

Effect of modular-based community learning about diabetes mellitus among undergraduate students

Sangeeta Pednekar¹, Vijay Kumar Singh², Siddharth Sonkamble¹, Nishita Singh¹

¹Department of Medicine, Lokmanya Tilak Municipal Medical College (LTMMC) and General Hospital, Sion, Mumbai, Maharashtra, India.

²Department of Community Medicine, Lokmanya Tilak Municipal Medical College (LTMMC) and General Hospital, Sion, Mumbai, Maharashtra, India.

Correspondence to: Sangeeta Pednekar, E-mail: meddoctor2015@gmail.com

Received June 02, 2015. Accepted August 17, 2015

Abstract

Background: Community learning with the help of academic module is an active learning experience for medical students to learn by observation, develop communication skill, participatory action research, and confidence building.

Objective: To enhance knowledge of diabetes mellitus (DM) among medical students by involving them in community-based teaching.

Materials and Methods: After ethical permissions, both the faculties prepared a module on DM, which was self explanatory and informative for students for teaching and for community people for learning. Students gave knowledge on risk factors, clinical features, diagnosis, and lifestyle modification for diabetes management to community people with the help of academic module on DM. Visits were supervised by faculty, paramedical staff and social workers with the help of checklists and video recordings. Pre- and posttests were conducted for students on the topic DM. Feedback from students, faculty, and community people about need for modular community learning was studied.

Results: A total of 80 students participated in this study. A significant rise of 59.0% in mean average score of students, from baseline (pretest 5.46 vs posttest 8.68) was observed. Checklist and video analysis revealed an improvement in subject knowledge, logical reasoning, communication skills, and problem solving skills of students. Analysis of feedback from students revealed an attitudinal change, feeling confident of community practice. Faculty felt an improvement in communication skills of students and faculty showed an interest in research projects at community organizations. Community people were benefited by students' engagement in knowledge sharing and providing health needs.

Conclusion: Modular community learning program for medical undergraduates has the potential to enhance students' academic learning in community health environment and strengthen self-confidence and communication skills. It may bring about better community health-care services.

KEY WORDS: Medical education, community-based learning, diabetes mellitus, family education

Introduction

The importance of community-based education was realized by the World Health Organization more than two decades

ago.^[1] Since then community-based teaching has been started in medical colleges around the globe.^[2,3] These community-based programs vary in their instructional value widely and therefore have to be assessed periodically by the faculty and the students. Diabetes mellitus (DM) is a growing menace in developing countries such as India. It has been observed that traditional classroom didactic lectures and hospital-based teaching are not enough to make undergraduate students understand the etiological factors and actual interaction of different prevailing factors present in the community responsible causing DM.

Community-based education encourages physicians to practice in a community setting. It helps the students to learn

Access this article online

Website: <http://www.ijmsph.com>

DOI: 10.5455/ijmsph.2016.0206201577

Quick Response Code:



International Journal of Medical Science and Public Health Online 2016. © 2016 Sangeeta Pednekar. This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), allowing third parties to copy and redistribute the material in any medium or format and to remix, transform, and build upon the material for any purpose, even commercially, provided the original work is properly cited and states its license.

by observation and develop communication and leadership skills. The benefits of community-based learning are well documented and include a more positive attitude of students toward patients.^[4-6]

Community-based learning has been described as a “win-win” situation where students gain real world experience and the community is provided with extra services.^[4] There is an equal emphasis on helping communities and providing valid learning experience to students. Medical Council of India (MCI) has recommended major reforms in the undergraduate course in medicine by converting conventional education into a competency-based module to develop skilled doctors through early community-based learning.

This project was planned to enhance student learning by joining theory with experience and thought with action. This will enable them to undertake qualitative assessment of health needs and problems, facilitate information sharing with the community and help them to become good social physician. We aimed to assess knowledge about DM among undergraduate students through modular-based teaching and enhance their communication skills through community-based learning. We also aimed to analyze feedback of students, faculty, and community on modular-based community-based learning program.

Materials and Methods

Study Design

Approval of Institutional Review Board and Undergraduate Student Council was obtained prior to the commencement of the study. Community visits were arranged after permission of the Head of Community Medicine Department. Medicine and community medicine faculty were of opinion that classroom lectures if conducted with community learning with the help of study module will enhance better understanding of subject along with improving communication skills of undergraduate students. Orientation of the faculty involved in the study was done.

