

Making environmental health interesting for medical students-internet assisted facilitated collaborative learning approach

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ABSTRACT

Background: Topics on environmental health are usually neglected by students and it is necessary for them to learn this area with a public health perspective as environment plays a vital role in multi-factorial causation of diseases. Hence there is a need for alternative teaching/learning methods to facilitate students in acquiring the required knowledge. **Objectives:** To increase the student interest and enhance their participation in acquiring knowledge in public health perspective of environmental health. **Teaching Objectives/Learning Were:** At the end of the session students should know the importance of air as an environmental factor in disease causation in special reference to public health hazards, the major sources of air pollution, major pollutants causing the health hazards, the way to measure pollutants and control them. **Materials and Methods:** The whole class of students was divided into two batches and one session was planned for each batch. Each batch was divided into six small groups. The groups were given task of exploring the internet on the different topics mentioned in the learning objectives. All the students were asked to explore, compile information and collectively prepare a presentation and present their findings based on their reviews. Students' feedback was collected at the end of each session. **Results:** Eighty five percent of them were clear about the learning objectives and interested about internet learning. Most of them gave a positive opinion about the newer teaching learning method. **Conclusions:** Internet assisted group study served as a valuable alternative, innovative, and interesting tool to teach and learn the environmental health as revealed by students' feedback.

Key words: Active learning, environment and health, internet assisted learning

INTRODUCTION

Current day theory about causation of disease is multi-factorial. Environment plays a vital role in the

pathogenesis of any disease state. So, it is essential for learners to understand this importance of environment in the epidemiological triad. Based on our regular observation, the regular theory classes on environment usually had a negative response and students felt so due to the feeling of being dry and vague. For learning to happen, it is better it happens actively rather than passively. So, it was planned to take one session on environmental health as group work using materials collected from various books and websites by their internet search. This method was very effective in learning and it has supported many of the earlier literature.^[1] This method was planned keeping in mind the guidelines given by the Medical Council of India in its Revised Regulations of Graduate Medical Education-1997, which has pointed out the inadequacies of lecture as a method of teaching and has suggested the use of active methods.^[2]

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OBJECTIVES OF THE STUDY

To increase the interest and enhance student's participation in acquiring knowledge in the environmental health using the air pollution as the model session.

Teaching objectives/learning were

At the end of the session, students should know the importance of air as an environmental factor in disease causation in special reference to the public health hazards, the major sources of air pollution, major pollutants causing the health hazards, the way to measure pollutants and control them.

MATERIALS AND METHODS

In our institute each class of students comprised of 75 students. The whole class was divided into two batches and one session was conducted for each batch. Air pollution was selected as the topic of discussion by random method. The specific learning objectives were spelt out as that at the end of the session students should know the importance of air as an environmental factor in disease causation (including indoor air pollution), the major sources of air pollution, major pollutants, and the way to measure them and control them. The class was designed after carefully considering the principles of pedagogy. In each class a brief introduction was given about air and its importance by a facilitator. Then the whole class was divided into six small groups, each of 4-5 students. The groups were given task of reviewing the current situation of air pollution in India, sources and determinants of air pollution, effects of air pollution, measurements and indicators for air pollution, indoor air pollution, a case study of a city (Delhi) for control of air pollution.

The computer was used in teaching by making students access the internet to collect details from list of pre-selected websites and search. Preparation time of one hour was given. Apart from this they were allowed to refer the text books of their choice for some specific information. The students were helped and guided by the residents for preparation. All the students were asked to prepare collectively after their review and one student was made to present on that topic. At the end of each presentation moderator highlighted the key points and brought out its relevance to disease causation and public health. At the end of each session, anonymous feedback was obtained from all the students.

RESULTS

The students gave feedback at the end of each session which is given in the Table 1. Eighty eight percent of the students reported the objectives to be clear. Eighty seven percent of them found that internet assisted study or group work as interesting and 23% even liked involvement of students to present their findings. Few of them felt inadequacy of time for preparation of the topics (28%).

Table 1: Feedback from the students on the session on air pollution

Feedback topics	Percentage (n=52)
Learning objectives	
Clear	88.5
Partially clear	9.5
Not clear	2
Facilitating factors	
Using internet as learning tool/ group work/active learning	87
Presentations by students	23
Good facilitator	17
Hindering factors	
Short time	29
Long presentation	16
Afternoon sessions	4
Suggestions/comments	
Better than lecture	4
Most interactive	10
Conduct more classes like this	18
Class was not sleepy	04

DISCUSSION

One of the main purpose of teaching undergraduate medical students the environmental health is to make them understand the role of environment in disease causation so that they can always consider it during their clinical/public health practice. Teaching about environment to undergraduate students has been really a challenge due to the vastness and dryness of the subject. Traditionally lecture has been the method of teaching, but it failed to create the desired interest or knowledge in students. Group discussions have been used successfully in the past to teach undergraduate students in community medicine for various topics.^[3] This method was applied to the newer generation with adequate modifications considering the newer developments in information technology. This approach used the same group discussions but used the present day information technology of availability of internet. The objectives were clear and internet-assisted learning was interesting for majority of the students and hence shows that the teaching learning objectives were achieved. There were similar results from computer-assisted learning from other disciplines like dental education and otorhino laryngology. Computer-assisted learning was shown to increase the knowledge of the students in these studies and it is very similar to our results.^[4,5] This apart from creating the facilitated learning environment also provided an opportunity for the students to improve their literature searching skills, reading and presentation skills. This also helped them as an orientation to search the medical literature in the internet. This study reflected that students were really interested as they gave a promising feedback.

In our institute, the staff-student ratio is good; hence this mode of study was possible and can be replicated to similar educational environment. However, selection of topic and teacher's preparation plays a vital role in the success of such learning initiatives.

CONCLUSIONS

Internet-assisted collaborative study served as a valuable alternative, innovative, and interesting tool to teach and learn environmental health. This method ensured self-interested participation by the students as revealed by their feedback.

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