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The Opinions of Nursing Students about Case-based Teaching versus Traditional Lecture-based Method

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Abstract:

Background: Case-based Teachings is an active learning strategy in which students read and discuss complex real-life situations that call on their analytical thinking skills and decision-making. **Aim of the study:** To assess the opinions of nursing students about case-based teaching versus traditional lecture-based method. **Subjects and Methods: Research design:** A descriptive study was utilized in this study. **Setting:** Faculty of Nursing, Sohag University. **Subjects:** Include a representative sample (183) from the total number of students. **Tool of data collection:** Students Opinions Questionnaire. **Results:** The most important characteristic of the case-based teaching methods was increased reading of comprehension and collaboration skills during the teaching process. In addition, the majority of the students agreed that case-based teaching method decreased monotonous situation of the classroom, increased knowledge retention and self-esteem compared with lecture. Of these, 71.8% they were highly satisfied with this new method. However, no differences were observed between the students satisfaction based on gender ($p > 0.05$). On the other hand, it was found a significant difference in all mean scores of age > 21 years except in the following dimensions: motivation to study, reflective and critical thinking and imagination skills. **Conclusion:** Case-based teaching method has high efficacy and more accepted by the students than lecture in understanding the topic. **Recommendations:** this is simply an applicable method and reduced of monotonous situation of the classrooms. Therefore, nursing educators must use this method to promote active learning among the students.

Key Words: Students Opinions Questionnaire (SOQ); Case-Based Teaching (CBT); Traditional Lecture (TL); Nurse Educator; Critical Thinking (CT).

Introduction

Today the focus is on changing educational methods from traditional to new teaching methods that causes active learning among students. Active learning is a student-centered rather than a teacher-centered process; it makes learners responsible for their own learning by self-directed, peer-assisted seeking of new information⁽¹⁾

Barrett et al.⁽²⁾ categorized the teaching methods into two groups. The first group is teacher-centered methods, such as lecture, the second group is student-centered teaching method. In the lecture method, the teacher speaks most of the time and who is deciding only teaching-learning process. This method tends to produce shallow, surface thinkers who primarily rely on rote memory rather than careful understanding of the content⁽³⁾. While in student-centered teaching method, the student is active during the learning process⁽⁴⁾.

CBT is a teaching technique that exhibits a teacher-dependent approach to large groups of students⁽⁵⁾. Using CBT prepares the students for the principles of CT that has become an essential outcome in most schools of nursing today. No matter what type of program students attended previously, this skill has been fundamental to their practice. Nursing faculties strive to prepare nurses who think critically in order to elicit and interpret information, integrate multiple sources of data, solve clinical problems, make sound clinical judgment and provide logical scientific rationale for their decision-making process⁽⁶⁾.

According to⁽⁷⁾ CBT engages students and teachers in active dialogue about nursing situations by helping learners analyze an authentic case to identify client problems, compare and evaluate optional solutions, and decide how to deal with clinical situations. This method demands active participation and interaction between the

learner and teacher. It also offers students opportunities to discuss real-life situations and nursing challenges in a safe environment and stimulates students to think critically about the cases⁽⁸⁾.

In the CBT, a 'case' is built up as a scenario by teacher around a real situation and presented in classroom. The situation contains a problem that must be solved and requires decision-making. The CBT requires a certain amount of time (45-90 min) and usually only one case can be addressed per sitting. This works well with groups of up to 20-30 students. The teacher presents the scenario and the students listen and take notes carefully. Then they will have the opportunity to think about it. The teacher asks open-ended question. What is the scenario? The students are involved in discussions and the teacher gives necessary information such as lab tests, symptoms, etc. The teacher's role is to act as an initiator/moderator/facilitator for the group discussion and directs the students to goals⁽⁹⁾.

Majeed⁽¹⁰⁾ reported that, the students find interactive case discussions more enjoyable and educationally stimulating than lectures. In Egypt,⁽¹¹⁾ found that, PBL is an accepted teaching method that acquires nursing students with several intellectual and general skills that are essential for nursing carrier. In addition, they mentioned that PBL enabled them to be self-learner, critical thinker, and allowed them to communicate and work collaboratively. Moreover, ZeinEIDin⁽¹²⁾ tackled the effect of interactive lecture format on students learning gains.

