

Determination of Satisfaction Index as a tool in evaluation of CME Program

Kuldeep Singh¹, Baldev Sharma¹, Sanjeev Misra², J S Bajaj³

Department of Pediatrics¹, Director², All India Institute of Medical Sciences, Jodhpur
Professor Emeritus, National Academy of Medical Sciences, New Delhi³

ABSTRACT

Continuing Medical Education is an indispensable part of physician's learning. Well designed program based on andragogy principles can enhance learning by motivating the learner and providing platform to encourage self directed learning. The present study aimed to explore the impact of program "NAMS-AIIMS Regional Symposium on Sleep Medicine" in changing the behavior and attitude of participants using "Satisfaction Index" and descriptive analysis of responses as evaluation tools for program effectiveness. This descriptive cross sectional study captured the response of participants through a pre-tested and validated questionnaire administered at the end of symposium. The result showed almost equal sex distribution (M: F- 27: 34) with majority being UG students (86%). Reliability of data showed Cronbach's Alpha of 0.98 indicating high reliability. Satisfaction index (SI) calculated as per WHO Educational Handbook for Health Personnel showed highest satisfaction for conducive environment of symposium (87.87 %) followed by provision for time to seek clarifications (87.21%), provision of appropriate Learning Resource material (85.90 %) and handling of critical comments by organizers (85.57%). Descriptive analysis showed majority responses as highly positive to our questionnaire with suggestions for more such activity, inclusion of clinical cases and other aspects of practical relevance.

Key words : evaluation, program, satisfaction index, Kirkpatrick Model, student satisfaction, adult learning, Knowles Theory.

Correspondence : Dr. Kuldeep Singh, Additional Professor, Department of Pediatrics, All India Institute of Medical Sciences, Jodhpur-342005. Phone: 08003996940, Email: kulpra@hotmail.com

INTRODUCTION

Education is a purposeful activity to bring about desired behavioural changes in knowledge, attitudes and skills among the learner with an aim to benefit the society of which learners are an integral part. Medical education is the systematic process to bring about these changes enabling the learner to practice medicine efficiently and provide need based health care to the society.

Continuing Medical Education (CME) is an integral part of a health professional's training and aims to keep him updated with newer technology and knowledge for effective and efficient clinical practice. Since these activities are a systematic way of imparting knowledge and skills, it becomes imperative that preceptor(s) are able to evaluate the program for its outcome and impact on learner.

Donald Kirkpatrick, Professor Emeritus at the University of Wisconsin, US and past president of the American Society for Training and Development (ASTD), first published his Four-Level Training Evaluation Model in 1959, in the US Training and Development Journal. Since then Kirkpatrick model has become the most common tool for evaluating a training program or educational activity (1).

The model was subsequently updated in 1975, and again in 1994, when Kirkpatrick published his best-known work, "Evaluating Training Programs." The desired levels are- Reaction, Learning, Behavior and Results (Outcomes). While reactions can be

evaluated by survey questionnaire and learning can be assessed using pre-post intervention test or a similar retrospective questionnaire, behaviour and results (outcomes) are long term levels and can only be evaluated over an extended period of time. Out of these, results (outcomes) evaluation is complex, time consuming and challenging. It essentially depends on identifying outcomes, benefits, or final results which are most closely linked to the learning objectives of the training, and designing an effective way to measure these outcomes over an extended period of time. The CME program can be evaluated realistically upto level 1 with the help of a well designed survey.

As part of 53rd Annual Conference of National Academy of Medical Sciences, NAMSCON 2013, a Regional symposium on Sleep Medicine was organized on 25th October 2013. Through this paper we wish to share our experience of the Kirkpatrick's first level of evaluation through measurement of an objective index termed as Satisfaction index.

Aims of the study :

To find out the impact of program "NAMS-AIIMS Regional Symposium on Sleep Medicine" in terms of *reaction* of participants using "Satisfaction Index" and descriptive analysis of responses as evaluation tools for program effectiveness.

Methods :

This descriptive cross sectional study carried out during Regional Symposium on Sleep Medicine as part of

the 53rd Annual Conference of National Academy of Medical Sciences consisted of a planned educational activity with well defined learning objectives stated below:

At the end of symposium, participants will be able to :

1. demonstrate awareness of magnitude of problems of sleep in Indian scenario, and the association with the increasing prevalence of Obesity in adults and children.
2. comprehend the importance of changes in normal sleep physiology leading to diverse medical disorders in both young and old.
3. demonstrate a thorough understanding of specific disease states associated with sleep disorders.
4. interact with multi specialty biomedical scientists in elucidating causation and consequences of sleep disordered breathing.
5. describe screening approaches and test procedures for the diagnosis of sleep disorders and associated clinical conditions.
6. rationalize and plan the management of OSA.
7. explain the need and emerging roles of sleep labs and comprehensive sleep centers in India.

The educational programme was delivered with the help of live presentations by renowned experts in the field of sleep medicine and was further augmented by distribution of pre-

symposium Learning Resource Material (LRM), content-based well planned interactive sessions, problem triggers and facilitating participants' involvement through interaction in non-threatening environment.

