Research Article

Workshop: an alternative way of learning for Medical Graduates

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Abstract

Background: Workshops with group discussions play a valuable role in the all-round education of students. Discussion in workshops develops the more instrumental skills of listening, presenting ideas, persuading and working as a part of a team. **Objectives:** The purpose of this study was to assess the outcome of a research workshop conducted among medical students. **Materials and Methods:** The concept of learning and improvement in knowledge was evaluated among various medical college students belonging different semesters attending a research workshop using pre and post test questionnaire method. The workshop was divided into six groups with scientific sessions of 40 minutes followed by group activities. **Results:** The workshop had greatly improved the knowledge among the participants with mean knowledge scoring of 3.49 before to 9.76 after the workshop and female medical students showed more improvement in knowledge scoring than males which was statistically significant. **Conclusion:** Our study had explored that the workshop with group activities could be used as a powerful tool in medical education for improvement of knowledge among medical students.

Key words: Before and after study, Knowledge acquisition, Active learning, Medical education, Medical students, Workshop.

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Introduction

"Workshop" literally means a small group that meets to explore some subject that develops a skill or a technique or carries out a creative project. It was also expressed in many ways like series of meetings emphasizing interaction and exchange of information among a usually small number of participants and many believed that workshop means to create or to revise based on suggestions or criticism from a group of collaborators. In fact this was thought and practiced to be one of the teaching learning methods which hold principle of active learning for adults.*Active learning* is generally defined as any instructional method that engages students in the learning process. In short, active learning requires students to do meaningful learning activities and think about what they are doing. [1] *Collaborative learning* can refer to any instructional method in which students work together in small groups toward a common goal. [2] Traditionally small groups consists of 8 to 12 students, and the variety of teaching learning methods can be utilized for small groups like problem solving, discussions, role play, brain storming, debate and workshops. The major advantages of small group teaching are that it encourages active learning and develops communication and team work skills. Knowing well about these small group teaching learning methods, the investigator wants to emphasize on the outcome of a workshop conducted on medical students in improving the knowledge and attitude towards the proposed topic that is Research Methodology – Basics.

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Aims and Objectives

The purpose of this study was to assess the outcome of a research workshop conducted among medical and paramedical students.

Primary Objective:

1. To assess the improvement in knowledge on basics of research methodology before and after attending the workshop

Secondary Objective:

1. To encourage the medical and paramedical students' attitude to come forward to effectuate research projects

Materials and Methods

Study Design: Community intervention trial
Study Population: Medical and Paramedical students participating in the research workshop
Study Area and Period: The research workshop was held at South Chennai on December month – 2014.

Sampling Method: The study participants were selected based on the willingness to participate in the research workshop which was purely voluntarily. The information about the workshop was intimated to the students of various medical colleges in and around the part of South Chennai. The students were communicated personally andintimations related to the workshop were shared through phone for inviting them to attend the research workshop. The contact number of the programme coordinator was given to all the participants who were interested in attending the workshop and their queries regarding the workshop were clarified then and there. Workshop venue and locations were clearly informed to them 2 days prior to the workshop. There were a total 8 dropouts just 3 days before the scheduled date of the workshop.

Method of Conducting of the Workshop : The workshop venue was an air conditioned banquet hall with six round tables for group activities and discussions. The students were divided into 5 groups with 7 participants per group in 3 groups and 8 in 2 groups. The seating arrangements were made in such a way that all the participants would have face to face interaction and also to listen to the interactive lecture sessions.

Sessions: The workshop was divided into four sessions, in which each session was followed by group activities. The first session was ice breaking session to break the monotony among the group members followed by the scientific sessions.

Ice Breaking Session: The ice breaking session was conducted with an intention of facilitating the individuals to form a group. We ensured that the participants interacted with their team members.The students enjoyed the ice breaking session and there was a relaxed atmosphere among the students after the initial ice breaking session.

Scientific Session 1: Power point presentation with interactive lecture on "**Basics of research**" (Definition, Aims of research, Type of research and Research process).
Group activity 1 and 2 was given:

Topics: Identification of types of research and writing the objectives for a research question.

Scientific Session 2: Research materials and Methods and Sampling techniques and sample size calculations.
Group activity 3 and 4: Pictorial identification of sampling methods and scenario for calculation of sample size calculation.