A learning module on DM (50 pages) was prepared in local languages based on the findings on awareness and prevailing factors of DM among people of the community. This module is informative, colorful, and self-explanatory. Second-year MBBS students posted in community medicine were encouraged to participate in the study. Students were trained by the faculty, social workers, and a public health nurse in history taking with special emphasis on DM and also basic communication skills training to the study subjects given by Maharashtra University Health Sciences and MCI trained faculty from Medical Education Unit.

Setting

Mumbai is the most populous city in India, with an estimated metropolitan area population of 20.7 million according 2011 census.^[7] Greater Mumbai has a literacy rate of 94.7%,

which is higher than the national average of 86.7%.^[7] Apart from Marathi, which is the native language, Hindi, Gujarati, and English are spoken and understood well in this region. LTMMC, a 1400 plus bedded academic tertiary level hospital, is a major health-care provider in Sion, Mumbai.

Data Collection and Analysis

Medical students were divided in four batches; each batch was given a posting for 1 month. A group of four students were allotted one family to be visited four times a month. Families in the community were allotted to the students to study and learn about DM and to find out awareness and prevailing factors of DM among people of the community. The faculty members monitored all community visits. Each visit lasted for 2 h. Checklist was marked while students were interacting with families. Photographs and video recording were done to document community visits. Focused group discussion for the study subjects to find out perception of subjects on community-based learning was done. Pre- and posttest was conducted to assess the knowledge of students about community-based learning on DM using pre-validated and pretested questionnaire.

Statistical Analysis

Data analysis was carried out with expert statistician using SPSS version 20 (IBM, Armonk, NY). Pre- and posttest scores analysis was carried out by applying student paired “t” test. During community visits, answers of the questionnaire were marked on rating scale, later evaluated by the faculty members. Feedback from students, faculty, and community people regarding effectiveness of study was performed. A prepared feedback-questionnaire was validated through a pilot study to make it reliable. All 10 items were agreed on by more than 75% students. Students were asked to mark on a rating scale and responses given by the students were measured.

Results

A total of 80 undergraduate students participated in the study. Of that, 12 faculty members participated in the study and they were from different disciplines: general/internal medicine (4), community medicine (4), public health nurse (2) and medical social workers (2). The semi-structured questionnaire used in the study as in Table 1. On the basis of evaluation, mean average score at pre-training was 5.46 ± 0.92 . After the community learning training program, mean average score became 8.68 ± 0.82 , showing a significant rise of 59.0%

Table 1: Evaluation by faculty

Evaluation points	n (%)
Better understanding of basic concepts	53 (66.2%)
Good communication skills	56 (70%)
To learn attitude, perception, and behavior	51 (63.7%)
Develop rapport with community	46 (57.5%)

Table 2: Perception of students for community-based learning program

Sr. No.	Feedback	Strongly agree	Agree	Neutral	Disagree
1.	In community learning basic concepts of the subject are better understood along with didactic lecture	36	34	4	–
2.	Community learning provides a concrete opportunity for students to learn new skills, to think critically and to test new roles in an environment which encourages risk-taking	36	38	6	–
3.	Community based learning program was stressful, time consuming	–	–	12	68
4.	Academic module on the topic diabetes mellitus is prepared according to syllabus	32	38	10	–
5.	Academic module is informative and self-explanatory, enhanced understanding of the subject	45	30	5	–
6.	Community learning improved clinical and leadership skills that impact on the civic and citizenship skills of students	48	22	4	–
7.	Students' efforts are recognized by their peers and the community they serve. Teamwork was comfortable and enjoyable	54	22	4	–
8.	Teachers played a role as facilitator and were enthusiastic throughout to make program successful	44	36	–	–
9.	Community health-care practice is worthwhile and should involve various disciplines to improve health-care services	42	32	4	–
10.	I feel confident for community health-care practice	34	42	4	–

from baseline ($p = 0.001$). Results of the feedback-questionnaire are given in Table 2. Evaluating responses by teachers revealed that there was improvement in knowledge gaining and sharing (76 students), good clinical and communication skills (72 students), and enhanced analytical power and problem solving skills (68 students). This was carried out by analysis of checklist questionnaire. Images and video recording of program was additional evidence.

Discussion

This was an interdisciplinary project to enhance student learning by joining theory with experience and thought with action, carried out for first time by Medicine and Community Medicine departments at our institute. Study module was the relevance of academic module to the real world, which created an interest in students for teaching to community and for learning themselves.^[6] Students learn what “real life” is like at the grass root level in community. It also helped to enhance communication skills and self-confidence of students. Students felt confident about practicing health care. Faculty opined that this program helped to develop an environment of collegial participation among students, faculty, and community. It also created research interest in faculty with community-based organizations.

