



ORIGINAL ARTICLE

A model pattern of Clinical Teaching and Learning, Team Objective Structured Bedside Assessment (TOSBA); Perception of Medical Undergraduates in Obstetrics and Gynecology Department.

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ABSTRACT... Objective: To evaluate the effectiveness of TOSBA for the teaching/learning of cognitive and non-cognitive clinical skills of medical undergraduates, compare it with other teaching/learning methodologies and evaluate the effects of TOSBA on ward test in Obstetrics & gynecology department. **Study Design:** Experimental study. **Setting:** Department of Obstetrics & Gynecology, Creek General Hospital, United Medical & Dental College, Karachi. **Period:** March 2018 to March 2020. **Material & Methods:** In this study the total sample size in: 3rd year= 90 students (n=90), 4th year=85 students (n=85) and 5th year=72 students (n=72). TOSBA was conducted for all students each year and were evaluated for their performance by two facilitators from the Obstetrics & gynecology department. The session was timed for 15 minutes. **Results:** The participants agreed that TOSBA was beneficial for teaching/learning of clinical skills. For clinical skills TOSBA was helpful with mean score 3.82 ± 0.97 in year 3, in year 4 = 4.06 ± 0.82 and 4.19 ± 0.99 in year 5. For acquisition of communication and team-work skills through TOSBA the responses were quite positive. **Conclusion:** TOSBA has a positive impact and the key elements of TOSBA, its formative nature, feedback and interaction with real patients are beneficial in acquisition of cognitive and non-cognitive skills for the medical undergraduates.

Key words: Bedside Teaching, Formative Assessment, Students' Learning, Team Objective Structured Bedside Assessment (TOSBA).

INTRODUCTION

The role of medical education is to foresee the requirements in health care and revise the educational strategies to prepare competent health care professionals.¹ Nowadays, the focus is on the competencies acquired by the students. To achieve this, it is necessary to promote faculty development for enhancement of students competencies.² For clinical teaching there should be provision of a supportive environment for students to actively participate and preserve patient safety.^{3,4} The small group discussion has proven effective for learning of the students with their peers and promote questioning, listening and communication skills^{5,6} Team- work reinforces the collaborative and interprofessional skills for a comprehensive patient care.^{7,8} The

Bed-Side Teaching is appreciated as a direct and active way for student participation in clinical skills such as history taking, physical examinations, communication and patient care. It is on decline due to busy routine in the obstetrics and gynecology wards.^{9,10} The direct observation of the performances, feedback by the facilitator is pivotal for training.¹¹ The facilitator as a role-model provides opportunity for students to learn professionalism, communication and ethical skills which are difficult to teach.¹²

Unfortunately, formative assessments are rather under-rated. It is important to promote them with feedback for deeper learning of students¹³ The Liaison Committee on Medical Education (LCME) stresses on timely feedback for students'

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remediation.¹⁴ Team Objective Structured Bedside Assessment (TOSBA) is a ward-based formative assessment for students' learning. Here assessment and teaching are associated with the feedback at the same time.¹⁵ TOSBA consist of multiple teams of students. A patient and facilitators are assigned for each team. Each student performs a clinical task in a given time. The tasks are: Patient history, physical examination, differential diagnosis, investigation and management. The facilitator observes the performance and provide the feedback for improvement to individual student and then at the end to the whole team.¹⁶ Previous studies prove that TOSBA, has high impact on students' clinical experiential learning and is also beneficial for their communication and team work skills. TOSBA predictive validity have also been proven to be reasonably positive for final examination.¹⁷ A local study stated that TOSBA is feasible, objective and standardized to use. Its' reliability is quite decent about 0.58.¹⁸

In this study we introduced the model of TOSBA to the students and repeated in their consecutive 3 academic years to evaluate its' effectiveness on their learning each year.