Scientific Session 3: Data Collection methods and data entry (questionnaire types, formats, types of questions for the questionnaire and response scales)
Group activity 5: Making a questionnaire on a selected topic – common topic for all the groups.

Scientific Session 4: Application statistics in medical research – (definitions, types of data, types of data presentation methods)
Group activity 6: Pictures on various data presentations were given and asked to identify the types of data presentation for different types of data followed by three multiple choice questions on data presentation methods.

Scientific Session 5: Null hypothesis and test of significance
Group activity 7: Problem based questions (Exercises) were posed to individual groups for identification of statistical test for hypothesis testing

Scientific Session 6: Should know things on Journal publication
Group activity 8: Matching of different definitions were given on journal publications

Interactive Lectures: All of the scientific sessions did not last more than 40 minutes and it was made more interactive by asking questions in between and keeping eye to eye contact with all the members of the workshops.

Group activities: All the group activities were followed by the small discussion sessions with the instructor and the doubts were clarified then and there. Programme coordinator and the teacher were assessing the level of participation among the group members during the entire workshop and group activities sessions.

Study Tool: Predetermined pre and post test closed ended ten questions was used with four multiple choices for all the questions.

Data Collection Method: (Outcome Measure) : In order to assess the knowledge of the students, the participants were provided with the same set of 10 closed ended pre and post test questions. Strict confidentiality was ensured regarding individual marks of the students. Scoring were given as 0 and 1 for wrong and the correct answers respectively. The students were classified as poor knowledge, some knowledge and better knowledge according to the scores obtained in the pre test and post test questions.

Data Entry And Analysis: The data were entered in the MS excel sheet and analysis was done using EPI INFO software 3.5.1 version 2008.

Results and Analysis

A total of 37 students had participated in the workshop of which 25 were females and 12 were males. The student's belonged to different medical colleges attended the workshop and the groupings were made in such a way that there should be mixture of different college students in all the groups. As shown in figure 2 the knowledge difference before and after the workshop was marked and almost 36 (97.3%) of the students had better knowledge on basics of research methodology after the workshop whereas 78% had poor knowledge before attending the workshop. Twenty two percent of the students had some knowledge before the workshop whereas no one had poor knowledge after the workshop. Similarly the mean knowledge scoring of pre and post test questions were 3.49 and 9.76 with the standard deviation of 1.502 and 0.641 respectively. (Table – 1) Comparative scorings of the students showed the minimum score of 7 and a maximum of 10 after the workshop whereas the before the workshop the scores ranged from 1 to 7 (Figure – 2).

Analysis: Paired t test was done to test the hypothesis and it was highly significant with the p value of 0.0001 which suggests the workshop had an impact on improvement of the knowledge of the study participants. Out of 37 students 30 (81%) students came forward for participating in the research and showed willingness to attend similar kind of research workshops to improve their knowledge and to get involved themselves in the research activities.

Kruskall Wallis test for two groups (male and female) against pre test and post test scores was performed which showed the p value of ($p = 0.0363$), suggested knowledge scores among females were more than males in relation to pre and post test knowledge score. Mann Whitney test for two unrelated groups with ordinal data (scores – rankings) were compared which gave the probability value of 0.0066 – high significant, i.e females had more knowledge at the end of the workshop than males.

Students' Feedback: Feedback forms were also provided to the students to comment on the workshop. Surprisingly most of the students have given only positive feedbacks except 2 students who replied that they expected more information related to journal publications. Nevertheless regarding the group activities everyone replied that they were very well satisfied and it has improved their learning skills. The students were in favor of more group activities with reduction of lecture to 30 minutes. The students also mentioned that the group activities catered them for developing knowledge, generic skills and attitudes.