Significant of the study:

Case-Based Teaching (CBT) was introduced as one of the innovative teaching strategies and more relevant method for teaching and learning in large students' classes and to make students more prepared for nursing practice. Therefore, I sought to assess the opinions of nursing students about case-based teaching versus traditional lecture to make classrooms more

interesting and interactive and to improve students' performance.

Aim of the study:

To assess the opinions of nursing students about case-based teaching versus traditional lecture-based method.

Research hypothesis:

1. Use of case-based teaching enhances nursing students' acquisition of knowledge, increases intrinsic motivation and decreases monotonous situation of the classroom than lecture.

Subjects and Methods:

Research design:

A descriptive study was utilized in this study.

Study setting:

The study was conducted at the Faculty of Nursing, Sohag University.

Study subjects:

The subjects included in the study were 183 out of 243 nursing students enrolled in the 2nd year first-semester in the period of Special Medical-Surgical-Nursing course as a mandatory subject. Sixty nursing students were not included in the study for the following reasons: 4 students were absent at the time of collecting data, 17 students refused to participate in the study, 18 students were taken as a pilot study. In addition, 21 students were doublers of one or two courses.

Tool of data collection:

Students Opinions Questionnaire (SOQ): The tool consists of two parts:

Part I:

Demographic data of the students i.e., age and sex.

Part II:

Students Opinions Questionnaire (SOQ): developed by Ghafourifard et al.⁽¹³⁾, and consists of 20 items about the comparison of case-based teaching method with lecture from the viewpoint of students. The researchers organized the items of tool into seven dimensions namely; learning attributes represented by 11 items, knowledge retention by 1 items, practice usefulness by 2 items, motivation to

study by 2 items, reflective and critical thinking by 3 items and imagination by 1 item.

Scoring system:

Students responses based on a 5-point Likert scale ranged from "5 absolutely agree" to "1 absolutely disagree". The total score ranged from 20 to 100 was categorized as "poor" : < 50th percentile", "moderately satisfied": 50th-70th percentile", "extremely satisfied" : >70th percentile".

Validity and reliability:

Face and content validity of the tool were done by five expertise in the field of nursing, namely; 2 from the Faculty of Nursing, Assiut University and 3 from Sohag University. Based on the opinions of experts, modifications were done. The reliability of the tool was tested using the internal consistency method. It proved to be high with Cronbach's alpha reliability coefficients 0.75.

Filed work:

This study was carried out in the period started from September to November 2015; through the following phases:

I. Preparatory phase: During this phase, the educational materials (case study/lecture) were prepared by the researchers guided by information from related sources. The case study was related to the core learning concepts and content of Medical-Surgical Nursing skills.

II. Implementation phase: At this phase, the students were given acute renal failure (ARF) in two sessions, case-based teaching and traditional lecture in two days. In the first session, the researcher gave the ARF in case-based lecture after divided the students into three equal groups to facilitate fruitful and positive interaction with learners and control on them, and the case study was presented. Immediately after presenting the case study, the researchers asked students to participate actively in classroom discussion and confirm diagnosis of the case. Finally, students according to the researcher guidelines identified the acute renal failure diagnosis. In each step, the

researcher explained the symptoms and treatment of ARF and the students were referred to the case that was mentioned at the beginning of the session and they discussed about it. The researcher asked different questions about the case and the students learned the disease gradually. This process was continued to the end of the session. Then, researcher made the conclusion. Each group received the same case study and the researchers follows the five stages of case studies suggested by Rowles and Brigham⁽¹⁴⁾. 1) The CBT needs to focus on the most important concepts to be learned. 2) The educator should consider different questions about the case. 3) The learning environment needs to be open, safe, and nonthreatening to facilitate students' participation. 4) All students should be engaged in the learning activity. 5) Summarizing the key points by the educator is essential.

In the second session, next day the researcher gave the same subject ARF using traditional lecture style via PowerPoint presentation. Each session was took nearly hour

III. Evaluation phase: Immediately after completing the two teaching sessions, all students were told about the aim of the study, and its significance. They were invited to provide their feedback about CBT as a method of teaching as compared to a lecture method. All students were assured that the study would be conducted anonymously to protect their confidentiality. They were also informed that their participation was voluntary, and that not taking part in this study would not affect them in anyway. Filling the questionnaire consumed about 10-15 minutes.

