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Early community-based teaching of medical undergraduates for achieving better working skills in the community

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Abstract:

INTRODUCTION: It has been perceived that there is a lack of community exposure and active learning in the community for the first-year undergraduates in Community Medicine. This study is designed to evaluate an early community exposure given to the students to help overcome these lacunae.

METHODOLOGY: In this study, the first-year students ($n = 44$) were provided an early community exposure and evaluated to understand their perceptions by a prevalidated, pre- and post exposure questionnaire. The community exposure was given to the students by allocating them families in community with designated tasks. A core group of mentors monitored the students and scored the students on every visit. Attendance of students, scores marked by the mentors, and pre- and postexposure responses were used to evaluate the impact of community exposure.

RESULTS: A total of 44 students were evaluated in this study. A total of 22 h (36.6%) were dedicated to community-based learning in the 1st year. A positive response was observed in the postexposure responses with regard to the understanding of the subject and interest in the subject in comparison to preexposure responses ($P < 0.05$). A statistically significant difference was observed in the first and final visit scores by the mentors with respect to communication skills, elicitation of history, team spirit, and attitude toward community ($P < 0.00001$).

CONCLUSIONS: Students were exposed to the concept of community service and inculcated an interest in public health. Early community exposure of medical undergraduate students is important in developing better working skills in the community.

Keywords:

Community, skills, undergraduates

Introduction

Community Medicine or Social and Preventive Medicine occupies a large part of medical curriculum at present whereby the students are given exposure to the current prevailing health systems, community health problems, and needs and issues of public health importance. It is indeed an integral and vital part of medical teaching, which orients the students to the community settings, its structure, the health systems, and public health issues of

relevance. Community Medicine teaching has a major role in achieving the main goal of graduate medical education in India. The guidelines and regulations of the Medical Council of India (MCI) also emphasize to include community medicine in all the three phases I, II, and III of MBBS curriculum and also during internship.^[1] The mission of Community Medicine teaching is to contribute to the development of a (holistic) medical professional, who will demonstrate knowledge and competence with compassion in dealing with primary health care, desire for lifelong learning, evidence-based practice, interdisciplinary

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teamwork, and professional and ethical behavior in practice in order to improve and sustain the health of the population.^[2] However, it has been observed that we still follow the traditional teaching methods with lack of community-oriented, field-based training programs due to which there is an isolation from the public health system.^[3] Moreover, this exposure to the community should be provided to the students at an early stage when they are first exposed to the subject. The present curriculum in the 1st year has less scope for field exposure and active learning in the community through which the students can develop a sense of belonging to the community. Due to these lacunae, most of the first-year undergraduate students do not perceive the importance of the subject and seem to lose interest in the subject from this early stage. The early community exposure can help students understand the relevance of the subject and the core concepts of public health. This will in turn help them inculcate an interest toward the subject. With this background, the present study has been designed with the following aims and objectives:

1. To provide early exposure to the first-year undergraduate students to the community
2. To create more interest toward the subject among the undergraduate students
3. To help the students to have a better understanding of the subject.

Methodology

Study subjects

All the first-year undergraduate students in the institute who were willing to participate in the study after taking informed consent were included in the study.

Study type

This was a prospective type of study.

Study area

Field practice area of the Department of Community Medicine.

Study tool

Pretested, open/closed-ended questionnaire, review of student's records (attendance, number of field visits, and assignments), and assessment sheet of mentors.

Sampling

All the students of the first year ($n = 50$) were included in the study. However, the sample size achieved was 44.

Ethical code

Informed consent form was prepared in both English and a vernacular language. For students, the consent form was read clearly and distributed to them. It was clearly informed to them that their participation is

voluntary and they are under no pressure to participate in the study. Thereafter, written consent was taken from the students. For the community visits, prior permission was taken from the local head. In the families visited, the same process was followed whereby they were communicated in their vernacular language, the methodology was explained, and consent was taken. The ethical clearance for conducting the study was obtained from the institutional review board and the institutional ethics committee where the study was conducted.

Procedure

The first step was to provide orientation to the undergraduate students about the need and importance of conducting the study as well as the methodology. A pre exposure questionnaire was given to the students to understand their perceptions on the subject and their opinion on community exposure. Following this, we introduced the team of mentors from the department who would be mentoring each group of students. The orientation of the mentors had already been conducted prior to the start of the study. After this, we divided the students into eight groups randomly and put them under one mentor. The allocation was done by simple random sampling to eliminate any bias in group selection. For this, the roll numbers of students were written into 44 small pieces of paper, shuffled, and picked up randomly from there for their group allocation.