MATERIAL & METHODS

This quantitative retrospective purposive interventional study used an on-line survey for the students of batch 2020 from year March 2018 to March 2020. It included questions about the:

1. Effectiveness of TOSBA on students' learning of various cognitive and non-cognitive skills.
2. Comparison of TOSBA with other teaching/ learning methodologies.
3. Evaluate the effect of TOSBA on Ward Test

A point-5 Likert scale was used where 1=no help and 5=excellent help. It was conducted in the Department of Obstetrics and Gynecology in Creek General Hospital at United Medical and Dental College, Karachi. The duration of the study was three years (2018-2020). The Sample size in: (i) 3rd year was 90 students (n=90), (ii) 4th year was 85 students (n=85) and (iii) 5th year was 72 students (n=72). The Sampling Technique was convenient sampling; the complete batch of 2020

was included for the study.

Inclusion Criteria

Students present for the TOSBA activity and responded to the survey.

Exclusion Criteria

The students who were absent due to COVID 19.

This is an ordinal scale data. The mean has been extracted. If the value is less than 2.5, it will be on the negative side. If the value is greater than 3.5, it will be on the positive side. The more the value is near maximum rating scale, it will be positive. The more the value is on the minimum rating scale, it will be negative.

Data Analysis

Analysis of on-line questionnaire was done using Statistical analysis on SPSS version 22. In order to describe quantitative responses given by students the Descriptive statistics were used.

Ethical Approval

Approval was taken from Ethical review committee, United Medical & Dental College with IRB reference number UMDC/Ethics/2021/06/04/276.

Data Collection Procedure

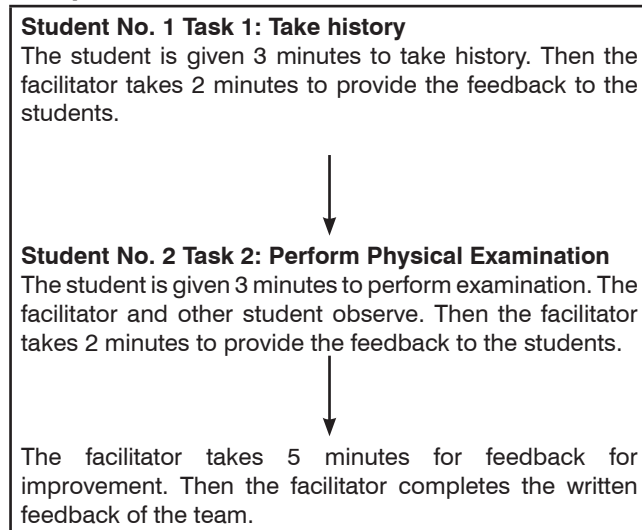
The on-line quantitative questionnaire was disseminated to the students through Google docs at the end of each OB&G rotation from third year till their final year (2018-2020). It was kept anonymous and included demographic data; gender and age of the students.

In the undergraduate program of MBBS, the clinical training in O&G for the 3rd year and 5th year rotation is for 8 weeks and in 4th year for 4 weeks. For TOSBA, the students at the start of rotation were divided into groups.

Each year was given the flow chart for the steps to perform TOSBA. All the facilitators were clinicians from the O&G department. The facilitators had a session of faculty development regarding TOSBA to get familiarized with the format. Each session was timed.

For 3rd year the requirement was to perform 2 tasks (History taking and examination).

Sample of flow chart



Similarly, teams were formed for 4th year and 5th year depending on the number of students present. In addition to history taking and examination, the 4th year students needed to make differential diagnosis and the 5th year was required to formulate management after performing the initial tasks. The skills of communication and teamwork were also assessed. For these formative assessments no scores were given. Afterwards, the feedback sheets were handed over to the students to keep a record of their performance.

RESULTS

The responses obtained helped in resulted inferences and thus, conclusions were reached about the methodologies of teaching/learning of clinical preferred by the students.

