

Introducing Team Based Learning (TBL) in Pathology: Student's Perceptions

Sofia Waheed Khan¹, Sadaf Sajid², Nosheen Khurram¹, Mussarat-ul-Hasnain³ and Waqas Ali³

ABSTRACT

Objective: To explore the perception of students regarding Team Based Learning (TBL) in Pathology at Rashid Latif Medical and Dental College, Lahore.

Study Design: Descriptive cross-sectional study

Place and Duration of Study: This study was conducted at the Rashid Latif Medical and Dental College, Lahore, in December 2019.

Materials and Methods: A total of 151 students who were present at the time of survey in pathology third year MBBS class and expressed their consent for participation were enrolled in the study. A structured validated questionnaire was used as a study tool.

Results: A total of 151 undergraduate medical students responded to the questionnaire. The perceptions regarding team based learning was very satisfactory. Majority of the student agreed that team based learning (TBL) is a better teaching methodology for learning pathology.

Conclusion: Current teaching methods in medical colleges need to be improved. Team based Learning is a student centered learning. New teaching strategies should be implemented to engage student in learning.

Key Words: Team based learning, Pathology, Students, Medical

Citation of article: Khan SW, Sajid S, Khurram N, Hasnain M, Ali W. Introducing Team Based Learning (TBL) in Pathology: Student's Perceptions. *Med Forum* 2020;31(10):31-34.

INTRODUCTION

Pathology is a branch of medicine that deals with the precise study and diagnosis of human disease. It bridges the clinical and non-clinical subjects making pathology an essential member of the treatment team. Here we engage the students in applying their knowledge of the mechanism of disease to diagnose prevent and treat the patient. In a traditional curriculum in our country, pathology is taught for two years in medical school. Traditional teaching methods are mainly in the form of didactic lectures, tutorial and practical classes. Teaching is mainly in the form of large groups. These methods are instructor focused and consists of the teacher introducing and explaining course material to the students. There is a passive transfer of information and application chance is minimal till the exams.¹ Many active learning strategies are currently used worldwide in different medical schools like case based group discussion, problem based learning and workshops. These teaching strategies are resource intensive.²

¹. Department of Pathology / Forensic Medicine² / Medical Education³, Rashid Latif Medical College, Lahore.

Correspondence: Dr. Sofia Waheed Khan, Associate Professor Pathology, Rashid Latif Medical College, Lahore.
Contact No: 0300-4166470
Email: sofia.khan@rlmc.edu.pk

Received: June, 2020
Accepted: August, 2020
Printed: October, 2020

Team based learning (TBL) is a format of active learning strategy for large groups. It was developed by Dr. Larry K Michaelsen and it was started in medical education in 2001. TBL is a method which is student centered, directed instructional methodology which is not resource intensive and can easily manage in large groups by one facilitator in less time than the didactic lecture.^{2,3} It is based on the constructivist learning theory in which the role of a teacher is being a facilitator and it enhanced problem solving skills, promote team work and encourage critical thinking. TBL has been introduced in several basic sciences settings medical education. This methodology provides students to apply knowledge during different activities like individual work, team work, problem solving and feedback.⁴ While it has been proven that engaging students in active learning increase attention span and helps to enhance learning.^{1,5} In this process learners get new knowledge from the environment, experience it and reconstruct it with long term memory. According to Michaelson, TBL allows the students to recognize the need to learn and to apply reasoning skills gained through critical thinking.¹

MATERIALS AND METHODS

A cross sectional survey was conducted after a team based learning (TBL) session for the pathology class. Orientation session for TBL was conducted by medical education department of Rashid Latif Medical and Dental College for the students and faculty. Through Convenient sampling, 151 students who were present in

pathology third year MBBS class were selected. After taking the consent, demographic data, perception about pathology as a subject and perception about TBL were collected. Students filled the printed and validated questionnaire provided by medical education department which acquires the perception about TBL. Kaiser-Meyer-Olkin Measure of Sampling Adequacy was 0.738 and Bartlett's Test of Sphericity was significant (p-value <0.001). Cronbach's Alpha reveals high reliability 0.798. Factor analysis reveals that there were three domains in the questionnaire student motivation, student's satisfaction and subject specific. There were 10 items in the questionnaire. The responses were strongly agreeing (SA), agree (A), no opinion (NO), disagree (DA), and strongly disagree (SD).¹² The regular pathology class for the particular topic was comprised of 540 min and the TBL session was conducted, which only last for 60 min. Groups were displayed, comprising of 4-6 students in each group and team leader was selected by intergroup voting before the session. The TBL session was structured in four phases.

