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Original Research Article

EFFECTIVENESS OF MODULAR TEACHING IN TRAINING MEDICAL OFFICERS ON DOTS PLUS IN CUDDALORE DISTRICT

Dr K. Devi[1], Dr S. Karunakaran[2]

1. Associate Professor, Department of Community medicine, Indira Gandhi Medical College and Research Institute

2. Programe officer and Deputy Director of Medical Sciences (TB), District Tuberculosis Center Cuddalore district

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For Correspondence
Email ID:
devi.kttu@rediffmail.com

Abstract:

Research question: Whether modular teaching can serve as an effective method to train medical officers in DOTS Plus. **Methods:** Cross sectional study was undertaken among 31 medical officers in Cuddalore district. Modular method of teaching was used to train medical officers on DOTS Plus by experts trained in Management of MDR Tuberculosis. Pretest and post test was conducted to evaluate their performance and in addition feedback was elicited. **Results:** The overall performance was encouraging as there was significant difference between the pretest and posttest scores and percentages (p-value<0.05). **Conclusion:** Modular teaching was sucessfully used to train medical officers in DOTS Plus in Cuddalore district.

Keywords: Modular teaching, DOTS Plus, training, medical officers, evaluation, pretest, post test.

Introduction:

Learning is a complicated phenomenon as it involves complex mental activities such as critical thinking and ability to solve problems. The goal for the learning methodology personnel is to provide the developers with the best learning tools available, so that they in turn can have thorough understanding, knowledge and relevant skills for their career. The term "Best Evidence Medical Education" was coined to describe the implementation of methods and approaches to education based on the best available evidence.[1] Assessment is an educational tool that serves multiple roles; for example, it can provide feedback to learners on areas of strength or weakness and it can provide the teacher insight into the effectiveness of a given approach.[7]

The objective was

1) To increases their knowledge in the applied aspects of DOTS Plus for the management of MDR Tuberculosis.
2) To enhane the trainees participation in acquiring knowledge regarding DOTS Plus.

Materials and Methods:

Modular teaching was used to train PHC medical officers in DOTS Plus on 30th

and 31st March, 2012 at District Tuberculosis Center (DTC), Cuddalore district. The topic was on DOTS Plus for the management of MDR tuberculosis. The training was conducted by District Tuberculosis Officer (DTO) and one faculty from Medical college. Both the resource persons were officially trained to conduct training in DOTS Plus. The module for the MDR tuberculosis programe were used as the tool for conducting the training. Totally there were 31 medical officers who attended the training in two batches on two successive days. The medical officers were asked to read out from the module and explanation was given by the resource person. To increase the attention of the trainees they were asked to read in random. At the end of each chapter summary was provided by the resource person.

To evaluate their performance pretest and post test was conducted for all the medical officers who attended the training. A set of 30 questions in the form of multiple choice questions, fill in blanks ans definitions was administered for evaluation of all the trainees for the pretest and the same questions was repeated in post test. Each question carried 1 marks and time allotted was 15 minutes and the maximum marks was 30. The performance of the indivigual trainees was assessed by the cumulative total of correct answers obtained in pretest and post test.

Feedback was also elicited by asking questions like:

1) What are the factors which facilitated learning?
2) What are the factors which hindered learning
3) Give your suggestions or comments to improve the sessions?

Data Analysis

Data was analyzed using the Statistical Package using Microsoft Excel and SPSS 22. Proportion, mean and standard deviation was determined as appropriate. Paired t-test was used to elicit the differences between the pretest and post test scores and percentages.

Results:

Figure 1 and 2 gives the pretest and post test percentages for batch 1 and 2 respectively. The overall performance of post test scores over pretest was higher and encouraging.