Pilot Study:

A pilot study was fulfilled on 10% of total sample of nursing students to test feasibility, applicability of the study tool as well as estimation of the time needed to fill the questionnaire. Some modifications were done according to the pilot study findings.

Administrative and ethical considerations:

Prior to data collection, the study protocol was submitted to the ethical committee to be approved, and a formal permission was obtained from the Dean of Faculty of Nursing, the Vice Dean of Education, and Students' Affairs to conduct the study.

Statistical analysis:

Data were revised, coded and fed to statistical software SPSS ver. 16.0. Descriptive statistics including frequency, percentage, mean with standard deviation (SD) were used to analyze the students responses. Independent samples T-test were used for the evaluation of the results. P value less than 0.05 was considered significant.

Result:

Figure 1 shows the distribution of students' gender. (54.6%) of the respondents were female while (43.3%) were male.

Figure 2 shows the age distribution of respondents. Less than 21 years old (66.7%), while 33.3% of the respondent students were more than 21 years.

Table 1 illustrates the mean percent score and standard deviation of the students' opinions dimensions. The total possible score on the students' opinions is (78.39±17.37). According to learning attributes and knowledge retention, the study showed that the mean score of these items were respectively (39.08±9.87, 3.97±1.15). On the other hand, the mean score percentage of nursing students were found in practice usefulness 7.98±2.08 and motivation to study 7.79±2.11 as they reported. Also, the mean score percentage of nursing students satisfaction were found in reflective and critical thinking and imagination (11.87±3.11 and 3.91±1.24) respectively.

Table 2 illustrates the comparison of the students' opinions dimensions according to sex. It was been found although the mean scores of students' opinions dimensions were higher in female than in male; no

statistical significant difference were found between them.

Table 3 displays the comparison of the students' opinions dimensions according to age. It was found that the mean scores of age > 21 years were higher in the following dimension only (learning attributes, knowledge retention and practice usefulness) with statistically significant differences, but although the other means scores of dimensions were higher, no statistical significant relation were found between the age groups.

Figure 3 shows the overall student satisfaction according to use CBT in teaching. It was found that the majority of students 71.58% were extremely satisfied regarding to use CBT in education because of its benefits on the development of critical thinking skills and self-directed learning they have, 21.31% were moderately satisfied, while 10% only were poorly satisfied.

Discussion:

To improve nursing students achievements as well as teaching effectiveness require nursing educators to shift from teaching methods that promote passive learning to those encourage active learning and involve students in the educational process. As for effective teaching, students must read, write, and discuss the material they are learning. They must also participate in high order thinking exercises, such as analysis, synthesis and evaluation⁽¹⁵⁾.

The present study indicated that using CBT method in teaching was completely agreed by most of the students as regard learning attribute as compared to lecture method, which covers objectives of the session, increases the reading comprehension, provides collaboration of students, closer to real, facilitates the student's learning process, well organized, decreases monotonous, and students' knowledge is well assessed.

It was found that CBT is an interactive student centered approach that promotes active learning by interaction of students, the main characteristic of CBT is improving the

reading comprehension skills of students and better cover for objectives and well organized as compared with the lecture⁽¹³⁾. These methods generate knowledge and organize it in a meaningful sequential manner that helps to associate problem in the clinical case with disturbance in normal mechanisms⁽¹⁶⁾.

Jabbari et al⁽¹⁷⁾ said that case studies improved depth of learning in session's consistency of learning, repetition and group discussion in class, increased motivation to search the literature and use references and opportunity for interaction with faculty members and peers. Group discussion allowed the students to help other peers to understand difficult cases and develop their collaborative skills Tayem⁽¹⁸⁾.

Baghcheghi et al.⁽¹⁹⁾ reported that students in cooperative learning acquire more skills especially communication one than in traditional learning classes. Moreover, Rao and DiCarlo⁽²⁰⁾ reported that interactive lecture allow discussion, reduce the monotony of passive learning, and enhance the students level of understanding and their ability to synthesize and integrate material. Gupta et al.⁽²¹⁾ added that TL format is monotonous and a passive way of learning.

