

Efficacy of adapted medical education technology workshop in changing the resident doctors' own perception as a medical teacher

Habib M. R. Karim¹ and Md. Yunus^{1,2*}

¹Department of Anaesthesiology & Critical Care and ²Department of Medical Education, North Eastern Indira Gandhi Regional Institute of Health and Medical Science, Mawdiangdiang, Shillong-793018, Meghalaya, India

Abstract: *Background and objectives:* The shortage of medical teachers and quality teaching is felt greatly in the current medical education system. The Medical Council of India (MCI) has initiated faculty development programs to reduce this deficiency. However, this program doesn't include residents, who are actually involved in teaching to a great extent. The present study was aimed to evaluate the efficacy of adapted Medical Education Technology (MET) workshop for resident doctors in changing their perception as teachers of medicine. *Methods:* After obtaining the informed consent regarding this study and data collection, the resident doctors participating in the MET workshop were given a set of question papers designed to quantify their own perception (a 0 to 10 scale) about themselves as a medical teacher both for pre workshop and post workshop time. Data thus collected were analyzed by paired t test using INSTAT software and a p value of <0.05 was taken as statistically significant. *Results:* Thirty two (94.11%) participants responded to the questionnaire. The mean self score on the knowledge of the teaching-learning process, curriculum and assessment were significantly higher for the post workshop (p <0.0001). All of the participants responded that the workshop had changed their perception as a medical teacher and more than 65% responded that it had changed very much. *Interpretation and conclusion:* MET workshop is an effective tool for improving knowledge on medical education as well as changing the perception of a teacher (regarding the quality of teachers and teaching) among the resident doctors (future faculties).

Keywords: Medical education, Medical teacher, Teaching-learning process, Medical education technology workshop

Introduction

Any medical professional has to teach his/her juniors throughout his/her career whether he/she is in a teaching post or not, irrespective of whether he/she is in a medical college / institute or a corporate hospital. But, effective teaching is not an easy job, especially when learner is an adult. The present "teacher centered" medical teaching method is being carried out without any training on "teaching methodology". This has led to the production of many medical professionals who lack proper teaching abilities.

This in turn has led to the deficiency of quality medical teachers and training in the medical education field. The Medical Council of India (MCI) has initiated faculty development program for filling up this gap by introducing a basic course workshop on medical education technologies (MET). The purpose of the Basic

Course Workshop in MET is to provide basic knowledge, skills and attitudes to all faculties in medical colleges which they can apply in day to day practice in different areas of teaching and assessment [1]. Unfortunately, this basic course workshop on MET is limited to the existing permanent faculties of the medical colleges / institutes only. Though there have been recommendations to include the teaching-learning process in resident / postgraduate (PG) curriculum, it has not happened yet [2]. On the other hand, the fact is that the major share of undergraduate (UG) as well as PG courses are actually taught by resident doctors. Moreover, they are the permanent faculties of the future generation. Considering these facts, we designed this present study to evaluate the efficacy of adapted MET workshop for resident doctors in changing their perception of as a medical teacher.

Material and Methods

Study design: This cross sectional study consisted of a sample of resident doctors who have participated in an adapted Medical Education Technology (MET) workshop and completed it.

Settings: After the approvals from Institute authority, department of Medical Education conducted an adapted MET workshop used for faculty development. Participants were trained in a 2-day long program of interactive classes on MET, microteaching and practice with an objective to improve their knowledge on teaching-learning process.

Participants: Research scholars associated with teaching and resident doctors, both junior residents (post graduate trainee) and senior residents of a tertiary care medical and health institutes, who have attended and completed the adapted MET workshop were included for the study. All the 34 participants were invited to participate in the study but 32 participants only completed the questionnaire. The study was conducted after approvals from authority and obtaining consent from the participants, who were informed regarding the study and data collection.

Data collection: A questionnaire was used as the data collection tool (Appendix). It consisted of 11 questions to elicit and quantify their own knowledge on teaching-learning, curriculum and assessment process along with perceptions about themselves as a medical teacher both for the pre workshop and post workshop time. The participants were asked to score (on a scale of 0 to 10) themselves for the questions directed for their own knowledge and quantify perception in an ordinal scale.

