

ORIGINAL ARTICLE

Team Based Learning: Pre-Clinical Students Perspective

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ABSTRACT

Objective: To determine the perspective of pre-clinical MBBS students about Team Based Learning (TBL) as a prime method of student-centered learning.

Study Design: Cross sectional observational.

Place and Duration of Study: Al-Tibri Medical College and Hospital from January 2019 to December 2019.

Materials and Methods: This study included pre-clinical MBBS students (1st, 2nd, and 3rd year) after an approval from Institutional ethical review committee of concerned institute. The students from the clinical and Allied medical sciences were excluded from the study. The students were included through non-probability convenient sampling, and their verbal consent was taken before the collection of data. Total of 25 questions with five-point Likert scale was included in the self-generated questionnaire. After data collection, the results were analyzed through SPSS version 21.0. Frequency and percentage were taken from the data, and Chi-square test was applied to evaluate the significant value, that was taken as $P < 0.05$.

Results: The mean age of the participants was 22.34 years, and 54.6% were female and 46.4% were male participants in the present study. 86 % of the participants strongly agreed and agreed that TBL makes the students an autonomous learner, strong collaborator, and it enhances the communication skills and problem-solving ability of learners.

Conclusion: TBL is a competent method of learning for preclinical MBBS students in medical colleges. Preclinical medical students perceive that the learner-centered approach of TBL plays an important role to enhance their problem-solving ability and make them good collaborator and communicator.

Key Words: Curriculum, Medical Education, Student Centered Learning, Self-Directed Learning, TBL.

Introduction

Following the new era of medical education, the self-directed learning or learner-centered approach is a compulsory part of the curricula. From more than half of the decade, PBL takes advantage among other teaching methodologies. Now, as time passes, TBL takes the position of PBL in contemporary curriculum development, and the most highlighting reason is resource-challenged in maintaining a learning environment in health professional education.¹ TBL is an efficient method of learning with minimum resources and can cover the content effectively with

few numbers of facilitator and maximum numbers of students at a time. TBL gained popularity graph among the medical students due to its active learner approach and helped to make a strong collaborator and provoke communication skills.² It facilitates the learner to become autonomous and nullifies the concept of a passive learner. Student built their new concepts based on their prior knowledge and make out their ways to solve their problems.³ As the content was given earlier for the preparation, now as a part of self-directed learning the learners stimulates and find their resources to make up the pre-reading task.⁴ Simultaneously TBL helps to make them critical thinker and problem solver. Per constructivist theory suggests that the achievement of learning goals can take place when a personal experience collaborates with new one and modification of old beliefs with time.⁵ The surprising fact about the TBL, it evaluates the learner individually and along with their team at the same time. TBL helps the learner to find out their weakness of content individually, and simultaneously solve the problem with the help of team discussion. A blended learning approach that covers the significant content

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Funding Source: NIL; Conflict of Interest: NIL

Received: March 06, 2020; Revised: December 09, 2020

Accepted: December 09, 2020

effectively within a limited time and efficiently fulfill the resource challenge. Feedback is the most robust feature of TBL, which can highlight the strength and weakness of individual work performance and a team based. In a single frame, the learner becomes a strong collaborator, efficient leader, problem solver, self-reflector, manager, communicator, and an autonomous learner with a wide range of experiences¹. Time management is one of the critical parts of TBL, that learner can manage with their experiences and covers the relevant and substantial content within the given specified period. Facilitator's boosts up the spirit of team members and maintain discipline among the members and sharing of feedback play a final stimulating spark of motivation for the learner.⁶ Since the new pattern of teaching and learning tends to evolve on newly designed teaching methodologies, therefore this study tends to uphold one for the most important aspect of student-centered learning viz TBL. The study aimed to determine the perspective of pre-clinical MBBS students about Team Based Learning as a prime method of student-centered learning.

