS students of a teaching hospital in Puducherry. A field-based community-oriented research project was carried out by the students as a part of their routine block posting. At the end of the posting, a self-administered questionnaire was administered to the students to collect data.

Results: Out of total 52 students, 43 (82.7%) completed the study. Less than 50% students answered the questions correctly in areas related to stages of an investigation, hypothesis testing, sample size calculation, data entry and analysis software, and scales of measurement. Performance in study designs and sampling techniques were also not satisfactory. Most of the students had a positive attitude towards community-oriented research projects and majority perceived them as useful.

Conclusion: Similar field-based research training programmes should be supplemented with separate courses in research methodology.

Key words: medical students, research, community, knowledge, attitude

INTRODUCTION

Undergraduate medical education is increasingly moving out of the boundaries of tertiary hospitals to community settings. In the Edinburgh Declaration of World Conference on Medical Education held in the year 1998, it was made clear that the mandate of medical education should be to produce professionals who are capable of the undertaking needs of the community and take action accordingly.[1] Community-based medical education thus provides students the opportunity to learn about peoples' felt needs. In India, this task of providing community-based medical education to medical students has been mainly assigned to the departments of Community Medicine/Preventive and Social Medicine (PSM) existing in various medical colleges.

The need for developing research skills among undergraduate medical students has been real-

ized earlier. The Indian Council of Medical Research (ICMR) initiated the Short Term Studentship Program in the year 1979 to provide an opportunity to undergraduate medical students to familiarize themselves with research methodology and techniques by being by undertaking independent projects and thus, promote interest and aptitude for research among them.[2] The Medical Council of India (MCI) regulations on graduate medical education 1997 also envisages that on completion of the course in Community Medicine subject, the student should be able to use epidemiology as a scientific tool to make rational decisions relevant to the community and to collect, analyse, interpret and present community-based data.[3]

Practical training through field visits has already been recognised as an efficient method for teaching community-oriented research to MBBS students. Though departments of Community medicine/PSM in some of the medical colleges have initiated some form of community-based teaching, there is a lack of field-based training of students in survey methodology. The reasons for this are many, including lack of proper infrastructure and training, along with the lack of interest among faculty and students in conducting such research. Even if there exists one, little is known about the effect such training has on the students, in terms of knowledge, attitude and perception. The present study was thus contemplated with the objective of evaluating the effect of practical field-based training on the knowledge, attitude and perception of undergraduate medical students regarding community-oriented research.

METHOD

The present study was a cross-sectional study conducted among all 5th semester MBBS students of Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry. As a part of their routine training in the subject of Community Medicine, 5th semester students are posted with the department of PSM, JIPMER during the forenoons of all weekdays, and for a continuous period of one month. This posting is known as Community Diagnosis posting, and is one of the three Community Diagnosis postings students have to undergo between 1st and 7th semester during the MBBS course. Community diagnosis refers to the identification and quantification of health problems in a community, and identification of their correlates for the purpose of defining those individuals or groups at risk or those in need of health care.[4]

The first Community Diagnosis posting starts in 3rd semester. During this posting, students carry out a survey to explore various demographic variables, socio-economic factors and general health problems of people residing in a community. The next Community Diagnosis posting takes place during the 5th semester, in which a specific disease/health condition is selected, and a community-oriented research project is carried out by the students under the guidance and supervision of Faculty and Residents of the department of PSM. The final Community Diagnosis posting occurs during the 7th semester when the students are taken to the offices of various national programmes and are also oriented to primary health care system of the country through visits to Subcentres, Primary Health Centres, and Community Health Centres. In all the Community Diagnosis postings, students are taken to rural areas as a part of field training.

In the present study, students were briefed regarding the posting and were introduced to research methodology at the beginning of the posting. The students were then asked to come up with a research question. On the following day they were taken to a village in the field practice area of Jawaharlal Institute Rural Health Centre (JIRHC), which is under the administrative control of Department of PSM, JIPMER. With the help of staff of JIRHC, a village leaders' meeting was arranged with the students to take permission for the research project. A semi-structured questionnaire was then developed for the research project and was discussed with the students. Inputs from the students were taken and were incorporated in the questionnaire. On the subsequent days field visits were arranged to take students to the selected village for village mapping and social mapping. This was further consolidated with the help of Google maps.

