

Evaluation of Student's and Academic Staff's Perception Towards the Effectiveness of the Newly Introduced Small Group Sessions (Case based learning): A Pilot Study

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Abstract: In response to the new national medical education paradigm shifting; Mansoura Faculty of Medicine starts applying competency based medical education since 2018; one of the learning strategies it adopts is Case Based Learning (CBL). In this study we evaluated students' and faculty staff's perception towards the effectiveness of this newly introduced method using a cross-sectional descriptive study on the starting cohort semester 2 students (no=1800) during the academic year 2021-2022 and the total number of academic staff member involved in conducting the sessions were 119. We used two validated self-administered online questionnaires formed of both open- and closed- ended questions. The data were analyzed; about near half of the students (47%) agreed that these sessions motivated them to learn, increase their long-lasting memory and helped them to correlate between clinical and basic science and also gave them opportunity to ask staff other questions related to their specialty, as well helped them to be in close contact with teaching staff, improved their communication skills and build their self-confidence. On the other hand, around 65% of the staff members enjoyed CBL sessions, agreed that the cases facilitated active discussion and interactions between staff and students and also improved the students' ability to face others and the sessions were well organized. the overall perception from both students and staff was satisfactory and encourage us to seek for more improvements taking into consideration all comments they mentioned.

Keywords: CBL; perception evaluation; small group, CBME; Bachelor's Medical program; Mansoura University; Egypt; knowledge integration.

I. INTRODUCTION

Mansoura Faculty of Medicine is considered the first nucleus of Mansoura University. It was established in 1962 by presidential decree No. 1647. The college includes thirty-seven scientific departments, eleven academic departments studying basic medical sciences, and twenty-six clinical departments studying clinical medical sciences.

There are two undergraduate programs in the faculty, the Conventional Bachelor's program and the Mansoura-Manchester program. Both programs are following the new national medical education paradigm shifting and start applying competency based medical education since 2018 where medical standards were set by The Egyptian Supreme Council of Universities in collaboration with National Authority for Quality Assurance and Accreditation of Education (NAQAEE). These

standards were established in the form of NARS 2017 which is the national academic reference standards for the Egyptian medical schools [1].

Why we shift to competency-based education?

Since the conventional way of teaching and learning did not help students to reach their greatest potential or to apply their knowledge and skills in a way which help them to face the challenges of the practical life, it becomes quickly obvious that traditional way of teaching and learning not suitable for mixing between knowledge and skills. We need a more holistic and global view that integrate students' knowledge, skills and behaviors to build a set of competencies that can be assessed and measured to enable them facing the community challenges [2].

So, in Mansoura Faculty of Medicine we are adopting this new paradigm but it is more challenging for the conventional program because of the large number of our students as the number of students enrolled annually range from 1400 to 1800 which represents a great obstacle facing the faculty. So, we were in need of thinking about applying a small group teaching methods to ensure that our students are learning better as was observed in Manchester program where it is so obvious that students are more confident, have better communication skills and adapt easily to the active learning than those from conventional program. So, we start applying case-based learning (CBL) as one of the small group teaching strategies.

What is a case-based learning?

Case based learning is an active inquiry-based learning strategy which is composed of a clinical case scenario (a problem) that mimic the real life by providing students with information such as history, clinical findings on physical examination, results of laboratory investigations and other data to help them interact and discuss with each other to solve the inquiry raised in the case. Faculty staff role as a facilitator his role is to ensure that all the measurable objectives have been met by guiding the session effectively [2],[3].

Case based learning has many advantages over the traditional way of teaching and learning as it encourages the active learning, deep understanding, helps students to realize the application of their knowledge in their practical life, promotes self -directed learning, clinical reasoning and decision making by providing repeated experiences making the students to focus more on the complexity of the case they will see in the clinical practice [2], [4].

Seeking for all these advantages, Mansoura Faculty of Medicine started to apply CBL strategy a year ago. Despite of inadequate infrastructure and the lack of sufficient places to implement CBL, the faculty tried to overcome this by exploiting the offices of the faculty staff members and dividing the students into small groups about ten to fifteen students with each staff member attending his office and start running the session.

In this study we will illustrate how Mansoura Faculty of Medicine implement CBL in semester two we investigated, what methods used to evaluate the perception of the students and the faculty staff members towards the effectiveness of the implemented CBL sessions and how can we use this perception for more improvement of CBL implementation.

II. AIM OF THE STUDY

Evaluate students` and faculty staff`s perception towards the effectiveness of the newly introduced case- based learning sessions.

III. METHODS

It is a cross-sectional descriptive study and was conducted at Mansoura Faculty of Medicine during the academic year 2021-2022 after taking necessary informed consent from the students and the faculty staff who were included in the study.

The sample:

In this study we focused on semester two as it was the starting cohort to implement the study. The total number of students in semester two were 1800. The total number of staff member involved in the case-based learning sessions in that semester were 176.

Case construction:

Semester two includes four modules: cardiovascular system, respiratory system, renal and urinary system and immune, blood, lymphatic system.