In Phase 1, students were engaged in pre-class individual preparation of the material. Objectives of the topic and study material were given to students two weeks prior the session.

In phase 2, students were engaged in IRAT (individual readiness assurance test). At the time of the session the students were particularly seated as in an examination format. IRAT was conducted by giving 12 MCQ to individual student and then collected after session. In TRAT (Team readiness assurance test) students worked in predefined groups led by a team leader. In order to facilitate group discussions students were seated in a circle with facing each other. Same MCQ were given to teams and marking was done on the cards. (Fig #2) After, IRAT and TRAT session faculty moderated a review of the MCQs of all the groups, those who disagree would allow defending their answers with logic and discussion. A feedback was given by the facilitator afterwards.

During Phase 3, students were engaged in application MCQs exercise in the form of clinical scenarios displayed through multimedia. Teams were allowed to discuss and analyze simultaneously. Teams simultaneously reported their answers to the large group by showing colored cards given to them. (Fig #1)

RESULTS

Among 155 medical students, 151 students (97.4%) participated in the survey. Female students were 55% while male were 45% (Fig 3). When asked about their perceptions about pathology (Table 1) most of the student thinks that pathology is an important subject and 75% think that was quite difficult to learn. But they didn't enjoy attending lectures and didn't gain more information during lectures. Only 20% of students have

the knowledge about TBL before the session and no one has ever participated in any TBL session before. All the students agreed that TBL improved their team working and reasoning skills and they preferred TBL on didactic lectures. Among them, 84.3% students think that this strategy gave them motivation to learn pathology. About 90% of student wanted to include TBL in their pathology curriculum (Table#2).

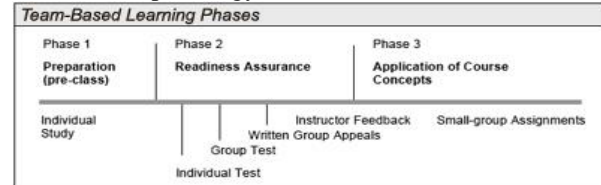


Figure No.1: Team Based Learning Phases



Figure No. 2: TRAT (Team Readiness Assurance Test) Card

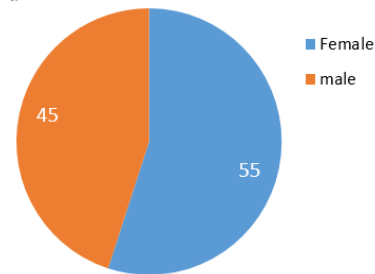


Figure No.3: Gender Distribution %

Table No.1: Students perceptions about learning Pathology¹

Questions	Students %
Think that pathology is an important for medical students	90%
Think that subject is difficult to learn	75%
Student prefer more teacher student interaction	62%
Student enjoy attending lectures	30%
Think they gain more information during lectures	35%
Think that the curriculum content is more	80%

Table No.2: Students perceptions on TBL:

	SD	DA	NO	A	SA	No Response
It helps to improve team working skills	-	-	-	23.6%	76.4%	-
It motivates me to learn Pathology	-	1.1%	14.6%	42.7%	41.6%	-
TBL improve my reasoning skills	-	-	3.4%	43.8%	51.7%	1.1%
It promotes better understanding of the subject matter.	1.1%	-	6.7%	38.2%	49.4%	4.5%
TBL stimulates my thinking	-	2.2%	3.4%	36.0%	57.3%	1.1%
TBL help to reduce my misconceptions about the topic.	-	3.4%	6.7%	44.9%	43.8%	1.1%
This type of teaching helps me to relate pathological principles to real life situation.	5.6%	10.1%	25.8%	34.8%	21.3%	2.4%
It helps to gain an in-depth knowledge about the subject.	-	5.6%	5.6%	52.8%	33.7%	2.2%
I prefer this type of teaching to didactic lectures.	1.1%	4.5%	3.4%	28.1%	62.9%	-
I feel TBL should be included in pathology curriculum	1.1%	2.2%	5.6%	25.8%	65.2%	-

