

Study of the Effectiveness of Tutorials with Advanced Planning as a Method of Teaching Undergraduate Medical Students

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Abstract

Background: Tutorials are small group teaching learning method with the central core of discussion. Most of current teaching techniques are didactic involving very less student participation and the knowledge is imposed on them. Tutorials with advanced planning may be the solution to this problem as being very interactive and active form of teaching learning tool. The present study was undertaken to study the effectiveness of tutorials with advanced planning as a method of teaching undergraduate medical students.

Methods: Present observational study was conducted on 50 medical undergraduate students after taking their written informed consent. They undergone pre-test on same set questionnaire based on the topic already taught in didactic lecture and post test was conducted after taking tutorial with advanced planning and traditional tutorial teaching. Feedback was also taken based on set questionnaire on Likert scale.

Results: Statistically significant difference was observed between the mean score of pre-test and post- test in the group where tutorial with advanced planning was conducted ($p < 0.01$). Mean score in post -test was found to be significantly increased compared to pre-test. Post – test mean score in tutorial with advanced planning group was significantly greater than the post –test mean score in traditional tutorial teaching group ($p < 0.01$)

Conclusion: Tutorial with advanced planning can be effective method of teaching learning process. Group interaction and better understanding of the topic especially a difficult topic was perceived to be high among the students with this method. Therefore, tutorial with advanced planning should be included as a part of regular teaching schedule for undergraduate medical students.

Keywords : Tutorials, Tutorial with advanced planning, undergraduate, medical students

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Introduction

Tutorials are a small group teaching learning method with the central core of discussion [1]. They are meant to test and

develop student's own ideas, clarify the material given in lectures, hone problem solving skills and encourage students in

active learning [2]. Tutorial is a class or short series of classes, in which one or more instructor provides intensive instruction on some subject to a small group [3]. The prime focus is to make learning multi directional by involving other students and tutors. Exploring students' point of view, allowing time for discussion, and inculcating self-directed, reflective learning skills remain the mainstay of an effective tutorial session [4]. Beck (2007) analysed the pedagogy of tutorial and concluded that the principle goal is to "systematically train metacognitive (thinking about thinking) powers" or "enable students to learn to think for themselves [5].

Tutorial is essentially interactive. A significant proportion of the interaction comes from the learner. A learner tries to connect the knowledge gained in lectures into logical and practicable framework that helps deal with clinical issues. It guides and regulates reading on the part of the student with parallel guidance from lectures; ensuring understanding of the subject. The discussion confronted in tutorial helps learners to appreciate the significance and implications of their knowledge. The dialog between student and tutor provides a lot of opportunity to clear doubts and explore different styles of learning. The major advantage is that all learners get the opportunity to participate, contribute, and ventilate their concerns. Uncertainties are freely raised and immediate feedback can be given. [6]

Most of current teaching techniques are didactic involving very less student participation and the knowledge is imposed on them [7]. There is growing concern among medical educators that conventional modes of teaching medical students is unable to inculcate right qualities in students as well as unable to invoke lifelong respect for learning [8]. Tutorials with advanced planning may be the solution to this problem as it is very interactive and active form of teaching learning tool. In present scenario, there is true need that the

medical education techniques should be continuously updated to meet the changing demands of medical practice. Therefore the present study was undertaken to study the effectiveness of tutorials with advanced planning as a newer method of teaching undergraduate medical students.

Methods:

A total of 50 subjects aged 18 years and above who were newly admitted in 1st MBBS were recruited in this observational study after getting ethics approval from the Institutional Ethics committee. The purpose and objectives of study were elaborated to the study subjects and the written Informed consent was taken from them before the study. The study population comprised of newly admitted 1st MBBS students. Students' college roll was acted as sampling frame. Total of 50 students were selected using computer generated random numbers.