For each module two case scenarios were written by a group of teaching staff in the faculty both from basic and clinical departments involved in the module, the cases from this semester were: heart failure, acute coronary syndrome, anemia, malaria, tuberculosis, bronchial asthma, cancer bladder on top of S. haematobium and renal failure. The questions of each case correlate between basic and clinical sciences. Two versions were prepared for each case, one of them with answer model to the staff and another with questions only for the students.

Session's design:

Most of the scientific material delivered to the students over two weeks to be prepared for the session, and to the faculty staff one week prior to the session date to be oriented and familiar with the case. The faculty staff organizes and facilitates the session so it is not mandatory to be subject expert.

An online booking system is served for all semesters. Tutors name and office locations are available one week prior to the date of session and students are allowed to book according to their preference, first go first book. So, every student knows who, when and where the session will be conducted. As well, each staff has a list of the students of that session.

Case based learning sessions were conducted every other week on a fixed day for each semester. We divided the students of each semester into two groups: one group has its session for one and half an hour then the second one within the same places either with the same tutor or alternate one.

Method of evaluation

At the end of the semester, we evaluate the perception of both students and the faculty staff toward these CBL sessions using two validated self-administered online questionnaires (5- 6). With some modifications to be suitable for our purpose of evaluation. The students' questionnaire link was disseminated to them through the Moodle and they were asked to answer it. Students' questionnaire (figure 1) is formed of 14 questions evaluated by 5-point Likert scale (1= strongly agree, 2= Agree, 3= Neutral, 4= Disagree, and 5= strongly disagree). The staff' questionnaire (figure 2) formed of nine questions and evaluated also by the same 5- point Likert scale as students`. Then there are comments were written by students and faculty staff that express their opinion about these sessions and ideas for improvements.

Statistical analysis: After they answer these questionnaires, data were collected, tabulated and analyzed using Microsoft Excel 2016 and SPSS version 2022



Mansoura University, Faculty of Medicine

Evaluation of student's perception towards the effectiveness of the newly introduced small group sessions (CBL) in year one and two Mansoura faculty of medicine

Questionnaire for Students

Please fill out the following questionnaire where 1: Strongly agree; 2: Agree; 3: Neutral; 4: Disagree; 5: Strongly disagree

Questions	1	2	3	4	5	Comments
I Enjoyed CBL sessions						
The cases held my interest						
The cases improved my critical thinking and problem solving skills						
The cases helped to focus on important areas & focus on key concepts with better understanding						
Sessions motivated me to learn and increase my long lasting memory						
Sessions were well organized						
Sessions helped to correlate between clinical and basic science						
Sessions help me to be close contact with teaching staff and break the fear barrier						
Sessions gave me the opportunity to ask staff other questions relevant to their specialty						
Sessions improved my communication skills						
Sessions helped me to build self confidence						
Sessions helped to build friendships with peers						
Sessions helped to improve my spoken English skills						
Sessions were useful to be prepared for exams.						

Fig. 1



Mansoura University, Faculty of Medicine

Evaluation of staff's perception towards the effectiveness of the newly introduced small group sessions (CBL) in year one and two Mansoura faculty of medicine

Questionnaire for tutors

Please fill out the following questionnaire where 1: Strongly agree; 2: Agree; 3: Neutral; 4: Disagree; 5: Strongly disagree

Questions	1	2	3	4	5	comments
The cases presented were interesting and involved several disciplines						
The cases presented were relevant to year 1 medical students						
The cases facilitated active discussion and interactions between staff and students						
The cases helped to improve the students' critical thinking and Problem solving skills						
Sessions were well organized						
Sessions improved the students' ability to face others (peers and staff)						
Sessions were burden for me						
I enjoyed CBL sessions						
Suggestions to improve quality of CBL sessions						

Fig. 2

IV. RESULTS

In this study, 331 students from semester two (18.4 %, Table 1) and 119 (67.6 %, Table 2) of staff members have responded to the questionnaires.

Student's perception: (table1)

In this study 37% of the students agreed that they enjoyed CBL sessions and they were well organized. Large number of these students agreed that the cases held their interest, improved their critical thinking and focused on important areas and key concepts represent (42.6%, 43 % and 49.6% respectively). 44.7% of the students agreed that sessions motivated them to learn and increase their long-lasting memory and also 47% of the students declared that sessions helped them to correlate between clinical and basic science.

More than 45% of the students felt that sessions gave them opportunity to ask staff other questions related to their specialty, helped them to be close contact with teaching staff, improved their communication skills and build their self-confidence; and about 37.2% of students agreed that sessions helped them to build friendships with peers. 32.9% of them felt that their English skills improved.

Meanwhile 50% of the students saw that sessions were not useful for them to be prepared for exams.

Staff perception: (table 2)

Regarding staff perception, it was shown that the cases presented were interesting and involved several disciplines in 66.4% of them and 75.6% agreed that "The cases presented were relevant to year 1 medical students". 64.7% of them agreed that "The cases facilitated active discussion and interactions between staff and students". As well, 55.5% accepted that cases helped students to improve the student's critical thinking. More than 71% felt that "Sessions improved the students' ability to face others (peers and staff)" and the sessions were well organized. Only 25% of the staff felt that sessions were burden for them. Finally, 62% of them enjoyed CBL sessions.