DISCUSSION

The teaching methodology for pathology in our college is teacher centered and majority of the content is delivered through didactic lectures. While rest by tutorials, self-directed learning (SDL) and practical. In general student preferred student centered active learning strategies they didn't enjoy didactic lectures as reported in our study. A study by Alamoudi A¹ also gave same results. In our study 62% of student agreed that they need better teacher and student interaction which is also reported by a study from Alamoudi A,¹ contrast to our study their students had the experience of attending TBL sessions but in our study this was the first experience. Our students encouraged new learning strategies which engage students in team building, problem solving and reasoning skills, which is also seen in a study by Fatmi M,⁶ Hameed S et al¹² and a study by Alwahaab A.² in our study all the students find that TBL help the in team building skills which is contrary to a study by Alamoudi A¹ where only 42% of students enjoy working in teams. According to Azizam NA et al⁷ TBL help students to actively participate in learning which in turn help them in acquiring knowledge which is also in accordance with our study. In TBL constructivist theory of learning is implemented which results in improved learning process and in active learning strategy teachers act as facilitators.⁸ In our study, majority of students preferred TBL method which is consistent with other studies.^{8,9,10} In a study from Pakistan reported by Hameed S et al¹² also shows that TBL provide motivation to students in order to learn pathology and gave them better understanding of the subject, our results also showed similar findings but the percentage of students reported are higher as

compared to the study reported by Hameed S et al¹². In the present study, a majority of students (91%) wanted more TBL sessions organized for them. They want to add this strategy as a part of their curriculum. This is similar to other studies in which students preferred TBL as a mode of instruction⁸ In our study it was noted that students were satisfied with this strategy and their motivation to learn pathology is higher as also reported by a systematic review of TBL research published from 2003 to 2011. It is also reported that students who attended TBL session scored higher in examinations when compared by students who didn't attend.

TBL session Improved engagement during class, better content retention through active learner engagement, development of problem-solving and critical thinking skills, Team-building and development of communication skills as reported by Hameed S et al.¹²

CONCLUSION

Introduction of TBL in pathology course has received encouraging feedback from the students. This strategy should be carried out for various courses in pathology and other subjects as well. There is a need for faculty and students orientation for the implementation of TBL. There were few limitations in our study; first we didn't include any comparison group to assess students' academic performance. Secondly we didn't find out faculty perceptions about TBL. In future qualitative data is needed to find the students and faculty perceptions and its impact on academic performance.

Author's Contribution:

Concept & Design of Study: Sofia Waheed Khan,
Sadaf Sajid
Drafting: Sadaf Sajid, Nosheen

Data Analysis: Khurram
 Revisiting Critically: Waqas Ali
 Final Approval of version: Mussarat-ul-Hussain
 Sofia Waheed Khan

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Alamoudi A, Hassanien M, Al Shawwa L, Bima A, Gad H, Tekian A. Introducing TBL in Clinical Biochemistry: Perceptions of Students and Faculty. *Med Ed Publish* 2018;7.
2. Alwahab A, Abdulqader S, Nugud A, Nugud S, Cyprian F, Shaikh AA, Anwar K. Team-based learning in an undergraduate pathology curriculum and its effects on student performance. *J Taibah Univ Med Sci* 2018;13(5):496-501.
3. Johnson C. Team-Based Learning for Health Professions Education: A Guide to Using Small Groups for Improving Learning. *J Chiropractic Educ* 2009;23(1):47.
4. Hrynychak P, Batty H. The educational theory basis of team-based learning. *Med Teacher* 2012;34(10):796-801.
5. Sawatsky AP, Berlacher K, Granieri R. Using an active teaching format versus a standard lecture format for increasing resident interaction and knowledge achievement during noon conference: a prospective, controlled study. *BMC Med Educ* 2014;14(1):129.
6. Fatmi M, Hartling L, Hillier T, Campbell S, Oswald AE. The effectiveness of team-based learning on learning outcomes in health professions education: BEME Guide No. 30. *Med Teacher* 2013;35(12):e1608-24.
7. Azizam NA, Maon SN, Dzulkipli MR, Aziz NISA. Perception of Team Based Learning on Medical and Health Terminology Course. *Int J Acad Res Business and Social Sci* 9(13):67-76.
8. Hashmi NR. Team Based Learning (TBL) in undergraduate medical education. *J Coll Physicians Surg Pak* 2014;24(8):553-6.
9. Young-Su JU. Evaluation of a team-based learning tutor training workshop on research and publication ethics by faculty and staff participants. *J Educ Eval Health Prof* 2009;6:5-9.
10. Ravindranath D, Gay TL, Riba MB. Trainees as teachers in team-based learning. *Acad Psychiatr* 2010;34:294-7.
11. Sisk RJ. Team-based learning: systematic research review. *J Nurs Educ* 2011;50:665-9.
12. Hameed S, Khalid T, Aslam S, Ahmad M, Farhan F, Batool Z, et al. Team based learning in pathology: effect on test scores and student satisfaction. *Pak Armed Forces Med J* 2017; 67(3):423-28.