Following tools were used for *program evaluation*:

Program Evaluation Questionnaire

- a. CME committee of National Academy of Medical Sciences provided a prepared and pre tested questionnaire based on Likert scale.
- b. This included following:
 - i. Demographic details
 - ii. Part A about symposium planning, utility of working method(s), academic content, and format of symposium
 - iii. Part B concerned with Gain in knowledge, skills and some additional information needed for further improvement of such activities
- c. Satisfaction Index based on data from Part A questionnaire

Formula used for calculating Satisfaction Index is stated below (2):

$$SI = \frac{\{(a \times 1) + (b \times 2) + (c \times 4) + (d \times 5)\}}{N} \times 20$$

Where,

SI is Satisfaction Index : a,b,c,d are number of total responses for the Co-efficient 1, 2, 4 and 5

N= number of total participants

d. Qualitative evaluation based on individual responses of data from Part B. The participants were explained about the aim of the research. They were assured that all information solicited and collated was confidential and self identification entirely optional. The willingness of the participants to answer the questions was obtained. SPSS 17.0 was used for data analysis.

Results

At the start of Symposium, 103 participants registered for the program. **Sixty one** participants returned the pre-assessment form, attended all the sessions and were present throughout the academic programme*. They also gave consent to fill the evaluation questionnaire after being briefed about the objective of the survey, confidentiality of the data, and the protected identity of the participants, if willingly provided.

Salient data outcome includes :

1. Demographics

Majority of participants were UG students (n=53; 86 %). Males- 27, females 34

2. Response rate (relevant to participants*): 53/61 (86.88 %)

3. Satisfaction index: (Table 1)

Mean score of satisfaction index was 82.47 ± 5.09 . Reliability analysis with Cronbach's Alpha was 0.98 showing reliability of all variables.

The participants were requested to rate each statement in a four point rating scale : 1- strongly disagree; 2 – disagree; 4 – agree; 5 – strongly agree. A satisfaction index (SI), having a maximum possible score of 100 was calculated for each statement rated, considering the value assigned to each point in the scale and the number of participants rating the statement under reference. A total of twenty-one statements were analysed.

It is gratifying to note that none of the twenty-one statements was rated with a satisfaction index of less than 60%, the internationally accepted norm for an unsatisfactory outcome. Therefore, arbitrary cut-off points (SI above 85% and SI below 80%) were used for further analysis.

There were four statements with SI more than 85%. These included :

<i>Statement</i>	<i>Satisfaction Index</i>
i) I found the documents provided of acceptable quality	85.90
ii) Time was provided to seek clarification on issues included in the background documentation	87.21
iii) The general atmosphere of the symposium was conducive to serious work	87.87
iv) The organizers made use of any critical comments I made during the symposium	85.57

Table 1: Program evaluation using satisfaction Index

Sl No	Parameter	Response					Total (A)	Number participated/ responded (B)	Satisfaction Index (A X 20)/B
		1	2	4	5	5			
1	I received precise information in advance on the aims of the Symposium.	0	2	172	85	259	61	84.91	
2	The goals of the symposium appeared to me to be of immediate interest for my academic activities.	0	4	160	95	259	61	84.91	
3	The content of the symposium dealt with issues I generally encounter in my academic assignments	0	32	152	35	219	61	71.80	
4	Considering my other professional commitments, the symposium Scheduling was appropriate.	2	22	136	70	230	61	75.40	
5	I found the documents provided of acceptable quality.	0	2	160	100	262	61	85.90	
6	Time was provided to seek clarification on issues included in the background documentation	0	8	108	150	266	61	87.21	
7	The working methods used during the symposium encouraged me to take an active interest in the session themes.	0	6	128	120	254	61	83.27	
8	The pace of presentation of the subject content was appropriate.	0	20	124	100	244	61	80.00	
9	The general atmosphere of the symposium was conducive to serious work.	0	2	136	130	268	61	87.87	
10	The organisers gave me opportunity for critical comment.	2	12	156	75	245	61	80.33	
11	The organizers made use of any critical comments I made during the symposium	2	32	192	35	261	61	85.57	

These four statements reflected the quality and content of learning resource material provided to the participants; time provided to seek clarification on issues included in the background document; ambience of the symposium considered conducive to serious work; and use of any critical comments made during the symposium.

Overall, these four statements reflect the planning, conduct, and content of the workshop.

The statements with SI below 80% were :

<i>Statement</i>	<i>Satisfaction Index</i>
i) The content of the symposium dealt with issues I generally encounter in my academic assignments	71.80
ii) Considering my other professional commitments, the symposium scheduling was appropriate	75.40

Least satisfaction was shown for the programme content which dealt with issues related to their academic assignments (71.80 %) followed by symposium scheduling considering other professional commitments (75.4). Indeed this is obviously due to the fact that 86% of participants are under-graduate students, a fact not known at the time of designing the questionnaire.