Table 1: Comparison of knowledge scoring among study participants before and after the workshop showing the significant difference

Questionnaire	Mean knowledge score	Standard deviation
Pre test	3.49	1.502
Post test	9.76	0.641

P value < 0.0001 (Highly significant)

Figure 1: Bar diagram showing increase in knowledge acquisition after the workshop

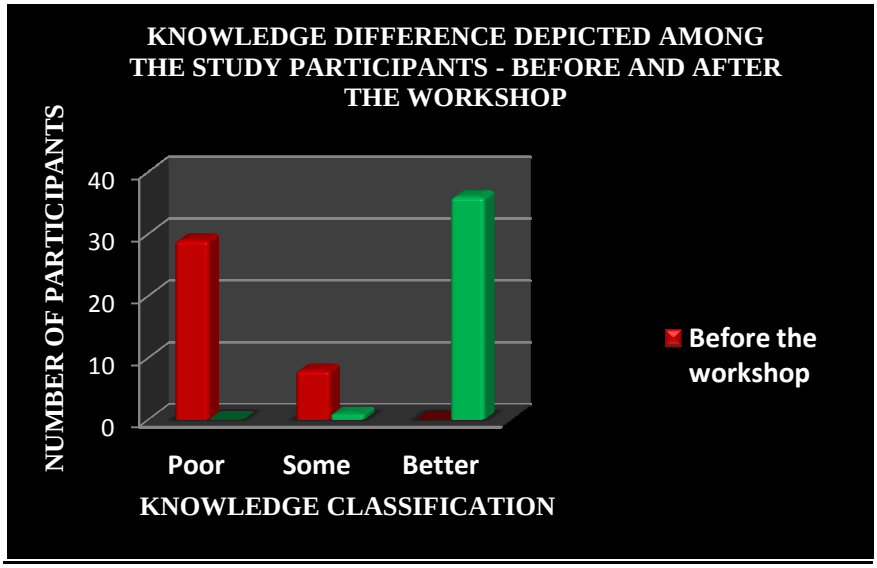
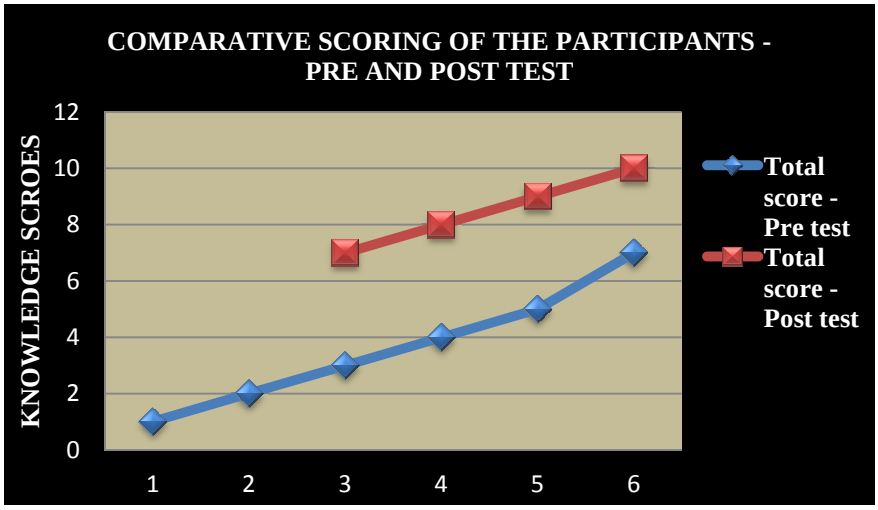


Figure 2: Scores obtained by the study participants in pre and post test questions



Discussion

Our study was done with the main purpose of assessing the effectiveness of the workshop in enhancement of knowledge among medical students using pre and post test questionnaire method. The study results had shown there was huge difference in improvement of knowledge on research before and after the workshop which was statistically significant. As it was already proven by many studies that small group teaching methods like workshops, role play and group discussion will enhance active learning. Our study also supported the same concept of small group teaching that has enhanced active learning. Similarly a study conducted at Bond University, Australia by Patricia J et al [3], showed that the workshop was useful in improving the knowledge of the medical students. A study conducted in New Mexico University by Ralph W. Prezler [4] proved that the peer facilitated workshops enhanced interactivity which led to the student engagement and learning. The same study also showed that the workshops had improved student performance, retention of the subject, quality of student learning and increase in higher level of thinking from pre workshop to post workshop. Our results coincides with the findings of Tien et al [5] indicate that improved student performance as a result of cooperative learning workshops. Along with the regular lectures, the adjunct