Appendix: Questionnaire (for data collection)

Instruction: Please rate the answers on a scale of 0 to 10

1. If you need to score your knowledge on Pedagogy and Androgogy with respect to medical education, how much score will you give to
 - a. Pre workshop knowledge:
 - b. Post workshop knowledge:

2. If you need to score your knowledge on domains of learning, how much score will you give to
 - a. Pre workshop knowledge:
 - b. Post workshop knowledge:
3. If you need to score your knowledge on Microteaching, how much score will you give to
 - a. Pre workshop knowledge:
 - b. Post workshop knowledge:
4. If you need to score your knowledge on traditional, structured and modified essay type questions, how much score will you give to
 - a. Pre workshop knowledge:
 - b. Post workshop knowledge:
5. If you need to score your knowledge on SPICES model on medical curriculum development, how much score will you give to
 - a. Pre workshop knowledge:
 - b. Post workshop knowledge:
6. If you need to Assess a medical student on a particular curriculum , how much score will you give to you as an assessor with your
 - a. Pre workshop knowledge of principle of Assessment :
 - b. Post workshop knowledge of principle of Assessment:
7. If yes need to score your practice of interactive classes, how much score will you give to your
 - a. Pre workshop practice
 - b. Post workshop future practice
8. If yes need to score your feedback practice after class, how much score will you give to:
 - a. Pre workshop practice:
 - b. Post workshop future practice
9. If you need to score yourself as medical teacher, how much score will you give:
 - a. Based on pre workshop knowledge:
 - b. Based on post workshop knowledge:

(Please tick or encircle your answer from the options for the below 2 questions)

10. Does this workshop have changed your perception on medical education process? If yes, how much?

1. Little	2. Much
3. Very much	4. Not changed

11. Does this workshop have changed your perception as a medical teacher? If yes, how much?

- 1. Little
- 2. Much
- 3. Very much
- 4. Not changed

Statistical Analysis: Quantitative data are analyzed using paired t test and a p value of < 0.05 was considered as significant. Ordinal data are expressed in absolute number and percentage scale. Statistical and graphical analysis was performed on INSTAT and GraphPad Prism 5 software (GraphPad software, Inc, La Zolla, CA, USA).

Results

Thirty two (94.11%) participants participated in the study by answering the questionnaire. The mean self score for themselves (out of 10) as a medical teacher was 3.96 as compared to 7.25 for the post workshop and the differences were highly significant with a p value <0.0001 (Figure 1). The mean self scores for the post workshop

knowledge were also significantly higher as compared to the pre workshop knowledge for all the questions in different aspects of teaching-learning and assessment process (Table 1) and the differences were statistically highly significant (p <0.0001).

Fig-1: Scatter dot plot (vertical) showing the Mean and 95% CI of pre and post workshop scores of own perception as a medical teacher.

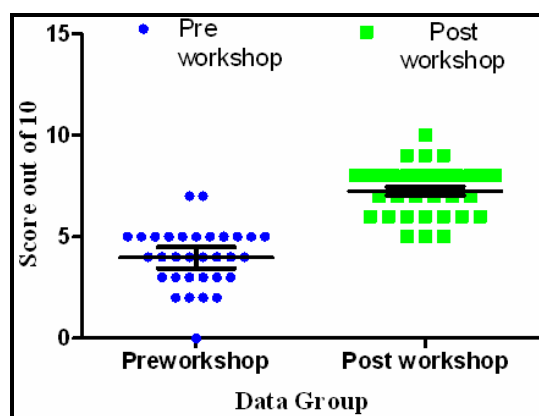


Table-1: Table showing the statistical results of self scores for different questions analyzed using paired t test (Q-Question, SD- Standard Deviation, CI- Confidence Interval)

Questions	Pre workshop Mean (SD) [95% CI]	Post workshop Mean (SD) [95% CI]	Two tailed p value
Q1	1.25 (1.79) [0.60 – 1.89]	6.93 (1.54) [6.38 – 7.49]	<0.0001
Q2	2.21 (2.35) [1.37 – 3.06]	7.53 (1.79) [6.88 – 8.17]	<0.0001
Q3	2.56 (2.50) [1.66 – 3.46]	7.96 (1.09) [7.57 – 8.36]	<0.0001
Q4	1.78 (1.86) [1.11 – 2.45]	6.40 (1.56) [6.84 – 7.97]	<0.0001
Q5	1.50 (2.30) [0.67 – 2.32]	6.84 (1.83) [6.18 – 7.50]	<0.0001
Q6	3.00 (1.68) [2.39 – 3.60]	7.12 (1.40) [6.61 – 7.63]	<0.0001
Q7	3.86 (2.28) [3.01 – 4.72]	7.66 (1.64) [7.05 – 8.28]	<0.0001
Q8	2.80 (2.73) [1.80 – 3.81]	7.80 (1.66) [7.19 – 8.41]	<0.0001
Q9	3.96 (1.47) [3.43 – 4.49]	7.25 (1.27) [6.79 – 7.70]	<0.0001

Table-2: Showing the results of qualitative ordinal data obtained for perception change expressed in absolute number and percentage scale. (N = 32, n = number of participants)

How much this workshop has changed	Little n (%)	Much n (%)	V. much n (%)	No change n (%)
Your perception on medical education process	0	11 (34.38)	21 (65.62)	0
Your perception as a medical teacher	0	10 (31.75)	22 (68.75)	0

While 100% percent participants expressed that the MET workshop has changed their perception on medical education process and as a medical teacher, 65.62% and 68.75% participants

respectively expressed that the workshop has changed their perception “very much” for these (Table 2).