The details of sample size calculation, sampling strategy, inclusion and exclusion criteria were also discussed with the students, along with the plan of analysis. Data was collected by the students in the field for the next eight days consecutively. During the field visits, the whole batch was divided into six groups of eight students each. Each group was supervised by a resident-in-charge. The faculty-in-charge of the project provided general supervision to all the groups. During the field visits, students had several informal discussions with the resident-in-charge of

their respective groups and got their doubts clarified. Informed consent was obtained from all the students before administering the questionnaire. Students were then demonstrated how to enter the collected data into a data entry software (Epidata Version 3.1), the format for which was designed by the residents. Analysis was done using the Statistical Package for Social Sciences (SPSS) software (Version 17) with the involvement of students. Students were thus involved at each stage of research project from planning stage to analysis and interpretation of results.

There were a total of 52 students in the 5th semester batch. A self-administered questionnaire was developed to assess the knowledge, attitude and perception of the study participants. The same was administered to the participants on the final day of the posting. Informed consent was taken from the participants prior to administration of the questionnaire. The questionnaire was kept anonymous and the participants were instructed not to provide any identifying details. The filled up questionnaires were collected on the same day of administration of the questionnaires.

The questionnaire consisted of two sections. The first section contained 15 Multiple Choice Questions (MCQ's) with only one possible answer, and was designed to test the knowledge of participants. The questions covered most areas of research methodology viz. questions on the preliminary stages and steps in planning of an investigation, hypothesis testing, study instruments including interview techniques, study designs, sample size calculation, types of variables in a study, graphical representation of data, sampling strategies, databases for searching biomedical literature, data entry and analysis software, and measurement scales. The second section contained eight statements to measure the attitude and perception of study participants regarding community-oriented, field-based research using a five-point Likert scale. This section also contained two statements on perceived barriers with respect to knowledge of the local language and safety of students during such training in the community. Information about gender of students was also obtained. Data were entered in Microsoft Excel 2007 and analysed using SPSS version 17.

RESULTS

Out of total 52 students in the 5th semester, 43 (82.7%) students completed the questionnaire. Two students were absent, and six did not return the completed questionnaire. Out of 43 students, 25 were female and 18 were male.

Knowledge gained was not up to the mark (<50% students answered the questions correctly) in areas related to preliminary stages of an investigation, hypothesis testing, sample size calculation, data entry and analysis software and scales of measurement (Fig 1). Performances in study designs and sampling techniques were also not satisfactory.