Demographic Data

Gender:

In 3rd year 90 students participated from which Males were 25 (27.7%) and Females were 65 (72.2%). During 4th year 85 students took part in the study out of which, 20 (23.5%) were males and 60 (70.5%) were females. In 5th year; 72 students were available for the research out of which 17 were male (23.6%) and 55 were female. (76.4%). (Table-I)

Gender	3 rd Year	4 th Year	5 th Year
Male	25 (27.7%)	20 (23.5%)	17 (24%)
Female	65 (72.2%)	60 (70.5%)	55 (76%)
Age groups	21-23 years	22-24 years	23-25 years

Table-I

Teaching and Learning of History Taking skill through the years

A comparison was made between different methods and TOSBA for the helpfulness of history taking learnt. Benefit of the History Taking skill learnt during OB&G rotation; year 3, the mean score was 3.50 ± 0.90 , year 4 it was 3.79 ± 0.85 while year 5 it was 4.06 ± 1.12 . Benefit of handouts provided for guidance in year 3 had a mean score of 3.22 ± 1.13 , while in year 4 the mean score was 3.64 ± 1.02 and in year 5, the mean score was 3.92 ± 1.08 . Model of TOSBA with feedback in year 3 with a mean score of 3.72 ± 0.94 , in year 4 the mean score was 4.00 ± 0.86 while in year 5 it was 4.11 ± 0.99 . Benefit of history practice sessions in the OPD and Wards; in year 3 had a mean score of 3.60 ± 0.97 while in year 4 the mean score 3.93 ± 0.94 and in year 5 the mean score 4.03 ± 1.02 . (Table-II)

Teaching and Learning of Physical Examination skill through the Years

The evaluation was observed between different methods and TOSBA.

Benefits of demonstration on mannequin pelvis had a mean score 3.76 ± 0.90 in year 3 whereas in year 4 it was 3.99 ± 0.90 and 3.97 ± 1.11 in year 5. Benefits of demonstration on pregnant women had a mean score 3.90 ± 1.06 in year 3 whereas in year 4 it was 4.08 ± 0.98 and 4.03 ± 1.15 in year 5. Benefits of hands-on-practices had a mean score 3.65 ± 1.14 in year 3 while in year 4 it was 4.06 ± 0.96 and 4.11 ± 1.11 in year 5. The model of TOSBA with feedback proved to be helpful with a mean score 3.82 ± 0.97 in year 3 whereas in year 4 it was 4.06 ± 0.82 and 4.19 ± 0.99 in year 5. Benefits of hand-on practice had a mean score 3.21 ± 1.07 in year 3 whereas in year 4 it was 3.56 ± 1.07 and 3.85 ± 1.10 in year 5. Helpfulness of On-Line videos had a mean score 3.85 ± 0.99 in year 3 while in year 4 it was 3.94 ± 1.09 and 4.18 ± 1.00 in year 5. Benefits of case-

Based discussion had a mean score 3.96 ± 1.01 in year 3 while in year 4 it was 3.63 ± 1.20 and 3.64 ± 1.22 in year 5. (Table-III)

Methodologies for Effective Teaching and Learning through the years

In year 3, out of 90 participants 41 (45.5%) found bedside teaching through TOSBA to be an effective, while 27 (30%) preferred OPD. 17 (18.8%) favored the skills lab and 5 (5.5%) favored case-based discussions. In year 4, 38(44.7%) quoted bedside teaching through TOSBA as effective. About 33(38.8%) preferred the OPD while 11 (12.9 %) found skills lab effective and 3 (3.5%) found case-based discussions helpful. In year 5, 27 (37.5%) participants favored bedside teaching based on the pattern of TOSBA, 38 (52.7%) favored OPD. 5 (6.9%) for skill lab. Only, 2(0.0%) found case-based discussion helpful. (Table-IV)

The score was taken on a point-5 Likert scale with 1=no help at all and 5=excellent help.

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The score was taken on a point-5 Likert scale with 1=no help at all and 5=excellent help.