Discussion

The “faculty development” term has been traditionally used to describe programs undertaken by academic staff in educational institutions and implies that some intellectual and professional growth at an individual level will occur as a result of these programs. Institutional growth has also been included in description more recently. With the broadening of the definition, the nature of these programs has also slowly, but surely, transformed from the initial concept of ‘workshops on teaching skills’ in the 70s to include research skills and leadership [3].

It is very well known to us that planning, preparation and practice is quite essential before performing any job perfectly or in a nearly perfect manner. Unfortunately out of this “5P” s, we mostly do 4th P-perform without going through previous “3P” (planning, preparation and practice) and expect the 5th P- perfectness. The scenario in medical education is not an exception to this. Post graduate medical curriculum is only concerned with patient care, subject knowledge and preliminary research and fails to provide training in the teaching of students. This has led to lack of planning, preparation and practice. However, once these doctors enter into resident ship, they are supposed to perform (teach) perfectly. This is highly similar to the observation made by George Miller, who said “It is curious that so many of our most important responsibilities are undertaken without significant preparation and teaching (in medical schools) is probably one of the most ubiquitous illustrations” [4].

The presently prevailing, century old conventional medical teaching method has been confined to “teacher centered” style where, teacher acts as a mere informer. There is minimal or no interaction between the teacher and learner; the students’ demands is not assessed and any feedback is hardly taken into account. Assessment of students is also running in an old fashioned manner without proper objectivity, causing a high chance of bias factors [2]. At Present, it is well perceived that a good teacher is more than a lecturer [5]. A teacher is not only an informer but, a facilitator, mentor, curriculum evaluator etc [2]. The MCI has also perceived this and revised regulations on undergraduate teaching in 1997 and started faculty development

programs which is being conducted regularly by institutions to facilitate medical teachers at all levels to continuously update their professional and teaching skills; and align their teaching skills to curricular objective [6]. The need of faculty development is not only felt in developing countries like India but also in developed and advanced countries like the United States of America. They have designed faculty development programs to support professional development across the academic community. This program is also dedicated to building a culture of mentorship, teaching and learning for all faculty and students across the academic continuum. The Workshop based program is one of the two components of their faculty development strategy [7].

After the revision of the regulation by MCI, the number of Medical Education units (MEU) is also increasing in India day by day. These MEUs are conducting workshops for medical teachers predominantly covering the teaching-learning process, use of media and student assessments and curriculum and preparing medical teachers from informer to mentor and facilitators of learning [8].

Unfortunately, this (MET workshop) is still confined to existing faculties, despite the fact that incorporation of teaching skills in PG course is recommended [2]. The efficacy of such trainings / workshops is well established in improving experiential learning, provision of feedback, effective peer and colleague relationships, use of multiple methods consistent with principles of teaching and learning etc thereby improving teaching-learning process [9-11]. A study conducted by Nagdeo et al. has found that even Professors (57%) were benefitted substantially from interactive teaching techniques and structured clinical assessment, markedly from adult learning, learning objectives, positive learning atmosphere, using audiovisual tools, preparing essay questions and preparing multiple choice questions [12].

In the present study where we have included a new type of cohort (residents), it was found that 100% of the residents were involved in teaching. But, many of the residents were not aware of domains of learning, types of essay

type questions, relatively newer methods of assessment like “objective structured practical examination & objective structured clinical examination” pattern examinations. The analysis of the self scores for pre and post workshop reconfirms that MET workshop has significantly improved the knowledge on teaching-learning process ($p < 0.0001$) and it is effective even for the residents or future faculties.

This is also interesting that the residents have evaluated themselves to be better teachers after the workshop. The mean score of 7.25 as a medical teacher after workshop as compared to 3.96 for pre workshop (both out of 10) with a p value of < 0.0001 , strongly indicates the effectiveness of the workshop. Moreover, more than 65% residents have expressed that the workshop has significantly changed their perception on medical education (teaching-learning) as well as a medical teacher, which further reinforces the efficacy of the programs.

The findings of the present study resemble the finding of the study conducted by Joshi et al. [11]. They conducted the study on the trained faculty members of their medical college and found that all of the responders rated the faculty development program / training useful while 66.66% rated it as very useful.

Conclusion

Residents lack knowledge of the teaching-learning process in many aspects. MET workshop for residents is effective in reducing the gap. This should be a part of resident ship program to improve their knowledge on medical teaching learning process and thereby develop themselves as a better future medical teacher.

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*All correspondences to: Dr. Md. Yunus, B-10C, Faculty Quarter, North Eastern Indira Gandhi Regional Institute of Health and Medical Science, Mawdiangdiang, Shillong-793018, Meghalaya, India. E-mail: drmdyunus@hotmail.com