

EFFECTIVENESS OF SELF-DIRECTED LEARNING WITH LECTURE METHOD IN TEACHING FIRST YEAR MEDICAL STUDENTS IN A MEDICAL SCHOOL.

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ABSTRACT

Background: Self-directed learning (SDL) has been accepted in the medical syllabus and proposed as a successful learning method for undergraduate medical students to build up competence in knowledge achievement. The main criterion of the study is to find the advantage of self-directed learning with a traditional lecture on the similar topic in Biochemistry for first-year MBBS students. **Material & Methods:** First-year MBBS students comprising 150 students divided into batch A and batch B comprising seventy-five each respectively. Out of two batches, batch A received a one-hour lecture session on Biochemistry topic, whereas batch B students were encouraged for SDL on the same topic. Two batches were subjected to written examination by providing multiple choice questions (MCQ). **Results:** Means values were not significant ($p > 0.05$) on comparing between the pre-Lecture to pre-SDL and between post-lecture to post-SDL groups. **Conclusion:** Self-directed learning can be employed as a superior form of learning in knowledge methodology of acquisition and knowledge acquirement and effective in discussing diseases related topics in the in the medical syllabus of Biochemistry. **Keywords:** Biochemistry, Lecture, Medical education, Self-directed learning.

INTRODUCTION

The long-established didactic lecture in medical education generally engross a single lecturer delivering a class to a large audience of undergraduates with support from audiovisual aids such as a blackboard, overhead projector, and Power Point presentation. In recent years there has been many methods like problem-related learning and SDL are adopted for the medical syllabus. (1) Additionally mixture forms of lecture and SDL techniques are known to be practiced in which the teaching time is decreased. (2, 3) SDL methodology emphasizes as a new method where students participates and simultaneously understands the subject. (4) SDL helps medical individuals to learn new techniques for

acquiring clinically related subject through their careers. (5)

SDL has been recommended as a promising style for ultimate learning technique in medicine. (6) SDL has been advocated as successful and resourceful exercise of medical students. (7)

The Liaison Committee on Medical Education (LCME) approved accreditation values in 2004 that support flexibility and novelty in learning and offer medical students with skills essential for SDL. (8)

Several studies have proved SDL is precious in terms of knowledge attainment for learning gross anatomy

and physiology. (9, 10) Further, SDL enabled self-determining conclusion building and superior communication skills in the nursing field teaching. (11, 12) The main aim was to observe the advantage of self-directed learning over a traditional lecture in learning the different topics in Biochemistry for first-year medical students.

Methodology:

First year MBBS program offered by Mamata Medical College, affiliated to KNRUHS Telangana, India, students gain knowledge of Biochemistry, Anatomy, and Physiology.

The course comprises theory classes, tutorials, practicals and practical demonstration experiments. The concerned students are subjected to clinical practice only from the after finishing the examination. This cross-sectional Study was conducted after obtaining approval from the Institutional Ethics Committee.

The study was conducted after completion of first three months MBBS syllabus. The total of 150 students enrolled into were randomly separated into two groups comprising of 75 each (Group A received lecture and group B are subjected to SDL) respectively. First internal examination marks were matched to elicit the response of performance among the groups.

The internal examination marks were same, among the two groups tested. Each group of students were provided with ten questions of multiple choice (MCQ) were given with twenty maximum marks. By means of this present study, our objective is to check the efficacy of SDL in medical education.

Inclusion criteria: Students had to be enrolled full-time in the MBBS program. A total of 67 students from batch A and 64 students from batch B participated in the study. Participation was voluntary.

Exclusion Criteria: Those students absent in the classes were excluded from the study.

Statistical analysis: Statistical analysis was done using SPSS-17.0. The results were expressed as

means \pm SD. Paired and unpaired t-test was done. P value was considered significant at 0.05%.

RESULTS

In the paired t-test the means values of the lecture groups in pre and post analysis are 14.07 \pm 2.2 and 15.22 \pm 2.0 and are found to be highly significant ($p < 0.01$), and for the SDL groups in pre and post analysis were 13.94 \pm 2.1 and 14.69 \pm 1.6 and were found to be significant ($p < 0.05$) (table-1).

In the unpaired t-test, the means values were compared between the post-lecture groups and SDL groups. The mean values are found to be same, we didn't observe any significance ($p > 0.05$) on comparing between the pre-Lecture to pre-SDL and between post-lecture to post-SDL groups (table-2).

DISCUSSION

With the current selected topic of the MBBS curriculum, after grouping the student we found Batch A students, who were supplemented with a lecture session, scored similar to Batch B, who were exposed to an independent SDL. This makes the SDL session more effective for learning the topic. Hence, the different learning methods employed did not influence different levels of scores between the two groups.

We found the two groups performed similarly. Our observation is similar to the studies of "Sajeevan et al," and "Kollathody et al,". These studies reveals that SDL can be employed as an alternate teaching method in acquiring knowledge in discussing clinically related topics of the Biochemistry in the medical syllabus. (13, 14)

The major part of SDL is perhaps decreased in a first MBBS based on the fact the medical knowledge is necessary in certain topics to integrate basic with the concerned subject, as well as teacher-guided conversation might work better.