Effectiveness of the Pattern of Ward test with accordance to Annual Exam through Years

Year 3, 58 (64.4 %) ward tests are helpful and 32 (35.5%) disagreed. In year 4, 68 (80%) found ward tests helpful and 17 (20%) did not agree. 73 (85.5%) found the pattern of the ward test in accordance with the annual exam while, 12 (14.1%) did not. In year 5, 65 (90.3%) found ward tests helpful and 7 (9.7%) disagree. 67 (93%) agreed that the pattern of the test was in accordance with the annual exam and 5 (6.9%) did not. (Table-VI)

Helpfulness of TOSBA for Communication and Team-work skills

In year 3, about 59 (65.5%) responded positively and 31(34.4%) disagree. 4th year students 61(71.7%) said yes and 24(26.6%) said no. In year 5, 49 (68%) agreed and 23(31.9%) disagree. (Table-VII)

Criteria Assessed	Year 3 (Mean \pm S.D)	Year 4 (Mean \pm S.D)	Year 5 (Mean \pm S.D)
Benefit of the History Taking skill learnt during OB&G rotation	3.50 \pm 0.90	3.79 \pm 0.85	4.06 \pm 1.12
Benefit of Handouts	3.22 \pm 1.13	3.64 \pm 1.02	3.92 \pm 1.08
Benefit of model of TOSBA with feedback	3.72 \pm 0.94	4.00 \pm 0.86	4.11 \pm 0.99
Benefit of history practice sessions in the OPD and Wards	3.60 \pm 0.97	3.93 \pm 0.94	4.03 \pm 1.02

Table-II

Criteria Assessed	Year 3 (Mean \pm S.D)	Year 4 (Mean \pm S.D)	Year 5 (Mean \pm S.D)
Benefit of demonstration on mannequin pelvis	3.76 \pm 0.90	3.99 \pm 0.90	3.97 \pm 1.11
Benefit of demonstration on pregnant women	3.90 \pm 1.06	4.08 \pm 0.98	4.03 \pm 1.15
Benefit of hands-on practice	3.65 \pm 1.14	4.06 \pm 0.96	4.11 \pm 1.11
Model of TOSBA with feedback	3.82 \pm 0.97	4.06 \pm 0.82	4.19 \pm 0.99
Benefit of clinical hand-outs	3.21 \pm 1.07	3.56 \pm 1.07	3.85 \pm 1.10
Benefit of On-Line videos	3.85 \pm 0.99	3.94 \pm 1.09	4.18 \pm 1.00
Benefit of case-based discussions	3.96 \pm 1.01	3.63 \pm 1.20	3.64 \pm 1.22

Table-III

Criteria Assessed	Year 3 (Mean ± S.D)	Year 4 (Mean ± S.D)	Year 5 (Mean ± S.D)
Benefit of demonstration on mannequin pelvis	3.76 ± 0.90	3.99 ± 0.90	3.97 ± 1.11
Benefit of demonstration on pregnant women	3.90 ± 1.06	4.08 ± 0.98	4.03 ± 1.15
Benefit of hands-on practice	3.65 ± 1.14	4.06 ± 0.96	4.11 ± 1.11
Model of TOSBA with feedback	3.82 ± 0.97	4.06 ± 0.82	4.19 ± 0.99
Benefit of clinical hand-outs	3.21 ± 1.07	3.56 ± 1.07	3.85 ± 1.10
Benefit of On-Line videos	3.85 ± 0.99	3.94 ± 1.09	4.18 ± 1.00
Benefit of case-based discussions	3.96 ± 1.01	3.63 ± 1.20	3.64 ± 1.22

Table-IV

Criteria Assessed	Year 3 Frequency (%)	Year 4 85 Frequency (%)	Year 5 Frequency (%)
Feedback in TOSBA	28 (31.1%)	21 (24.7%)	10 (13.8%)
Increased Clinical Contact Time	13(114.4%)	15 (17.6%)	12(16.6%)
Evening Clinic Postings	9 (10%)	11 (12.9%)	4 (5.5%)
More time for practice in OPD's	21(23.3%)	22 (25.8%)	25 (34.7%)
More time for practice in Wards	19 (21.1%)	16 (18.8%)	21(29.1%)