Friedman's test did not show significant difference between parameter (χ^2 of 3.487 p= 0.968)

Descriptive analysis of Part B is shown in Table 2 :

The table showed **highly positive** responses for *gain in knowledge, attainment of new skills, improvement in competencies and a desire for more such symposia on the theme of Sleep Medicine*. Non-responders ranged from 11% for attainment of new skills and 14 % for desire for future workshop to 73% for question pertained to post-graduates preparing for examinations. This reinforces earlier observations pertaining to 'least satisfaction' under Para A.

Discussion :

Evaluating any educational intervention for its effectiveness on learner is not only desirable but mandatory. The information not only provides feedback about the program but also brings forth the essential pre-requisite to continuously monitor and modify the design of the academic content and process of educational programme. Curran et al have used a retrospective, pre-post evaluation study design comparing identical satisfaction, knowledge and confidence outcome measures for their internet based CME delivery format (3). While these investigators used the mean of the Likert scale score, present study was based on satisfaction index. Moreover, present study was a post symposium evaluation with descriptive responses

Table 2: Descriptive analysis of participant's response Part B

Parameter	Positive	Negative	No response	Salient descriptive comments
Gain in knowledge in respect of clinical management	45	3	13 (21%)	Being a 1 st year student, I gained a lot and will read more on OSA Realised the seriousness of Sleep disorders
Attainment of new skills and will you be able to utilize in your practice	44	10	7 (11%)	Developed correlations between various sleep conditions. Acquired valuable information for my future use
Improving in competencies in managing such problems	44	2	15 (24%)	Because of knowledge, broader view of pathophysiology, identifying co-morbidities. I gained foundation of sleep medicine I am new to this topic and hence can't comment
If you are a PG student, has this helped you in preparation for your exams?	10	1	45 (73%)	I am a UG student and hence can't say I am UG student but I think such sessions would help in my exam I am Asst professor but will help me in preparing for teaching UG and PGs
What additional topic areas should be included in a symposium in future?	6	5	31 (50%)	Practical aspects and case based approach - it was only a theoretical discussion. Elaboration of medical terms beforehand Inclusion of Indian scenarios. More prevalent disorders with scope of research
What topics/subjects to be deleted or under-emphasized if this symposium is to be repeated in future	24	5	32 (50%)	Pharmacology and Bio-molecular portion Topic which were of very high level No deletion required – all are relevant
Is one workshop on this subject sufficient?	21 (yes)	29 (No)	11	At least for motivation otherwise update always required More is required as the topic is very vast and some other sleep conditions not covered
Would you like more workshops in future on this theme	46	6	9 (14%)	Yes, but with new ideas/topics/modifications With more details and new development More workshop on different themes would be appreciated
Suggest any improvement	23	15	23	Interaction, more videos It should be 2-3 day workshop
Deficiencies in planning, conduct or any other academic/organizational aspect of workshop	24	9	28 (45%)	Everything was good Workshop was properly conducted, there were no deficiencies to draw my attention. More experts from the field should have been invited for better quality discussion

about gain in knowledge, skills and competencies. Participants showed highly positive responses in these areas. They also showed their eagerness to participate in such educational activities in future.

Karaman evaluated the perception of nurses toward distance CME using survey method in a quantitative study and found positive response with significant difference among nurses who used computer frequently (5). The present study showed that goals which are of immediate interest, provision of conducive environment, and time provided for the clarifications, were the parameters considered highly satisfying by the participants. Arminia also found that clarity of educational objectives and advantage of the program format yield higher score for satisfaction (6). Observations in the present study also conform to the principles of adult learning that states: 'Adults need to know *why* they need to learn something : Adults need to learn *experientially* : Adults approach learning as *problem-solving*, and Adults learn best when the topic is of *immediate value*' (7). These basic tenets of adult learning are generally endorsed by medical educationists who have elaborated these as follows :

- New facts must relate to the pre-existing knowledge-base so that these get *contextually integrated*.
- Learning is greatly facilitated if the cohesion between new information and its integration with already existing knowledge

is *purposeful and meaningful*.

- Learning must be directed to, and applied for, *problem solving*.
- Learners are *motivated* to achieve a higher level of performance if they feel involved and challenged.

It is essential that feedback must be immediate and should be positive to reinforce learning, with suggestions for improving performance and for taking remedial measures to avoid or minimize errors.

A limitation of the present study was lack of comparative analysis between diverse academic status of participants since majority of participants were undergraduates students. It may be argued that further sub-classification of undergraduate students could have been made accordingly to their scholastic level. However, a small sample size of 56 students could not permit further sub-classification to provide any meaningful statistical data. Another limitation is the fact that data reflects only immediate learning as *reaction* and needs long term follow-up for evaluation of *change in behaviour* and *skills* over an extended period of time.

Conclusions:

The study shows that a well planned educational activity with defined learning objectives delivered through experts under favourable environment provides high satisfaction to participants in gaining knowledge, and in imparting skills and competencies. Such well-designed activities motivate participants

and encourage them to seek additional academic assignments for their self development, in addition to self-directed learning through internet and other electronic media.

Acknowledgement

Dr. Kuldeep Singh gratefully acknowledges the help given by Dr. Vishesh Thanvi in getting the feedback from the students and participants.

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