Materials and Methods

A cross-sectional study was designed at Al-Tibri Medical College, Isra University Karachi Campus with duration of six months from January 2019 to June 2019. After taking an ethical approval from the Institutional Ethical Committee, from 200 students the verbal consent was taken by the students of 1st, 2nd and 3rd year MBBS. Study participants were asked to fill the self-generated questionnaire comprising of 25 valid questions with five-point Likert scale related to TBL. The questionnaire was evaluated by the

faculty of community medicine, Director Research and Department of Medical Education. A pilot trial was conducted, including 30 students from different years of education randomly, and data were analyzed to evaluate the validity of the questionnaire. The students were included by applying non-probability convenient sampling technique, students form MBBS including both gender and those had attended minimum three TBL sessions. The students from basic sciences, allied medical sciences and those who had not attended minimum numbers of TBL were excluded from the study. After collecting the data results were analyzed through SPSS version 22.0. The data were evaluated in the form of frequency and percentage of each question response. Chi-square test was applied to find the level of significance. The level of significance was taken at $P < 0.05$.

Results

Figure 1: shows Percentage of Gender based distribution. Out of 200 pre-clinical MBBS students, 108(54.6%) were males and 92(46.4%) females with the mean age of $20.56 \pm$ years. Table: I shows frequency of the participant questionnaire response was shown in Table I with the p-value. The level of significance was considered as $P < 0.05$. Students of each year agreed to majority of the questions asked regarding TBL, however there were some neutral to disagreement of students for instance, TBL approach was faster than the conventional teaching methods in covering the leaning objectives, TBL provided better platform to a learner for becoming autonomous. TBL helped in creating characteristic of critical thinking and TBL provided greater deal of experience with rich source of knowledge.

Table I: Frequency of Participant Response About TBL Based Questionnaire

	Questions	1 st year			2 nd year			3 rd year			P value
		Agree	Neutral	Dis-agree	Agree	Neutral	Dis-agree	Agree	Neutral	Dis-agree	
1.	The session of TBL I felt interesting	30	14	15	38	12	19	32	10	30	0.024
2.	I found TBL session more stimulating	68	5	6	62	4	5	42	6	2	0.018
3.	It boosts up the teamwork skills	55	10	3	50	10	2	62	5	3	0.014
4.	It simultaneously helps in development of communication skills	44	11	8	39	18	10	50	14	6	0.390
5.	It helps in retaining the more knowledge of relevant subject through grouping material	37	18	11	32	12	9	44	24	13	0.001

6.	It helps in understanding the clinically relevant aspects of a subject more as compared to traditional methods	43	6	17	35	4	13	52	9	21	0.006
7.	It approaches faster than conventional teaching methods to cover the learning objectives	42	7	7	51	11	8	60	10	4	0.163
8.	It provides a healthy discussion environment, among the students and facilitator	60	6	1	70	8	2	48	4	1	0.025
9.	It provides a better platform to a learner to become autonomous	37	22	10	40	26	12	24	20	9	0.007
10.	It makes the learner active rather than passive	40	14	11	37	22	9	36	18	13	0.001
11.	It provides huge stage to cover the learning issues through discussion	29	25	9	35	19	12	32	33	6	0.081
12.	It gives better reflection of knowledge	60	4	2	57	6	1	65	4	1	0.012
13.	It helps to create a characteristic of critical thinker in learner	28	35	8	35	13	7	43	23	8	0.012
14.	It provides a way to learner for designing their own study plans	39	22	3	49	15	5	44	18	5	0.064
15.	Self-directed learning helps to cover the large scale of relevant topic and trigger the hidden aspects	44	20	6	53	12	7	47	8	3	0.069
16.	It stimulates the development of confidence with colleague	68	8	3	51	9	2	48	9	2	0.027
17.	It provides a great deal of experience with rich source of knowledge	42	20	2	47	27	1	36	23	2	0.164
18.	It helps in making a peer relationship	48	11	1	57	8	2	66	6	1	0.018
19.	It is remarkable way to establish self-motivation and communication	66	7	3	48	7	4	60	4	1	0.140
20.	It creates searching skills and teach how to use different resources to cover your learning objectives	55	7	2	52	11	3	59	9	2	0.049
21.	Facilitators have an impact to maintain the decorum of TBL	40	18	4	40	26	3	42	23	4	0.368
22.	Facilitators show his/her services as a strong collaborator	66	10	1	48	7	2	57	8	1	0.018
23.	Expertise of facilitator required to cover the unresolved issues regarding session	53	9	3	43	12	2	63	13	2	0.180
24.	I found feedback is an important component of session	58	3	1	69	2	1	63	2	1	0.266
25.	Feedback plays significant role in highlighting the stronger and deficient aspects of topic and overall progress	68	4	1	57	3	1	62	3	1	0.711