Figure: 1 Evaluation of pretest and posttest percentage of PHC medical officers on DOTS Plus training in Cuddalore district, Tamilnadu – Batch A

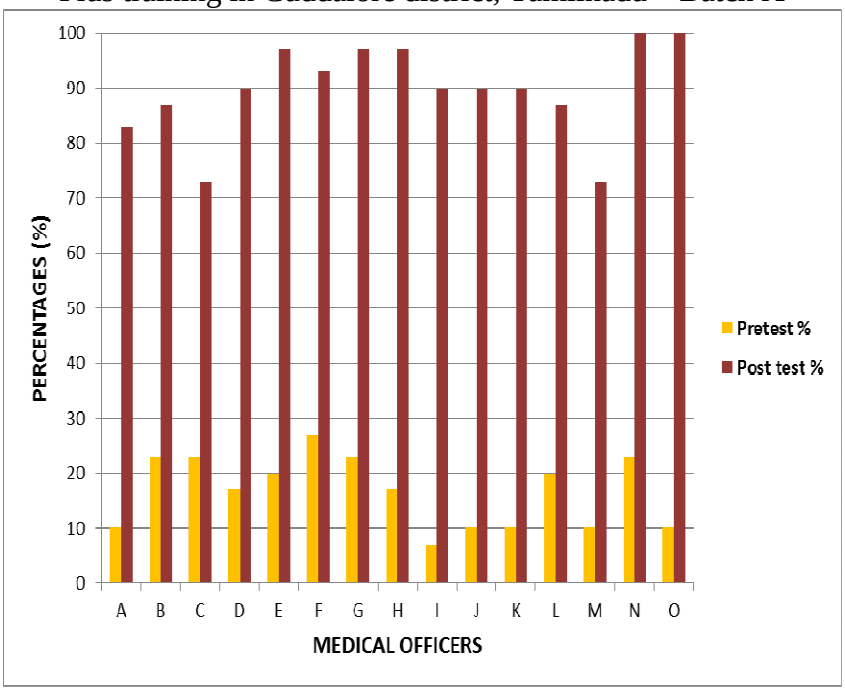

Figure:2 Evaluation of pretest and posttest for medical officers on DOTS Plus training in Cuddalore district, Tamilnadu – Batch B

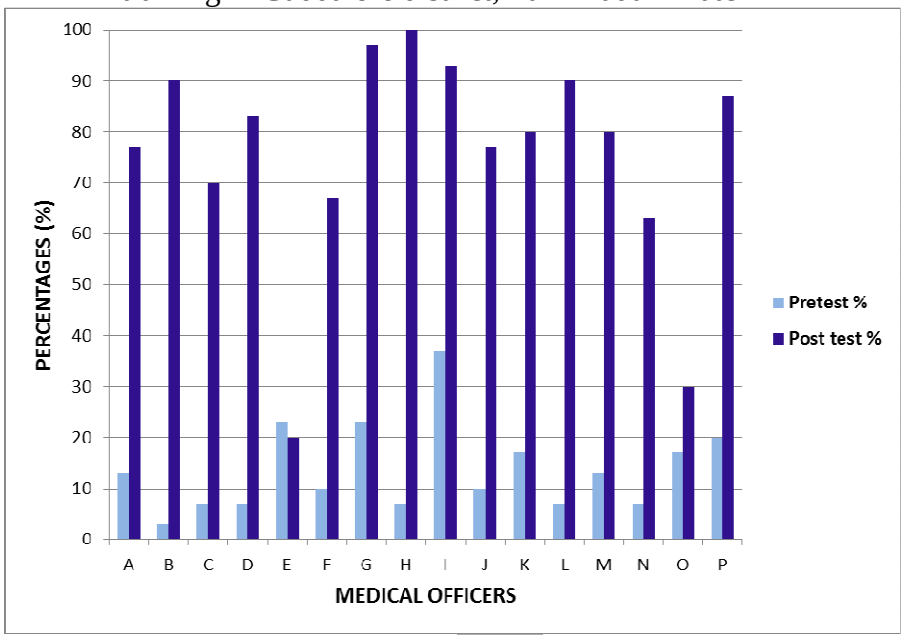

Table 1 gives the comparison of average scores of the pretest and posttest for the whole batch. In Pretest, average score for all the medical officers was 4.55. The average mark in the posttest was 24.68. This difference was found to be statistically significant (p value<0.05).