The next step was visiting the families with the students. The families from the community had already been selected before the visit and necessary permissions were taken from the village head and the head of the families. We allocated the student groups into their respective families and gave them the activities and exercises to be done. The mentors closely observed and provided guidance to the students in their activity. The groups had to visit the same family as per the timetable allocated to Community Medicine class, i.e., once every week. They were given a specific and simple task in each family like to take the necessary demographic data, enquire about the sanitation, take a history of the child's immunization, enquire about the waste disposal methods, etc. If there were any sick members in a family, the students facilitated them to visit the nearest health center or the tertiary health-care facility if required. The students also provided some health education messages to the family. After completion of the group activities, the students had to submit their assignments and present their families in the whole class. The mentors and faculty provided the necessary guidance to the students. The mentors assessed the students during each visit for which an assessment sheet with specified criteria was provided to them. After completion of this activity, student's feedback was taken by giving a postexposure questionnaire to assess their opinion on the community exposure. The pre- and post exposure questionnaires as

well as the mentors' assessment sheet was prevalidated in consultation with a senior faculty of the department as well as experts from the field of medical education through the forum of listserv. A prior testing of the questionnaires was also conducted.

The outcome of this activity was assessed as follows:

- Students' own assessment: Using questionnaires before the intervention and after the intervention
- Mentors' scores: Scoring of the student's performance by the mentors with the assessment sheet provided. There were four parameters that were tested: communication skills, elicitation of history, team spirit, and overall attitude. For each parameter, five criteria were specified. If the student fulfilled that criterion, he/she was given a score of 1 or else it was marked as 0. For example, in communication skills, if the student greeted the family member, he/she was given a score of 1 or else 0. The scoring was done in every visit
- Records: Review of student's attendance records and number of hours devoted to community-based learning; review of student's assignments (completeness and timeliness)
- Confidentiality of the students and families visited was maintained
- Analysis: The data collected were entered into Statistical Package for Social Sciences (IBM SPSS version 17). Descriptive analysis was done on the data collected. Chi-Square test and *t*-test were done to find out any statistical significance of student's responses and mentors' scores before and after the exposure.

Results

A total of 44 of 50 students gave their consent to participate in the study. All were first-year students. The number of boys was 32 (72.72%) and girls was 12 (27.28%).

We tried to assess the outcome of this study using three parameters.

Student's own response: By pre- and post exposure questionnaire

Of the 44 students assessed, 25 (56.81%) reported that they found the subject to be interesting. 32 (72.72%) students felt that the subject is important to them. With regard to attending classes, 34 (77.27%) replied that they attended the classes regularly whereas 10 (22.73%) reported that they were irregular.

Some of the common reasons reported for not attending the classes were as follows:

1. Community Medicine final examinations are in the 3rd year, so it is not necessary to attend classes regularly in the 1st year
2. Health problems
3. Studying/completing assignments of other subjects
4. Do not feel like attending.

The detailed responses of the students in pre- and post exposure questionnaire are highlighted in Tables 1 and 2.

The two basic criteria that were assessed to compare the pre- and post exposure responses were the better understanding of the subject and more interest toward the subject. These questions were common in both pre- and post exposure questionnaires and responses. Chi-square test was done to compare the responses of the pre- and postexposure questionnaire. 77.7% of students responded that they had a better understanding of the subject after the community exposure ($P < 0.05$). 79.54% of students responded that the field exposure helped them develop more interest in the subject ($P < 0.05$) [Table 3].

Table 1: Student's responses from pre exposure questionnaire

Question	Strongly disagree, n (%)	Disagree, n (%)	Neutral, n (%)	Agree, n (%)	Strongly agree, n (%)
1. Current method of teaching is interesting	0	6 (13.63)	15 (34.09)	20 (45.45)	3 (6.81)
2. Current method of teaching is sufficient to understand the subject	5 (11.36)	14 (31.81)	16 (36.36)	7 (15.90)	2 (4.54)
2. Early exposure to community will create more interest	0	2 (4.54)	10 (22.72)	18 (40.90)	24 (54.54)
3. Communication skills should be taught in first year	0	5 (11.36)	7 (15.90)	20 (45.45)	12 (27.27)
4. Interaction/problem solving skills will help you to be a competent physician	0	2 (4.54)	9 (20.45)	19 (43.18)	14 (31.81)
5. Integration of community visits will help you to learn the subject better	0	5 (11.36)	3 (6.81)	16 (36.36)	20 (45.45)