TABLE I: Students' perception of CBL in semester two Mansoura Conventional Medical Program, Egypt (n= 331)

Question n	Agree n	Neutral n	Disagree n	% of agreement	% of disagreement
1	123	101	107	37.2 %	32.3 %
2	141	84	106	42.6 %	32 %
3	143	73	115	43.2%	34.7 %

4	164	64	103	49.5 %	31.1 %
5	148	71	112	44.7 %	33.8 %
6	124	98	109	37.5%	32.9 %
7	156	84	91	47 %	27.5 %
8	205	55	71	61.9 %	21.5 %
9	168	71	92	50.8 %	27.8 %
10	150	87	49	45.3 %	28.4 %
11	148	97	86	44.7 %	26 %
12	123	90	118	37.2 %	35.6 %
13	109	100	122	32.9 %	36.9 %
14	93	71	167	28 %	50.5 %

CBL= case-based learning, n= Number

TABLE II: faculty staff perception of CBL Mansoura Conventional Medical Program, Egypt (n= 119)

Question n	Agree n	Disagree n	Neutral n	% of agreement	% of disagreement
1	79	13	27	66.4 %	10.9 %
2	90	16	13	75.6 %	13.5 %
3	77	21	21	64.7 %	17.7%
4	66	24	29	55.5 %	20%
5	84	11	24	71 %	9 %
6	86	10	23	72 %	8.4 %
7	30	63	26	25 %	52.9 %
8	74	10	35	62 %	8.4 %

CBL= case-based learning, n= Number

V. DISCUSSION

As we need our medical students to be trained more on critical thinking, deep learning and help them to correlate between basic and clinical science we implement this case-based learning (CBL) method as a new learning strategy to enhance their self-learning. Case based learning is a good tool to develop self-directed learning and facilitate having a competent student; but this strategy still needs more work and more effort to achieve the aim we want.

In this pilot study we demonstrate the perception of both students and staff members towards CBL sessions. As shown in the results, large number of students even near half of them agree that these sessions increase their long lasting memory and strength the retention of information which is a very important outcome we need to augment more and more, near the same percentage also agree that they correlate better between basic and clinical sciences which reflect their ability to use the basic information provided to them and gather them with clinical findings to reach a possible diagnosis to the cases, as was seen in other studies of CBL in pharmacology [3] and in microbiology [4],[5] in which most of the students participated in that studies agreed that working in groups like CBL developed their critical thinking skills to reach diagnosis and design a management plan, and that CBL make a bridge between theoretical knowledge and its clinical application. CBL sessions also give them opportunity to be in close contact with the staff members, which in turn allow them to ask questions related to their disciplines. This newly applied learning strategy help students to improve their communication skills and build their self-confidence so obviously with all these findings we assume that this strategy helps students to construct their ability to be self-directed.

We notice that some students enjoyed these sessions and see it were well organized but others mentioned that these sessions need more preparation and organization to get more benefits they justified their opinion that the questions of the cases sometimes need just recall information so the cases need to be reorganized to help them discussing their ideas collaboratively which encourage the development of critical thinking skills. About 50% of the students disagreed that these sessions help them to be prepared for exams. Mostly of them declared that sessions were just before exams and they did not have time to attend nor to study them or the sessions were allocated in an inappropriate time for them so they were not able to attend. Nearly similar results were found I a study that was conducted in microbiology and immunology cases [4], where 36% of students also disagreed that the CBL sessions helped them to be prepared for exams, the explanation in that study is that some of the sessions were too less useful to prepare them for exam. So, it will need more auditing to meet their needs

As regard staff members, the majority of them mentioned that the sessions facilitate active discussion between them and their students so the sessions build a rapport between them better than the traditional ways of teaching. Most of the faculty agreed that the sessions were organized well but still a number of them comment that it will be more better if the same group of students will be distributed with the same staff member to help following the students' performance which is the same finding declared in another study [6] in which students themselves mentioned that they prefer to be with the same tutor during the semester; also Some of the staff members comment that every case need to be divided on two sessions to give the students the chance to go and search for answers, similar opinion was declared by some students.

Nearly most of the staff found that the cases were interesting, organized, involved several disciplines and also relevant to students` academic level. About half of them notice that the cases improve critical thinking and the ability to solve problems which help achieving the main purpose of this strategy.

Finally, the overall impression on CBL sessions for the first time in our school is quite good, taking into our consideration the comments of both students and faculty staff, we have to exert more effort to help students acquire more competencies from these sessions as we wish.

VI. CONCLUSION

From this pilot study, case-based learning is considered an important and fruitful learning strategy that enable us to establish a learner- centered approach which in turn will help students to get a great benefit from the newly applied competency-based education. It is considering a good achievement as we don`t have a suitable facility till now to implement this strategy but we exert a great effort to make it possible and achievable.

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