Table-V

Criteria Assessed	Year 3 Frequency (%)	Year 4 85 Frequency (%)	Year 5 Frequency (%)
Feedback in TOSBA	28 (31.1%)	21 (24.7%)	10 (13.8%)
Increased Clinical Contact Time	13(114.4%)	15 (17.6%)	12(16.6%)
Evening Clinic Postings	9 (10%)	11 (12.9%)	4 (5.5%)
More time for practice in OPD's	21(23.3%)	22 (25.8%)	25 (34.7%)
More time for practice in Wards	19 (21.1%)	16 (18.8%)	21(29.1%)

Table-VI

Criteria Assessed		Year 3 Frequency (%)	Year 4 Frequency (%)	Year 5 Frequency (%)
Helpfulness of TOSBA for communication and team-work skills	Yes	59 (65.5%)	61(71.7%)	49 (68%)
	No	31(34.4%)	24(26.6%)	23(31.9%)

Table-VII

DISCUSSION

This study was conducted to help understand better means of clinical teaching/learning of the medical students within a 3-year span specifically in the field of O&G during clinical rotation. The results revealed the pattern of TOSBA as a formative assessment with the provision of feedback is effective as a teaching/learning tool for the students. Review of literature states that for a competent physician it is essential to acquire basic knowledge, clinical skills and the non-cognitive skills.¹⁹

About methodologies for effective teaching/learning and the results varied throughout each year. It concluded that 3rd year students opted for bed-side teaching using model of TOSBA. In 4

and 5th years, were more in the favor of Outpatient Departments (OPD) for improvement of clinical skills. Literature evidence, mentioned that OPD is a vital aspect for learning of clinical skills with the provision hands-on practice 2.

For the techniques to improve the clinical teaching/learning methodologies in O&G for the students in the future, responses received were in favor of practice in OPD and Wards. Although, it has been evident from previous literature review that wards are overcrowded, non-cooperative behavior of patients and short hospital stay hinders the teaching/learning outcomes.²⁰ The students prefer the experiential learning acquired in the OPD and wards for real-life practice. They get to acknowledge the doctor-patient and other

interprofessional interactions.²¹ However, one technique might not be beneficial for all 3 years.

Each ward test was designed according to the pattern of TOSBA used for teaching. The ward test was also, conducted in accordance to the pattern of the OSCE in annual exam. Approximately, 80-90% students of 4 and 5th years reported that ward tests had successfully prepared them for their final exam. Hence prove the predictive validity of TOSBA.¹⁷

The sample size of the study was small in 5th year 2020 due to COVID 19. We included history taking and physical examination skills as 4 and 5th year feedback for other tasks could not be taken due to the COVID emergency. The response of the 3rd year for the effectiveness of ward test in annual exam were not available as the exams are conducted at the end of the year. In future, larger sample sizes are to be taken for assessment on a large scale from all the clinical departments and all steps of TOSBA should be evaluated.

CONCLUSION

The key elements of TOSBA; pre-defined tasks, provision of timely constructive feedback and interaction with real patients have a positive impact on the clinical, communication and team-work skills of the medical undergraduates. Especially the 3rd years responded in favor of TOSBA as in the initial clinical year feedback is essential for learning of the students.

The limitation of the study is that the research was conducted on a single batch of students of the year 2020. The results can be more reproducible if a large sample of students is considered.

Such researches should be conducted at all times and in future so that constructive strategies can be invented to improve the methodologies for a better understanding of students.







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4	Adina Aslam	Data collection, Analysis	
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6	Syeda Mukarmaha Gillani	Data collection, Analysis	
7	Rakshan Zehra Abidi	Data collection, Analysis	