Table 2: Student's responses from post exposure questionnaire

Question	Strongly disagree, n (%)	Disagree, n (%)	Neutral, n (%)	Agree, n (%)	Strongly agree, n (%)
1. The visits has helped you to understand the subject better	0	2 (5.54)	7 (15.90)	27 (61.36)	8 (18.18)
2. Developed a better understanding of community/family	0	0	5 (11.36)	20 (45.45)	19 (43.18)
3. Developed better team interaction skills	0	0	4 (9.09)	18 (40.90)	22 (50)
4. Has helped to create more interest in the subject	0	4 (9.09)	5 (11.36)	16 (36.36)	19 (43.18)
5. Developed community interaction skills	0	3 (6.81)	8 (18.18)	22 (50)	11 (25)

Mentors' scores

The scoring of the students was done by the mentors in every visit. As already mentioned, minimum score for each parameter was 0 and maximum was 5.

The mean of the scores of the first and final visit was calculated. The *t*-test was conducted to compare the difference in the scores of the first and final visit. There was a significant difference in the mean mentor's scores of the first and final visit in relation to specified parameters ($P < 0.00001$) [Table 4].

Analysis of records

Classes devoted to community-based learning

A total of 5 visits were planned to the community (each of 3 h):

15 h + 3 h for orientation of students, + 3 h for presentation of assignments, + 1 h for feedback and questionnaires.

A total of 22 h (36.6%) were dedicated to community-based learning (out of 60 h) in the 1st year.

Attendance of students

The average attendance of students before the intervention was 65%, which increased to 72.5% at the time of completion of the study. There has been an overall 7.5% increase in the average attendance after the commencement of this study as compared before the study. However, this cannot be attributed to the intervention because of the small sample size and short review period.

As this was a group activity, the assessment of assignments was also done as per the allocated groups. It was observed that all the eight groups had submitted

their assignments in time before the deadline and the assignments were completed in all respects in terms of containing all the relevant information of families they had visited.

- Skills developed as reported by students
 - Interaction and communication skills
 - How to build rapport with a family
 - Working better in group/teamwork
 - Confidence on how to approach the community
 - More awareness and alertness
 - Better history taking.
- Overall feedback on the activity: What was liked and what was not liked
 - "One student should be given one family for better development of skills"
 - "Mock drill of community visits should have been done"
 - "Had some problems in history taking due to reluctance of families"
 - "Very helpful, should be incorporated in the 1st year."

Discussion

Early community exposure of first-year students has been perceived as a useful and interesting learning experience for our students from this study. In the present study, 35 (70%) of the students did not give a positive response in the question as to whether the present method of teaching was adequate to understand the subject. In a study conducted by Sadawarte *et al.* in Maharashtra, it was observed that around 80% of students suggested revision of the curriculum of Community Medicine and addition of the community-based research component in it. Almost all the students stressed that more practical topics should be covered and teaching methodology needs to be modified to make the topic more interesting.^[4] In this study, we found a significant increase in the understanding and interest toward the subject after giving a community exposure to the students. A significant increase in the scoring of the students with every field visit was also observed, which highlights that the community visits also help enhance the soft skills of the students like communication skills, how to elicit history, team spirit, and attitude toward the community. A study conducted by Rawekar *et al.* on skill learning through early clinical exposure (ECE) among first-year MBBS students where ECE was used as an adjunct modality to traditional teaching method showed a significant gain in the skills ($P < 0.0001$) as

Table 3: Comparing pre- and postexposure responses in relation specified criteria

Student response	Pre (%)	Post (%)	χ^2 (P)
Criteria: Understand the subject better			
Positive responses	7 (22.3)	35 (77.7)	30.72
Negative and neutral responses	37 (77.7)	9 (22.3)	(<0.05)
Criteria: Interest in the subject			
Positive responses	23 (52.27)	35 (79.54)	7.28
Negative and neutral responses	21 (47.73)	9 (20.46)	(<0.05)

Positive responses: Includes responses: Agree and strongly agree in questionnaire.
 Negative and neutral responses: Includes responses: strongly disagree, disagree and neutral in questionnaire. <https://www.limesurvey.org/a-propos-de-nous/blog/2105-likert-scale-how-to-properly-scale-your-survey-responses>