While Ciraj et al⁽²²⁾ stated that retention of learned material is better if the learning occurs around the realistic problem.

The present study revealed that, CBT method was applicable than other methods and if we use CBT method in clinical settings, its efficacy will be increased. It was found that most of respondents considered that the case-based course would help them to apply their basic knowledge in a clinical situation supports this result Majeed⁽¹⁰⁾. The interactive lectures were more effective in a large classroom setting than TL to promote active learning among the students and are better than connecting theory to clinical practice Khoshnevisasl et al & Fatima et al^(23,24).

The present study also, revealed that CBT is more attractive and increase students'

motivation for learning and self-esteem of the students than lecture. Hamza⁽²⁵⁾ found that around two-thirds of the students agreed that PBL gained more knowledge and increase intrinsic motivation of the students toward learning compared to lecture. Rao et al⁽²⁶⁾ stated that interactive lectures result in improving self-confidence, reducing shyness in learners especially in freshmen or lower educational grade. Johnson and Johnson⁽²⁷⁾ added that, in small group work, students develop self-esteem, as well as, communication skills, which are essential for building stronger communication with patients.

Another benefit of the CBT approach is its capacity to develop students for reflective and critical thinking. The present study showed that CBT persuades the students for deep thought in teaching. Preparing nursing students requires educators to use creative teaching strategies that engage the students in active learning, which increases their motivation, sharpens their thinking, deepens learning and strengthen collaboration in the classroom. In active learning, the higher thinking processes of students are stimulated^(28,29).

As well, the present study shows that CBT gave many opportunities to questions and responses. Interactive learning highlights common misconceptions held by the students, encourages students to question, and thus increases self-efficacy of students, which is linked to their academic achievements Goldberg et al⁽³⁰⁾.

Mayner et al.⁽³¹⁾ added that students indicated a preference for smaller group because it allowed them to ask questions and to participate in discussion by providing a more comfortable and relaxed environment as compared to a lecture.

The present also study revealed that, CBT method is attractive than lecture and increase the use of imagination skills in students for learning. Ghafourifard et al.⁽¹³⁾ stated that using the CBT in learning; the students imagination can be effectively increased.

According to students' satisfaction the present study found that, the majority of students were extremely satisfied with the new method. The use of case studies in teaching increases the motivation for learning and the level of satisfaction for students Carolina et al⁽³²⁾.

Moreover, it was found that the mean scores of age >21 years were statistically significant differences, higher in the following dimensions: learning quality, knowledge retention, practice usefulness only but although the other mean scores of students' opinions dimensions were higher, no statistical significant relation were found between the age groups. This finding might be due to the convergence of the age among students from each other. Dehkordi and Heydarnejad⁽³³⁾ found that there is no statistically significant difference was found between students' opinions about lecture-based and problem-based methods based on terms of grade, age and sex. Preferred problem-based learning to lecture-based learning because of motivation boost, a higher quality of education, knowledge retention, class attractiveness, and practical use Khoshnevisasl et al⁽³⁴⁾.

Eittah and Ahmed⁽³⁵⁾ recommended that, to improve nursing students' achievements nurse educators should encourage students for active participation in the learning process, which will stimulate continued self-direction as well as they should incorporate a style of teaching that focuses on critical thinking skills where it is very important to meet the complex needs of registered nurses who are working in a dynamic hospital environment.

Conclusion:

In nursing students' standpoint, the CBT was more effective than TL in understanding the topic, clearing the basic concepts and in retention of knowledge. In addition, there are several positive outcomes like improved learning skills, independent learning abilities, analyze data, interpret results, draw reasoned conclusions and imagination skills etc. Also, indicating that CBT is an effective method in a large classrooms setting than TL. Hence, CBT can be used as an adjunct to didactic lecture to promote active learning among the students and develop CT skills for them.