The SDL can be employed with the assistance of standard textbooks, reference books, material handouts and online sources. (7, 15)

M H Murad et al, 2010 discussed objectively about SDL may preferentially be more successful in the knowledge domain. We propose that educators embarking on mounting SDL curricula for learners in health professions should: (a) involve learners in choosing learning resources and strategies to facilitate them to find the most suitable resources to fit their individual learning styles as well as the overall learning objective; (b) consider SDL as an effective approach for more higher learners like those in the later years of medical school or residency and doctors in practice), and (c) consider SDL mainly when the learning outcome falls in the knowledge area. (16)

CONCLUSION

SDL might be adopted as a alternate tool of learning in knowledge acquirement. However, in this study, SDL sessions could cover only a small number of topics from the entire content in the curriculum of the first year MBBS program.

Limitations:

This study was conducted in the restricted area of the curriculum of medical education in a single medical college. A multicentric study covering great areas of the curriculum of a longer period is necessary to study the impact of self-directed learning in the medical education.

REFERENCES

1. Barrows HS. Problem-based, self-directed learning. *J Am Med Assoc* 1983;250:3077–80.
2. Clough RW, Shea SL, Hamilton WR, Estavillo JA, Rupp G, Browning RA, et al. Weaving basic and social sciences into a case-based, clinically oriented medical curriculum: One school's approach. *Acad Med.* 2004; 79:1073–83.
3. Benedict N, Schonder K, McGee J. Promotion of Self-directed Learning Using Virtual Patient Cases. *Am J Pharm Educ* 2013;77:151.
4. Knowles M. *Self-Directed Learning: a Guide for Learners and Teachers.* Chicago, IL: Follett Publishing 1975;1–135.

5. Greveson GC, Spencer JA. Self-directed learning—the importance of concepts and contexts. *Med Educ* 2005;39:348–9.
6. M Hassan, M P Varkey. Self-directed Learning in Health Professions Education. *Ann Acad Med Singapore* 2008;37:580-90.
7. Kirtana M Pai, K Raghavendra Rao, DhirenPunja, AshaKamath.The effectiveness of self-directed learning (SDL) for teaching physiology to first-year medical students. *AMJ.*2014;7:448-453.
8. Simon FA, Aschenbrener CA. Undergraduate medical education accreditation as a driver of lifelong learning. *J Contin Educ Health Prof.* 2005;25:157–61.
9. Arroyo Jimenez Mdel M, Marcos P, Martinez Marcos A, et al. Gross anatomy dissections and self-directed learning in medicine. *Clin Anat* 2005;18:385–91.
10. Grieve C. Knowledge increment assessed for three methodologies of teaching physiology. *Med Teach* 1992;14:27–32.
11. Considine J, Botti M, Thomas S. Effect of a self-directed learning package on emergency nurses knowledge of assessment of oxygenation and use of supplemental oxygen. *Nurs Health Sci* 2005;7:199–208.
12. Taylor EJ, Mamier I, Bahjri K, Anton T, Petersen F. Efficacy of a self-study programme to teach spiritual care. *J ClinNurs* 2009;18:1131–40.
13. Sajeevan KC, Jose J. Level of knowledge gained by self-directed learning and interactive lectures for teaching biochemistry among first-year medical students in government medical college, Idukki, Kerala- a comparative study. *J. Evid. Based Med. Healthc.*2018; 5: 1395-1398.
14. Kollathody S, Mani SN, Kavuparambil L. Comparison of self-directed study with interactive lecture in learning biochemistry. *Int J Scientific Research* 2016;7:631-634.
15. Shershneva MB, Slotnick HB, and Mejicano GC. Learning to use learning resources during medical school and residency. *J Med Libr Assoc* 2005;93:263–70.

16. M H Murad, F Coto Yglesias, P Varkey, J Larry, P A L Murad. The effectiveness of self-directed learning in health professions education a systematic review. Med Edu 2010; 44: 1057–1068.

Tables:

Table-1: Mean scores for two different learning methods with Paired t-test

	Mean±SD	t-value	Significance
Pre-lecture (n=67)	14.07±2.2	-3.31	<0.01*
Post-lecture (n=67)	15.22±2.0		
Pre-SDL (n=64)	13.94±2.1	-2.36	<0.05**
Post-SDL (n=64)	14.69±1.6		

Note: * indicate highly significant, ** indicate significant

Table-2: Mean scores for two different learning methods with Un-Paired t-test

	Mean±SD	t-value	Significance
Pre-lecture (n=67)	14.07±2.2	0.082	>0.05†
Pre-SDL (n=64)	13.94±2.1	0.082	
Post-lecture (n=67)	15.22±2.0	1.71	>0.05†
Post-SDL (n=64)	14.69±1.6	1.72	

Note: † indicate not significant