The study subjects were randomly divided in 2 groups each of 25 subjects. Both the groups were divided into 4 tutorial batches- A, B, C and D. A and C batch comprising of 12 and B, D batch comprising of 13 students. All the batches were exposed to pre-test in the form of MCQ and SAQ based on the topic already covered in theory lecture to assess their knowledge and understanding on the topic of discussion. Now A and B batches were exposed to tutorial with advanced planning where the hand-outs of the topic to be taught and specific learning objectives were given to students prior to tutorial and thereafter their tutorials was taken by the faculties in department of Physiology. Hand-outs of the topic to be covered for the session was prepared well in advance and lesson plan of the tutorial was also made. C and D batches were subjected to traditional tutorial teaching. Two tutorials were taken in all the batches. Thereafter, post-test with same content as in pre-test was taken. At the end, C and D batch was also exposed to tutorial with advanced planning.

Thereafter, feedback about the effectiveness of tutorial with advanced planning was taken from all the study participants based on set questionnaire on Likert scale. Tutorial was conducted by trained faculty of the department of Physiology who had undergone medical education training by MCI.

Statistical Methods:

Statistical analysis was done using Statistical Package for Social Sciences (SPSS) 16.0 version. Values obtained were expressed in the form of mean and standard deviation (SD). Statistical significance in group means was assessed using a statistical test – t test based on normal distribution. P value was taken as significant if found to be less than 0.05.

Results:

The study subjects were classified in 2 groups, one group was exposed to tutorial with advanced planning and other to traditional tutorial teaching. In both the groups, the mean score of pre-test was compared with mean score of post-test as well as the mean score of post-test was compared between interventional and non-interventional groups. In a group where, traditional tutorial teaching was taken, statistically significant difference was observed between the mean score of pre-test and post-test ($p < 0.01$) [Table 1]. In a group where, tutorial with advanced planning was taken, statistically significant difference was observed between the mean score of pre-test and post-test in this group also ($p < 0.01$). Mean score in post-test was found to be significantly increased compared to pre-test [Table 2]

When the post –test mean score in two groups was compared, it was found that in a group where tutorial were taken by traditional method, mean score was 11.38 ± 2.20 and in a group where tutorials were taken with advanced planning, the post-test mean score was 13.64 ± 1.60 . Statistically significant difference was observed between the mean score of post-tests. ($p < 0.01$). Post –test mean score in tutorial with advanced planning group was significantly greater than the post –test mean score in tutorial by traditional method group [Table 3]. When the pre –test mean score in two groups was compared, it was found that in a group where tutorial were taken by traditional method, mean score was 6.7 ± 2.38 and in a group where tutorials were taken with advanced planning, the pre-test mean score was 6.2 ± 1.70 . Statistically significant difference was not observed between the mean score of pre-tests. ($p > 0.05$). Pre –test mean score in tutorial with advanced planning group was not significantly different than the pre –test mean score in tutorial by traditional method group [Table 4]. Most of the students agreed upon the various advantages of this method of teaching. There were hardly few who disagreed or strongly disagreed [Table 5]. When asked about the most interesting part of tutorial with advanced planning, 72% felt it was discussion by faculty and within group, 16% felt it was hand-outs and 12 % said small group study was interesting. Regarding the overall rating of this method of tutorial teaching 48% said it was excellent, 44% said it was good, 6% said it was similar to traditional method and 2 % said it was poor than the traditional method of tutorial teaching.

Table 1: Mean score of the students before and after the tutorial by traditional method (n=25)

Pre-test		Post-test		Statistical Significance
Mean Score out of 20		Mean Score out of 20		
Mean	SD	Mean	SD	
6.7	2.38	11.38	2.20	$P < 0.01$; S

Values are expressed as Mean \pm SD.

Table 2: Mean score of the students before and after the tutorial with advanced planning (n=25)

Pre-test		Post-test		Statistical Significance
Mean Score out of 20		Mean Score out of 20		
Mean	SD	Mean	SD	P < 0.01 ; S
6.2	1.70	13.64	1.60	

Values are expressed as Mean \pm SD.

Table 3: Mean score of the students after the tutorial with advanced planning and the tutorial by traditional method

Post-test in tutorial by traditional method group		Post-test in tutorial with advanced planning group		Statistical Significance
Mean Score out of 20		Mean Score out of 20		
Mean	SD	Mean	SD	P < 0.01 ; S
11.38	2.20	13.64	1.60	

Values are expressed as Mean \pm SD.