These programs have some immediate benefits as well as some long-term benefits.^[9] Immediate benefits include completion of time-consuming tasks by the students. Although the students were not fully qualified, they could, consult and finish

time-consuming tasks under faculty supervision. Additionally, such programs reduce referrals to the tertiary hospital, thus reducing congestion. Home visits by the students helped them build rapport with community dwellers that will help the students in the long run. When these students graduate, they know the problems faced by the patients in the real life apart from just the bookish knowledge about that disease. Community benefits from these programs immensely as the students impart latest, updated consultation to the community, something that faculty might not be able to do all the time due to time constraints.^[10,11]

One of the major drawbacks of previous studies was the lack of feedback from students involved in these programs. Our study included feedback questionnaire from students. Of all, 85% students did not think of community-based education as tiresome or stressful. Students understood the positive effect this program would have on their future clinical practice. However, it can be difficult to sustain such programs in India, where infrastructural and budgetary issues constitute a big problem in health-care delivery.^[12] A large amount of funding is directed toward academic research and specialty medicine training.^[13] Diane et al. stated, “(unidentified) faculty roles and (poor) rewards policies can be barriers to significant and sustained faculty involvement in communities”.^[14]

This study has a few limitations. First, we could not correlate students' hometown with their attitude toward being able to practice at the rural/community level. Second, all the measures used in this study were subjective as our aim was to look at extend of implementation of community-based education.

Conclusion

Modular-based community learning program for medical undergraduates has the potential to enhance students' academic learning in community health environment and strengthen self-confidence and communication skills. More teaching modules on different topics in medicine need to be prepared for community-based learning for medical undergraduates. It should be applied for various disciplines in our institute. MCI should convert conventional education to competence-based modular learning to develop skilled doctors.

Acknowledgment

We thank Medicine and Community Medicine faculties at LTMMC, Dr. Avinash Supe, Dr. Nima Rege, Dr. Sucheta Dandekar and Foundation for Advancement of International Medical Education and Research (FAIMER) faculties and FAIMER fellows for their continuous support undertaking this project. We also thank the undergraduate medical students and community people who participated in this project.

References

1. Community-based education of health personnel. Report of a WHO study group. World Health Organ Tech Rep Ser. 1987; 746:1–89.
2. Magzoub ME1, Schmidt HG. A taxonomy of community-based medical education. Acad Med 2000;75(7):699–707.
3. Murray E, Modell M. Community-based teaching: the challenges. Br J Gen Pract 1999;49(442):395–8.
4. Bean CY. Community-based dental education at the Ohio State University: the OHIO project. J Dent Edu 2011;75(10):S25–35.
5. Chang LW, Kaye D, Muhwezi WW, Nabirye RC, Mbalinda S, Okulla I, et al. Perceptions and valuation of a community based education and service (COBES) program in Uganda. Med Teach 2011;33(1):e9–15.
6. Evans CA, Bolden AJ, Hryhorczuk C, Noorullah K. Management of experiences in community-based dental education. J Dent Edu 2010;74(10):S25–32.
7. India stats: Million plus cities in India as per Census 2011. Press Information Bureau (Press release), Government of India, Mumbai, India. October 31, 2011.
8. Long JA, Lee RS, Federico S, Battaglia C, Wong S, Earnest M. Developing leadership and advocacy skills in medical students through service learning. J Public Health Manag Pract 2011; 17(4):369–72.
9. Williams RL, Reid SJ, Myeni C, Pitt L, Solarsh G. Practical skills and valued community outcomes: the next step in community-based education. J Med Educ 1999;33(10):730–7.
10. Critchley J, DeWitt DE, Khan MA, Liaw ST. A required rural health module increase students' interest in rural health careers. Rural Remote Health. 2007;7:688.
11. Menin S, Menin R. Community based medical education. Clin Teach 2006;13:90–6.
12. Matsumoto M, Inoue K, Kajii E. Policy implications of a financial incentive programme to retain a physician workforce in under-served Japanese rural areas. Soc Sci Med 2010;71:667–71.
13. Bloom SW. Structure and ideology in medical education: an analysis of resistance to change. J Health Soc Behav 1988;13: 294–306.
14. Calleson DC, Jordon C, Seifer SD. Community-engaged scholarship: Is faculty working communities a true academic enterprise? Acad Med 2005;80(4):317–21.

How to cite this article: Pednekar S, Singh VK, Sonkamble S, Singh N. Effect of modular-based community learning about diabetes mellitus among undergraduate students. Int J Med Sci Public Health 2016;5:434-437

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