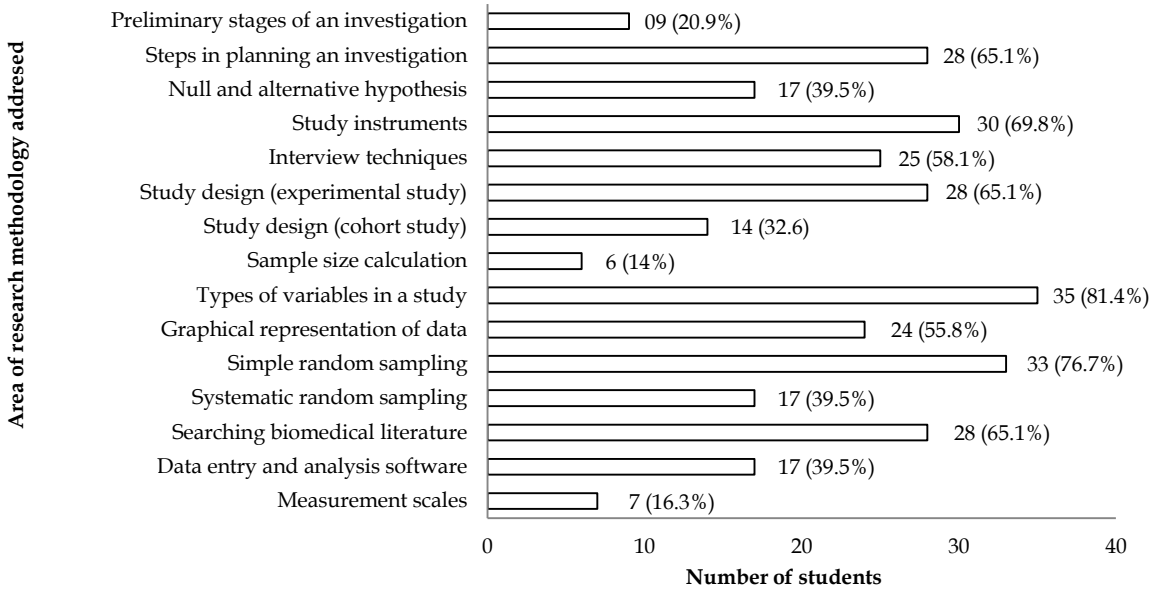

Figure 1: Knowledge of medical students in terms of the number of students with correct answers for questions belonging to different areas of research methodology

Table 1 Attitude and perception of students regarding community-oriented research n (%)

Statements	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I find community-oriented research to be interesting	9 (20.9)	27 (62.8)	6 (14.0)	1 (2.3)	0 (0)
Training courses & workshops on community-oriented survey methodology should be integrated in the medical curriculum	8 (18.6)	24 (55.8)	8 (18.6)	2 (4.7)	1 (2.3)
Hospital based clinical research is more exciting than community-oriented research	9 (20.9)	11 (25.6)	17 (39.5)	6 (14.0)	0(0)
Engaging MBBS students more in mentored community-oriented research projects will help develop research skills	11 (25.6)	24 (55.8)	7 (16.3)	1 (2.3)	0 (0)
I am confident of conducting a research project in the community on my own	2 (4.7)	6 (14.0)	24 (55.8)	11 (25.6)	0(0)
Community-oriented research will not be of any help in my future as a physician	1 (2.3)	7 (16.3)	13 (30.2)	18 (41.9)	4 (9.3)
In future I will recommend to start such trainings to fellow medical students and faculty in other medical colleges if such training does not exist there	8 (18.6)	16 (37.2)	16 (37.2)	3 (7.0)	0(0)
I find epidemiology to be a difficult subject	5 (11.6)	15 (34.9)	17 (39.5)	6 (14)	0(0)

Table 1 show that 36 (83.7%) students agreed or strongly agreed that community-oriented research projects are interesting. 20 (46.5%) students agreed or strongly agreed to the fact that hospital-based research was more exciting then community-oriented research. When asked about whether students were confident of conducting a research project in the community on their own, 25.6% disagreed or strongly disagreed, and another 55.8% gave a neutral response. 32 (74.4%) and 35 (81.4%) students agreed or strongly agreed that training courses and workshops on community-oriented survey methodology should be integrated in the medical curriculum, and that engaging MBBS students more in mentored community-oriented research projects will help develop research skills respectively. Most of the students perceived epidemiology as a difficult subject, felt such training will be of help in their future as a physician, and most wanted to recommend this kind of training to students and faculty of other medical colleges where such training does not exist.

48.9% students (nine Tamil speaking students were excluded from this analysis) strongly agreed or agreed that lack of training in the local language was a barrier for interacting with the community in such projects. Nine Tamil speaking students were excluded from this analysis. Similarly 37.2% students agreed or strongly agreed that safety of the students was an issue in such projects.

DISCUSSION

The advantage of taking medical undergraduates to community settings for teaching has been advocated through several studies. In an earlier study, medical students had perceived training in community-oriented medical education to be better in comparison to hospital-based clinical training.[5] In a previous study conducted in Australia to see if academic performance was compromised by taking undergraduate medical education out of hospital settings, it was seen that scores of students were in fact higher in rural community settings as compared to secondary or tertiary level hospitals.[6] In an evaluation of Reorientation of Medical Education (ROME) camp for final year medical undergraduates at one of the rural health centres of a medical college in India, major strengths of the camp were found to be exposure visits and hands-on experiences in surveys, and interaction with village-level health care providers.[7] Similarly, in another study conducted among medical students in Nepal, 61% students opined that the residential field posting in epidemiology will help them to serve people better as community-oriented doctors.[8]

Research skills and critical review of scientific literature starts early in the career of a health professional and is a life-long learning process. Previous literature has documented both lack of interest and lack of the education system in imparting training to students in developing research skills. Considering research as a useless activity was one of the prime reasons for students' disinterest towards research, as reported in a study done in Pakistan.[9] As a result of continued advocacy for both community-oriented teaching and acquaintance of research skills by medical students, many countries have now started using community settings for training medical undergraduates in research methods.