Recommendations: As a result of this study, it is recommended that:

1. Redesign of a traditional lecture-based course into a case-based teaching method, which helps in the development of students in clinical problem solving and decision-making skills that are routinely applied in nursing practice.
2. Nurse educators need to be aware of their own teaching styles, and to develop skills to adopt their educational approaches with learning styles of their learners as far as possible to achieve better and deeper learning that through hold a series of workshops for them.
3. CBT should be incorporated as a teaching method in the undergraduates nursing curriculum for nursing courses especially in a large classrooms setting than TL to promote active learning among the students and relatedness.
4. Further studies may be needed to explore specific approaches for allowing students to take a more active role in the teaching/learning process in the classroom.

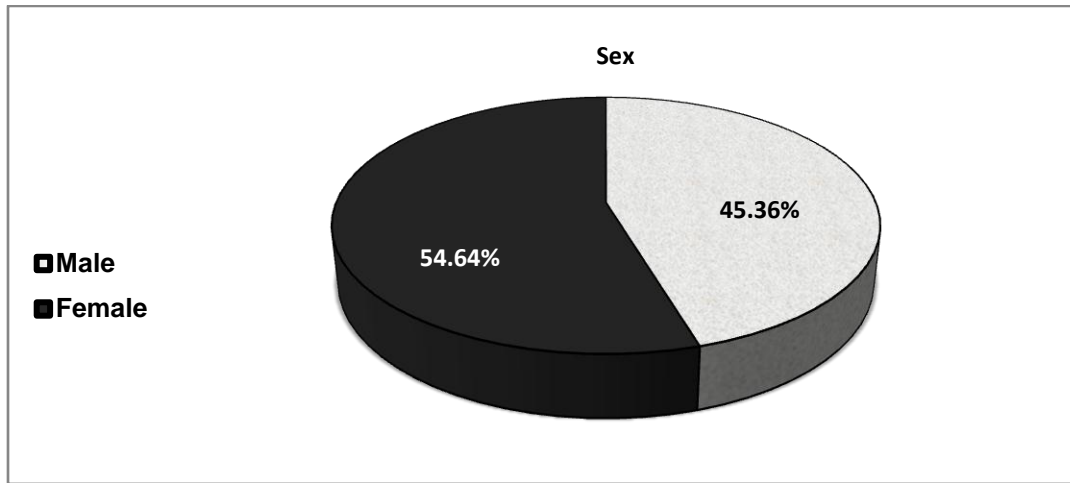


Figure (1) Frequency and percent of students' sex

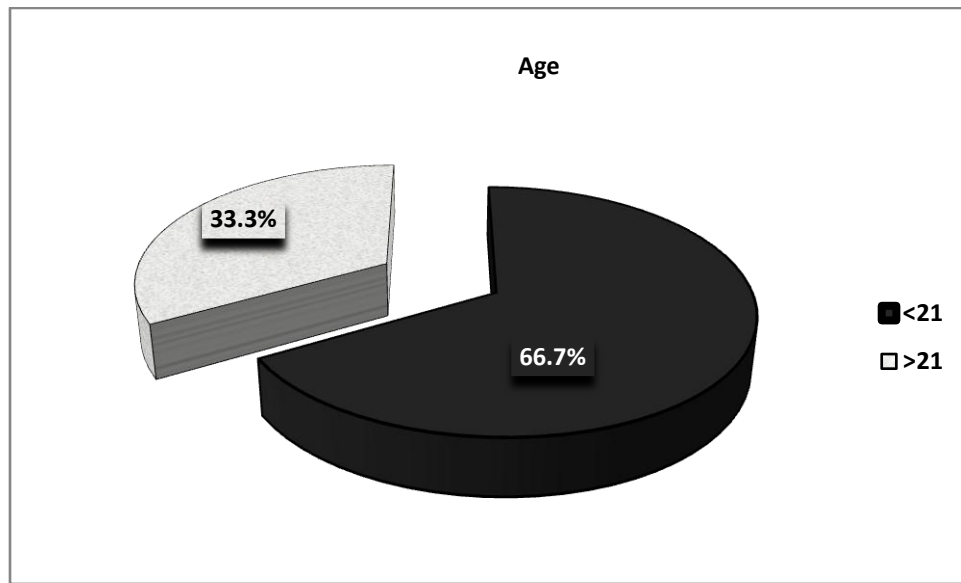


Figure (2) Frequency and percent of students'age

Table (1) Range of Score, Mean and Standard Deviation of students' opinions dimensions