Significant Value to be Considered P=<0.05

Chi-Square Test Applied

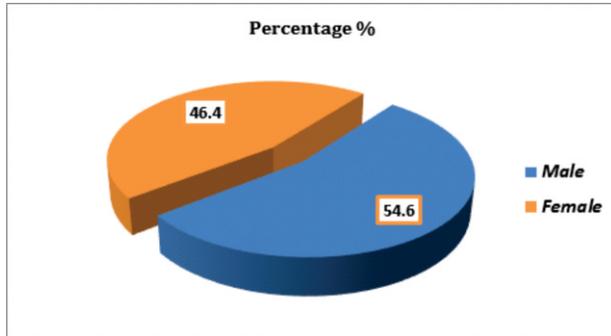


Fig 1: Percentage of Gender Distribution

Discussion

According to the students of Al-Tibri Medical College and Hospital, TBL is an effective method of self-directed learning. Following the conclusion of another study, TBL covers significant content in limited time framework, and a similar statement is accepted by maximum numbers of students about TBL in the present study. In the same study that was done on the analysis of TBL regarding gross anatomy and embryology-based topic concluded that TBL builds a higher level of cognition and critical thinking ability in students of health professionals, a similar statement was strongly agreed by the maximum numbers of participants.⁷ Following the results of another study, regarding the comparison between TBL and traditional case-based discussion to teach pathology curriculum. It was found that both strategies found are useful, but those students who are slow learner got maximum benefits from TBL to achieve higher academic record.⁸

TBL has the ability to mastery the content; especially the students with low academic profile got more benefit to raise their scores as compared to high quartile achievers. One of the studies showed similar results about TBL based content, and the low quartile students mean higher score was 7.9% while on the other hand, high quartile got a mean score of 3.8%. In the present study, the students strongly agreed that TBL covers the course contents more effectively.⁹ Results of another study revealed a pleasant feeling of the students that was reported during conduction of TBL to teach the ethics-based education. The students enjoy and feel more involved with the topic during TBL as compared to others. The medical students strongly agreed on a similar statement in the present study.¹⁰ Majority of the nursing students preferred TBL as an efficient method of teaching for considerable group

discussion with limited resources. The productive attitude of the students was reported regarding TBL, which is an excellent way of learner-centered approach with a higher level of engagement.¹¹ Most of the students agreed with the same statement in our study. TBL built a great potential in the students of second-year pharmacology, as they showed an outstanding performance in their summative assessment with the gradual improvement of scores in a group, except in that area that was traditionally taught. It gradually enhances the team-building skills and collaboration, the same as in our study majority agreed with the similar features of TBL.¹² According to the study results, a total of 180 participants responded to 19 different questions about TBL. Most of the respondent agreed that TBL promotes their professional growth, self-reflection attitude, communication skills with their co-team members and more critical component satisfied with the peer evaluation method. The higher level of cognition development with team manages skills. As in the present study, most of the respondent strongly agreed with the following beneficial aspects of TBL.¹³ Following another study, the postgraduate students of pediatrics facing difficulties in learning bioethics, the expert decide to convey the content of bioethics through TBL obtaining Strategy, and that was showed remarkable engagement of the students with the topic and well satisfactory scores at the end of the term.¹⁴ One of the conclusions of the study that was based on evidence-based practice and taught through an active learning strategy like TBL. The objective of the 3 semester-based courses was to develop the understanding and application of knowledge with practical engagement. Experts achieved the target and approached the learner with the desired attitude.^{15,16} Peer evaluation is one of the prospective components of TBL, which motivate the students to work hard and try to use different resources and become better for the next task. Students in the present study respond more confidently and accept peer evaluation importance and team-based skills with a higher level of collaboration with the co-team and facilitator.¹⁷⁻¹⁹ Further evaluation is required to compare the different teaching methodology, classify as a student-centered approach. In future, the comparison of TBL with PBL or CBL can provide a

better understanding to declare the TBL as an optimal model of learning.

Conclusion

Team Based Learning is a competent method of learning for preclinical MBBS students in medical colleges. Preclinical medical students perceive that the learner-centered approach of TBL plays an important role to enhance their problem-solving ability and make them good collaborator and communicator.

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