Table 1: Mean score of pretest and posttest by modular teaching

Method	Group	Mean	N	Standard deviation	t-value	t-test (Sig)
Modular teaching	Pretest	4.55	31	2.35	-19.003	**0.000***
	Post test	24.68	31	5.49		

***p value of <0.05 is significant**

Table 2 gives the average percentages of pretest and posttest for all 31 medical officers. The mean percentage in pretest and posttest was 15.16% and 82.26% respectively. This difference was also found to be statistically significant with p value <0.005.

Table 2: Mean percentages of pretest and posttest by modular teaching

Method	Group	Mean	N	Standard deviation	t-value	t-test (Sig)
Modular teaching	**Pretest**	15.16	31	7.84	-19.003	**0.000***
	Post test	82.26	31	18.29		

***p value of <0.05 is significant**

Table 3 gives the summary of feedback from the medical officers regarding the training using modular teaching. The responses were encouraging. According to the participants the training faciliated learning as they ensured active participation of the students, attentive, interesting, interactive, inovative, informative, clear, different from routine lectures, scope for active participation, more effective and friendly. The factors which hindered learning was the timing was short. Suggestions for improvement is to conduct similar training programes in future to uptadate and refresh their knowledge on programe in future.

Table 3: Details of feedback given by the medical officers

Feedback	Responses
What factors facilitated learning?	Interactive, interesting, inovative, informative, clear, different from routine lectures, more learning, more analytical thinking, scope for active participation, more effective, friendly, enjoyable.
What factors hindered learning?	Duration of the training was short. To be organized for atleast two days
Suggestions for improvement	Should be conducted periodically to update their knowledge on programe

Discussion:

The concept of 'active learning' is gaining much momentum, especially in the field of Medicine. Lectures alone are not generally adequate as a method of training and are poor means of transferring and acquiring information, even less effective at skill development and in generating the appropriate attitudes. It is recommended that every effort should be made to encourage the use of active methods related to demonstration and on firsthand experience. Medical teachers stretch their extent of information and knowledge in a logical, planned, integrated and sequential manner to the students through different approaches.[3] New methods like Problem-based learning, Quiz to name a few, are being introduced, based on the above said concept. It is already reported that group discussions have been employed successfully to teach majority of the topics in Community Medicine in the pre-clinical years.[4] Small student research projects have been used as a tool to teach epidemiology[5].

Hence to incultate interest in the subject the present study was undertaken to effectively use modular teaching to train medical officers in RNTCP. In the present study, we wanted to investigate the role of modular teaching as a learning tool in training medical officers in Cuddalore district. Through this method we wanted to increase interest in the topic. By this method the trainees had an opportunity to gain deep insight in the topic. This approach ensured greater participation of the trainees in learning process. In a study from Michigan, USA, interactive video disc units were used for teaching pathology laboratory cases. Each of these units had case studies followed by a quiz. These units were extremely valuable supplemental tools for the students.[6] Case based learning (CBL) with clinical problems as a source of stimulus concluded to be an effective tool by Jamkar and associates.[7] In another studyfrom Australia, case study was used as a novel teaching/ learning format. The learning experience consisted of a quiz followed by a class discussion. This format was beneficial both to the students and the teacher. It also served as an additional option for teaching/ learning methods acceptable.[8] Finley et al used quiz format for learning about auscultation of heart sounds through computer based independentlearning, which was compared with classroom teaching. Both CD-ROM and class room teaching methods were highly rated by the students.[9]

To evaluate the learning process, new teaching strategies should be scientifically investigated through questionnaire, student's comments and evaluation of assessment outcome.[10] Once the deficiencies of teaching curriculum are identified, reinforcement can be applied by various methods which is the principle of value-added adult learning.

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