Opinions	Mean \pm SD of student score	Range
Learning attributes	39.08 \pm 9.87	11-55
Knowledge retention	3.97 \pm 1.15	1-5
Practice usefulness	7.98 \pm 2.08	2-10
Motivation to study	7.79 \pm 2.11	2-10
Reflective and Critical thinking	11.87 \pm 3.11	3-15
Imagination	3.91 \pm 1.24	1-5
Overall mean	78.39 \pm 17.37	20-100

Table (2) Comparison of the students' opinions dimensions according to sex

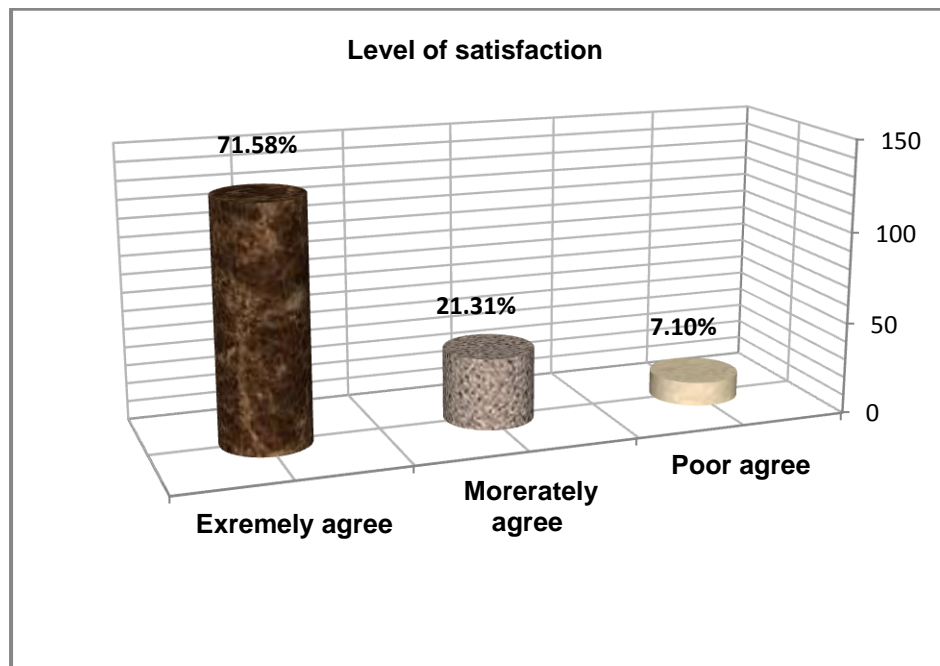
Items	Male score	Female score	P-Value
	Mean \pm SD	Mean \pm SD	
Learning attributes	37.97 \pm 9.55	39.49 \pm 8.18	0.258
Knowledge retention	3.86 \pm 1.25	4.06 \pm 1.06	0.268
Practice usefulness	7.70 \pm 2.19	8.20 \pm 1.96	0.117
Motivation to study	7.73 \pm 2.33	7.84 \pm 1.93	0.737
Reflective and Critical thinking	11.75 \pm 3.15	11.96 \pm 3.11	0.663
Imagination	3.82 \pm 1.34	3.97 \pm 1.15	0.455
Overall mean	76.93 \pm 18.90	79.61 \pm 15.99	0.477

* Statistical significant differences (P< 0.05)

Table (3) comparison of the students' opinions dimensions according to age group

Items	Age (years)		P-value
	< 21years score Mean ± SD	> 21years score Mean ± SD	
Learning attributes	37.84±8.86	40.81±8.48	0.032*
Knowledge retention	3.85±1.21	4.22±0.98	0.031*
Practice usefulness	7.77±2.14	8.40±1.90	0.046*
Motivation to study	7.63±2.25	8.11±1.77	0.117
Reflective and Critical thinking	11.69±3.07	12.23±3.22	0.280
Imagination	3.82±1.28	4.08±1.13	0.163
Overall mean	76.22±17.57	82.5±16.50	0.045*

* Independent Samples Test, Statistical significant differences (P< 0.05)

**Figure (3) Overall degree of satisfaction with case-based teaching**

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