In our study, we used MCQs to assess the knowledge gained by students during the field –

based training regarding various aspects of research methodology. MCQs have shown to play a definite role in facilitating learning and in evaluation of performances. In an earlier study conducted in India, it was found that mentored student projects help developing research skills among medical students.[10] One study evaluated the effectiveness of learning research skills through a nine week summer training programme in a community-based participatory research and reported an increase in the knowledge and skills of students with regards to research.[11] Researchers from Pakistan reported no difference with respect to knowledge of health research among groups undergoing problem-based learning and the conventional lecture-based learning.[12] It is not clear whether a practical field-based training was a part of problem-based learning in that study though.

In the present study, for measuring the attitude and perception of students regarding community-oriented research projects, Likert scale was found appropriate because of its relative ease and straightforward interpretation of results. In a previous study conducted in the same institution as the present study, 90% students perceived epidemiology-based community block postings as highly useful particularly with regards to the 'survey per se'.[13] In another study from the same institute, about 75% 1st year students had gained substantial knowledge and skills following the block postings, and all of them (100%) expressed positive attitude towards community-oriented research.[14] In a survey methodology course using field assignments given to undergraduate medical students in Pakistan, majority (74%) of the students advocated field visits to be a regular part of teaching strategy.[15] In the same study, overall 63% students found the course to be useful. One study from Pakistan reported that faculty of medical school perceived research methodologies to be learnt better by community-oriented medical education, as compared to conventional lectures.[16]

In our study, 46.1% perceived epidemiology as a difficult subject. Rahman M et al conducted a study among the 3rd and 4th year undergraduates in a medical school in Bangladesh and reported that most of the students agreed to the idea of introducing Clinical Epidemiology and Biostatistics as a part of Community Medicine teaching programme.[17] A study conducted among 2nd year medical students in a Malaysian university to assess the perceptions of an epidemiology and biostatistics module reported that 84.6% of the students recommended practical sessions for designing research and data collection. 80.7% students realized the link between relevance of the subject and understanding of real health issues.[18] In an attempt to study students' opinion regarding application of Epidemiology, Biostatistics and Survey Methodology courses in medical research in Pakistan, 76% students agreed that these courses were useful in the in the first two years of undergraduate medical curriculum. Among the three courses, Epidemiology and Survey methodology were considered most useful for critical review, literature search, and medical writing.[9]

Almost 50% students in the present study perceived lack of training in local language as a barrier in communicating with the community. In a comparative study of community and hospital-based teaching, it was found that the students perceived community based teaching to be particularly important in improving communication skills and learning about psychosocial issues.[19] It can thus be inferred that though students perceive this kind of training in the community important to sharpen their communication skills, lack of knowledge of the local language is a major hurdle. Safety of students was perceived as a major barrier in the present study. It looks more important with respect to female students, especially with India presently having to deal with the problem of violence against women.

The present study has its own strengths and limitations. In the present study, the questionnaire was kept anonymous to get unbiased responses from the students by alleviating the fear of getting recognised in the examination. One of the limitations was that the knowledge, attitude and perception regarding report writing and publication of a research article were not assessed.

CONCLUSION

Knowledge of 5th semester students was not up to the mark (<50% students answered the questions correctly) in areas related to stages of an investigation, hypothesis testing, sample size calculation, data entry and analysis software, and scales of measurement even after the practical field-based training. Performance in study designs and sampling techniques were also not satisfactory and need emphasis during future training programmes. Most of the students had a positive attitude towards community-oriented research projects though, and majority perceived

them as useful. Almost half of the students felt that it was difficult to communicate with the community because of lack of training in the local language. Safety of students was a major concern for students.