Table 4: Mean score of the students before the tutorial with advanced planning and the tutorial by traditional method

Pre-test in tutorial by traditional method		Pre-test in tutorial with advanced planning group		Statistical Significance
Mean Score out of 20		Mean Score out of 20		
Mean	SD	Mean	SD	P > 0.05 ; NS
6.7	2.38	6.2	1.70	

Values are expressed as Mean \pm SD.

Table 5: Student's feedback about the tutorial with advanced planning on Likert scale

Feedback of Tutorial session					
Components	Strongly agree n(%)	Agree n(%)	Uncertain n(%)	Disagree n(%)	Strongly disagree n(%)
Able to understand topic better	26(52%)	22 (44%)	1(2%)	1(2%)	0%
Attention span is increased	27(54%)	19(38%)	2(4%)	1(2%)	1(2%)
Hand-outs are useful	28(56%)	21(42%)	1(2%)	0%	0%
Tutorial with advance planning is better way to teach difficult topic	40(80%)	9(18%)	1(2%)	0%	0%
Proper time management possible	23(46%)	18(36%)	6(12%)	3(6%)	0%
Better interaction with students	37(74%)	12(24%)	1(2%)	0%	0%
Achievement of objectives (SLO)	23(46%)	24(48%)	2(4%)	1(2%)	0%

Discussion:

In present scenario, didactic lecture is the most common teaching learning method used in medical education. A traditional lecture doesn't encourage a fruitful participation of students and doesn't promote interaction among teacher and students [4]. For effective skill learning as well as to create and sustain the active interest of students in learning, the teaching learning method must be interactive and participative in nature. A tutorial is a participative teaching learning method which promotes discussion and better understanding of a topic. In our study, tutorials were conducted with advanced planning using a hand-out prepared with reference from standard textbooks for undergraduate medical students.

Students were divided into four groups, each group guided by a MET trained faculty who promoted healthy interaction among the students. At the end of the tutorial, students were given the feedback form with questions to be answered for testing the effectiveness of a tutorial with advanced planning as compared to a tutorial by traditional method.

The result of present study evidently indicate that tutorial with advanced planning increases the knowledge and understanding of the topic discussed. We observed significant increase in score obtained in post-test after tutorial with advanced planning. Our findings are co-existent with the observations by Kumar RP et al [2] and Singh K et al [9] who recorded significantly higher score of post- test after tutorial as compared to pretest score. Mishra AK et al [10] documented the significantly higher post test results after tutorial. This goes hand in hand with our findings.

In the feedback given by students, most of the students have accepted the parameters of tutorial with advanced planning like ability to understand the topic better, increase in attention span, increase in

student participation, understanding the difficult topic better, proper time management and achieving the specific learning objectives. This is in agreement with findings in previous studies [2,11].

In present study, student felt that discussion by faculty and within group is the most interesting aspect of tutorial with advanced planning. This again underlines the importance of interaction in teaching – learning exercise. Similar observations were also made by Kumar RP2 et al and Velavan A et al [11].

Raven et al [4] in their study found that good tutorial must promote students participation and keep them away from interference. The study findings in our study are similar to a study conducted by Stalin et al [12] on integrated teaching program among undergraduate medical students. On the basis of their findings, active teaching–learning method creates interest among students, and it is an effective learning method for them to learn the subject in a better manner.

48 % of the students in our study stated that tutorial with advanced planning was excellent teaching learning method as regards to the understanding of the topic. Shah et al [13] also in their study observed 65.3% students response that tutorials are more useful as compared to lecture to understand any topic. Majority of the students (66.2%) in previous study gave better overall rating to tutorial as a teaching- learning method than lecture. MJS Dawane et al and G Sivagnanam also found that students preferred tutorials than a lecture as a teaching learning method [14,15]. These findings are co-existent with our observations.[16]

Conclusion:

Based upon the observations in the present study, we opine that the tutorial with advanced planning is an effective method of teaching learning process. Group interaction and better understanding of the topic especially a difficult topic was

perceived to be high among the students with this method. Therefore, tutorial with advanced planning should be included as a part of regular teaching schedule for undergraduate medical students.

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Declaration:

Authors declares that there is no conflict of interest. Institutional Ethics Committee approval letter no. MGIMS/IEC/PHY/123/2017 dated 15/12/2017 (copy attached).

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