Table 4: Comparing the mentors' scores on a 5-point Likert scale

	Parameter for scoring students	Mean (SD)		t-test value
		1 st visit score	Final visit score	
1	Communication skills	1.72 (±0.81)	3.09 (±0.67)	12.08 (<0.00001)
2	Elicitation of history	1.65 (±0.53)	2.08 (±0.56)	9.18 (<0.00001)
3	Team spirit	2.54 (±0.77)	3.70 (±0.77)	13.28 (<0.00001)
4	Attitude toward community	2.54 (±0.94)	3.54 (±0.70)	8.60 (<0.0001)

SD=Standard deviation

evident by the scores of Objective Structured Clinical Evaluation. The conduction of ECE created interest and better understanding was strongly agreed by 86% and 72% of the students, respectively, giving a good feedback regarding ECE.^[5] Similar findings were also observed by Sathishkumar *et al.* and Vyas and Sathishkumar, where they had observed that 96.4% of students gave an overall positive rating for the ECE in their feedback. They also mentioned that after these exposures, the interest for their subjects increased among the students, which is also observed in the present study.^[6-8] Systematic reviews by Dornan *et al.* and Littlewood *et al.* concluded that early experience not only helped medical students learn and develop proper attitude toward their studies but also made their learning more relevant and influenced career options.^[9,10] Empathy and sympathy for the less fortunate may be qualities lacking in doctors who are not exposed to rural life. Their impression of the community's health status may be lopsided. In their future practice, these students may not consider the patient's economic status as well as sociodemographic profile while prescribing treatment.^[11] Although there have been various studies on Early Clinical Exposure (ECE) of first-year MBBS students, there are hardly any studies in our country focusing on the need for early community exposure and its benefit as well as sustainability for the students. Studies conducted in other countries though have shown positive outcomes with respect to early community exposure. The Morehouse School of Medicine (MSM) has incorporated in their curriculum that the first-year students take a yearlong community health course (CHC). This entails conducting a community health need assessment and developing, implementing, and evaluating a community health promotion intervention. The MSM-CHC has provided students with an opportunity to obtain a hands-on experience in collaborating with diverse communities to address community health. Students had gained insight into how health promotion interventions and community partnerships can improve health disparities.^[12] The Community Health Scholars Program, a joint effort between the Area Health Education Center and the University of Florida which places first-year students in community settings, reported that more than 80% of participating students believed that it was a good or excellent learning experience; more than 90% believed that the program affected their career choice; and 100% believed that the program should be continued.^[13] The community medicine primary care clerkship at the University of Manitoba integrates didactic elements, clinical placements, and student projects in teaching community medicine. Student research projects allowed medical students to become familiar with the principles of population-based and community-oriented medicine. Evaluation of 156 projects completed during the first 2 years of the program indicated that a wide range of community-based health problems were identified and

a variety of methodological approaches were applied.^[14] In a study conducted by Arfa *et al.* on the impact of ECE on the knowledge and attitude of medical students, it was observed that there was a significant difference between the attitude and knowledge level of the control group who did not experience ECE and the experimental group who were given clinical exposure. Clinical learning activities provide real-life learning experiences and the opportunity to transfer knowledge to practical situations. Clinical education provides opportunities for students to transform theoretical knowledge to a variety of psychomotor skills necessary for patient care.^[15] In another study conducted by Khabaz Mafinejad *et al.* on medical students' attitudes toward ECE in Iran, it was observed that most students reported that the ECE program enhanced their understanding of basic sciences knowledge and helped them integrate it into clinical cases. ECE can enhance students' understanding of the role they will play in the future as a physician.^[16]

Several studies have focused on the utility of service learning for effective learning of students. The present study had been conducted in only one batch of the first-year students. Given the positive results we obtained from this study, we are planning to conduct it in every subsequent batch of students, so that we can integrate it into our curriculum. We will also be conducting a delayed postexposure responses as we follow up the students in the subsequent semesters. This will enable us to evaluate the outcome of the study, identify any barriers to implementation to bring out the best possible approach, and assess its impact on the students, so that it leads to improvement in our education system.

Limitations of the study

The study was able to assess the immediate outcome of community exposure among the first-year students. However, due to time constraints, we were not able to assess the long-term impact of the community exposure. We are planning to follow up the students in subsequent semesters to obtain their opinion on the long-term impact of this exposure.

Conclusion

Early community-based teaching of first-year students can help them inculcate a better understanding of community health and develop an interest in public health. The positive responses we received from this study indicate that this exposure should be given to all the first-year undergraduates, so that they can imbibe the communication and behavior skills at an early stage which has been so much stressed in the attitude and communication module proposed by the MCI. If properly planned and integrated, this intervention can

go a long way in developing better working skills in the community among our medical students

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Conflicts of interest

There are no conflicts of interest.

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