Similar field-based community-oriented research projects should be introduced early in the teaching curriculum to teach research methodology to undergraduate medical students and to instil confidence among them to work as independent researchers in the future. There is a need for carrying out formal training courses in research methodology for undergraduate medical students. This however should also be supplemented with classes in the local language for students unable to comprehend the language, along with in-built safety mechanisms for the students while in the field.

Acknowledgement

We thank Junior Residents Dr. Divya for helping during data entry, and Dr. Sujiv, Dr. Umakant and Dr. Vinayagamoorthy for helping during data collection.

REFERENCES

1. The Edinburgh Declaration. (1998) In Proceedings of the World Conference on Medical Education: 1998, Edinburgh World Medical Association; 1998.
2. Indian Council of Medical Research (ICMR) (n.d.) [online] available at http://www.icmr.nic.in/shortr.htm [Accessed on 10/12/2013].
3. Medical Council of India regulations on graduate medical education (1997) available at http://www.mciindia.org/rules-and-regulation/gme_regulations.pdf [Accessed on 06/12/2013]
4. Vaidya A, Pradhan A, Joshi SK et al. Acquaintance with the actuality: community diagnosis programme of Kathmandu Medical College at Gundu village, Bhaktapur, Nepal. Kathmandu Med Univ J. 2008; 6(1):128-134.
5. Ali A. Community-oriented medical education and clinical training: comparison by medical students in hospitals. J Coll Physians Surg Pak. 2012; 22(10): 622-626.
6. Worley P, Esterman A, Prideaux D. Cohort study of examination performance of undergraduate medical students learning in community settings. BMJ. 2004 328:207.
7. Dongre AR, Deshmukh PR, Gupta SS et al. An evaluation of ROME Camp: forgotten innovation in medical education. Educ Health (Abingdon). 2010; 23(1) pp. 363.
8. Premarajan KC, Nagesh S, Jha N et al. Teaching Epidemiology in Community Setting for Medical Under Graduates-our Experience from Eastern Nepal. Indian Journal of Community Medicine. 2006; 31(4):289-290.
9. AFS Sheikh SA, Kaleem A, Waqas A. Factors contributing to lack of interest in research among medical students. Adv Med Educ Pract. 2013; 4:237–243.
10. Devi V, Abraham RR, Adiga A et al. Fostering research skills in undergraduate medical students through mentored students projects: example from an Indian medical school, Kathmandu Univ Med J. 2010; 8(31):294-298.
11. Dehaven MJ, Chen L. Teaching medical students research while reaching the underserved. Fam Med. 2005; 37(5):315-317.
12. Khan H, Taqui AM, Khawaja MR et al. Problem-based versus conventional curricula: influence on knowledge and attitudes of medical students towards health research. Plos One. 2007; 2(7) e632.
13. Soudarssanane MB, Sahai A. Innovative field training in epidemiology, Indian J Community Med. 2007; 32(1):86-87.
14. Soudarssanane MB, Rotti SB, Roy G. Research as a tool for the teaching of epidemiology, World Health Forum. 1994; 15(1):48-50.
15. Anjum Q, Omair A, Inam SN et al. Utilising field assignments in survey methodology course at Ziauddin Medical University, Karachi. J Pak Med Assoc. 2002; 52(3):120-123.
16. Khan I, Fareed A. Perceptions of students and faculty about conventional learning and community-oriented medical education. J Coll Physians Surg Pak. 2003; 13(2):82-85.
17. Rahman M, Chowdhury M, Ahmad MM et al. Do taught courses on community medicine change knowledge status regarding clinical epidemiology and biostatistics in medical students? J Epidemiol. 2000; 10(3):188-190.
18. Daher A M, Amin F. Assessing the perceptions of a biostatistics and epidemiology module: Views of Year 2 medical students from a Malaysian university. A cross-sectional survey. BMC Medical Education. 2010; 10(34).
19. O'Sullivan M, Martin J, Murray E. Students' perceptions of the relative advantages and disadvantages of community-based and hospital-based teaching: a qualitative study. Med Educ. 2000; 34(8):648-655.