workshops for the students had shown greater impacts on student learning which was proved my many studies.[6] One of the very important and innovative method of teaching learning method which problem based learning which enhances learning among students than other traditional methods of teaching. Although the problem based learning method of teaching was not utilized in our workshop completely but it was used to solve some problems in group activities which facilitated learning among the students and it was accepted by all the students in feedback. This was also supported by a David T. A Vernon et al [7] Meta analysis performed among 35 studies. So teaching workshops for small groups allow the instructors also to enjoy the benefits and it is more students centered. This current workshop has allowed the students to learn to collaborate and communicate and in addition to the content of the class, the group process itself became a learning tool. In our workshop the students also replied that they enjoyed the group experience with course content ensuring active participation from all the students. One of the important factors for the greater improvement in knowledge may be attributed to the internal motivation among the students who attended the workshop which was purely voluntary. This was absolutely proved by many studies like Ramirez, G. M. et al [8] Arendale, D. R. et al [9], the improvement in student performance was associated with initial motivational differences. Another important analytical finding was female student's performance improved more than the male student which was statistically significant in our study which could be due to better internal motivation among females.

Conclusion

The purpose of the study was to accomplish the knowledge improvement among the students who attended the research workshop voluntarily with the help of pre and post test questionnaire assessment. We explored the usefulness and impact of the workshop in improvement of knowledge and attitude of the students. Periodical workshops should be conducted for the medical students to enhance their active participation and learning skills.

Limitations:

- The population was not selected randomly to extrapolate to any of the student groups.
- Two or more small group method should have been used to compare the effectiveness of the different teaching learning methods.

- **Funding**: Nil
- **Conflict of interes**t: None initiated.
- **Permission from IRB:** Yes

References

1. Bonwell, C.C., and J. A. Eison, "Active Learning: Creating Excitement in the Classroom," ASHEERIC Higher Education Report No. 1, George Washington University, Washington, DC, 1991.https://www.ydae.purdue.edu/.../Active_Learning_Creating_Excitement_in_the_Classroom.pdf. Last accessed on 25.01.1015.

2. Clark, L. C. Online collaborative learning in higher education.A student's guide to the internet. Upper Saddle River, NJ: Prentice Hall. College of DuPage. (1996) Retrieved February 26, 2005 from http://clp.cqu.edu.au/glossary.htm last accessed on 25.01.2015

3. Patricia Johnson, Christine Sly, Patrick H Warnke. Simulated surgical workshops enhance medical school students' preparation for clinical rotation. Australasian Medical Journal 01/2013; 6(2):79-87. DOI: 10.4066/AMJ.2013.1550.

4. Preszler RW. Replacing Lecture with Peer-led Workshops Improves Student Learning. CBE Life Sci Educ. 2009 Fall;8(3):182-92. doi: 10.1187/cbe.09-01-0002.

5. Tien LT, Roth V, Kampmeier JA. Implementation of a peer-led team learning instructional approach in an undergraduate organic chemistry course. J Res Sci Teach 2002;39(7): 606–632.doi: 10.1002/tea.10038

6. Lundeberg, M. A. Supplemental instruction in chemistry. J Res Sci Teach 1990;*27(2)*, 145–155.doi: 10.1002/tea.3660270206.

7. David TA Vernon, Robert L Blake. Does Problem Based learning work? A Meta analysis of evaluative research. Academic medicine: July 1993: 68 (7); 550 – 563. Available at http://www.ncbi.nlm.nih.gov/pubmed/8323649. Last accessed on 10.03.2015

8. Deanna C. Martin, David R. Arendale, Supplemental instruction: improving first-year student success in high-risk courses National Resource Center for the Freshman Year Experience (University of South Carolina) National Resource Center for the Freshman Year

Experience, University of South Carolina, 01-Jan-1993. Available at http://eric.ed.gov/?id=ED354839. Also at http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CCcQFjAB&url=http%3A%2F%2Ffiles.eric.ed.gov%2Ffulltext%2FED354839.pdf

9. Ramirez, G. M. Supplemental instruction. In: Proceedings of the 13th and 14th Annual Institutes for Learning Assistance Professionals: 1992 and 1993, ed. S. Mioduski and G. Enright, University of Arizona, Tucson, AZ: University Learning Center, 1997; 78–91. http://www.lsche.net/proceedings/923_proc/923proc_ramirez.htm

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