Novelty Journals

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 6, Issue 1, pp: (582-588), Month: January - April 2019, Available at: www.noveltyjournals.com

Problem Based Learning versus Lecture Based Learning in Selected Nursing Courses

[1]Mona Ahmad Al Sherim, [2]Essmat A. Mansour

[1]Medical Surgical Nursing Department, Faculty of Nursing, King Khalid University

[2]Medical Surgical Nursing Department, Faculty of Nursing, King Saud University

Abstract: **PBL is a teaching approach in which students investigate the problems rather than explained by the instructors. Many research studies have proven the positive effect of using PBL on students' academic achievement.**

Objective: The aim of this study was to investigate the effect of using PBL versus LBL approaches on students' levels of knowledge, satisfaction and confidence in medical surgical course among nursing students.

Method and Materials: A crossover interventional true experimental design was used in the current study with a simple random sample of 20 students from level 5 at college of nursing, King Saud University participated in the study. Four lessons mainly DM, hypertension, asthma and appendicitis were chosen randomly from medical surgical nursing course. Students randomly were divided into PBL and LBL and each group have the same inclusion criteria and same the specified lessons. Data of the current study were collected using three tools: Tool 1- the socio-demographic data. Tool 2- the knowledge evaluation questionnaire it was devolved by the researcher and the questions were developed based on previously random selected the four topics covering all aspects discussed in the case study. Tool 3- the satisfaction and self-confidence questionnaire developed by the National League for Nursing. (2005).

Result: students in the PBL group showed better level of knowledge, higher level of satisfaction and higher level of self-confidence than those in the LBL group. Although, students in the PBL group reported higher level of knowledge, but there were no statistical significance differences between the 2 groups.

Conclusion: The study concluded that PBL had a relatively new approach in nursing, but it was found to be effective and accepted by nursing students. This approach can improve students' creative thinking and confidence in their learning experience which will intern have a positive effect on improve their clinical practice and career development.

Keywords: **Problem-based learning, Nursing students, Lecture-based learning, level of knowledge, level of satisfaction, level of confidence.**

1. INTRODUCTION

Problem-based learning (PBL) has been widely adopted in diverse fields and educational contexts to promote critical thinking and problem-solving in authentic learning situations. Its close affiliation with workplace collaboration and interdisciplinary learning contributed to its spread beyond the traditional realm of clinical education to applied disciplines such as health sciences, business studies and engineering. With this growing practice and popularity of PBL in various educational and organizational settings, there has been an increasing number of studies examining its effectiveness on the quality of student learning and the extent to which its promise of developing self-directed learning habits, problem-solving skills and deep disciplinary knowledge achieves its intended result. (Yew & Goh,2016).

Problem based learning is described throughout the literature as an inquiry based approach to learning that is student centered and provides the means for gaining problem solving and lifelong learning skills. It is geared to facilitate knowledge retention and application while fostering the skills desired in physicians, such as clinical reasoning, critical thinking and self-directed learning (Valsa, 2016).

In PBL, the training method is based on the principle of using problems as the starting point; students are divided into several groups and do research on the topic of interest, and the questions are then put to discussion. PBL is a student-centered approach, which enables individuals to design, implement, and assess solutions for the problems in their own courses. Solving a problem as a mental activity increases the level of knowledge and new skills. Although based on World Health Organization (WHO) data, PBL is growing worldwide, this model is still controversial (Sayyah et al., 2017).

Nursing practice require high cognitive ability that includes problem-solving, decision-making, and proper clinical judgment. However, studies comparing lecture- based learning and problem-based learning at undergraduate nursing schools are very few and their results are contradicting (Sathya&Reddemma, 2017). Searching relevant databases revealed that no similar previous study was conducted in Saudi Arabia to investigate the influence of lecture- based learning and problem-based learning on nursing student knowledge, level of satisfaction and self -confidence. Therefore, it is a pressing necessity to conduct this study to investigate and determine which of the two major learning methods are more affected in relation nurse student level knowledge, satisfaction and self-confidence.

Aim of the Study

This study aimed to investigate the effect of problem-based learning & lecture-based learning on nursing students regarding their level of knowledge, satisfaction and level of confidence in medical-surgical courses at the College of Nursing, King Saud University.

2. SUBJECT AND METHODS

Research Design

A crossover interventional true experimental design was used in this study. It was conducted among nursing students at King Saud University, Riyadh Region, Saudi Arabia.

Setting:

This study was conducted at college of nursing, King Saud University, Riyadh Region, Saudi Arabia.

Subject:

Simple random sample technique was used to recruit the study sample of 20 female students enrolled in level 5 Nursing College, KSU were recruited in the current study. Students enrolled in level 5 were included in the study with a total number of 20 students, Students list from the edugate (education gate) of king Saud university were obtained and students distributed as odd

numbers like 1,3, 5, 7...&, 11 were assigned to be in the first group which is the PBL and students with double number as 2, 4... & 10 were assigned to be in the LBL group.

Data collection tools:

Data of the current study were collected using three tools:

Tool 1: it is pertain to the socio-demographic data.

Tool 2: Level of knowledge was assessed using examination sheet which is consisted of 10 multiple choices questions (MCQ). The questions were developed based on previously random selected the four topics (diabetes mellitus, asthma, hypertension and appendicitis) covering all aspects discussed in the case study and group discussion related to each topic. The level of knowledge was calculated as the number of correct answer of all the items for each topic in both groups (PBL & LBL). This questionnaire was developed by the researcher.

Tool 3: Student's satisfaction and self- confidence were assessed by the student's satisfaction and self-confidence questionnaire developed by the National League for Nursing (2005).

Reliability and validity:

Before data collection of the study the reliability of the total questionnaire tested and revealed a Cronbach's alpha .86 and the level of knowledge questionnaire was reviewed by 3 experts in medical surgical nursing who are holding a PhD and content validity especially for the knowledge part and recommended modifications were done.

Procedure:

The procedure of this study was approved by Institutional Revie Board (IRB) of KSU Nursing College, administration acceptance was obtained from dean of nursing college at King Saud University to collect the required data. Data collection was started in the second semester of academic year 1438-1439, It took about 6 weeks.

Data collection started after piloting the study, then the data were started to be collected through the following steps under the supervision of the teacher of the course in the college:

1- After their approval by lottery method ,4 medical surgical topics were selected to be the topics of the study. The selected topics were hypertension, diabetes mellitus, appendicitis and bronchial asthma

2- Students were divided randomly into 2 groups; group 1 assuming the PBL group while the second is LBL group.

3- The researcher started the BPL class for the first topic. The topic related problem was expressed in the form of case scenario, which is formulated and explained by the researcher. Based on relevant literatures (Brunner&Suddarth,1975) teaching methods, goals and the learning needs of the students were mentioned, and the group was referred to the sources of information without any limitation. At the beginning of each session, case documents, including patient complaints, presenting illness, and sample questions about the etiology, diagnosis, diagnostic tests and treatment were given to the students. To be guide during the search process.

4- The PBL group was subdivided into small groups and a team leader for each group was assigned to lead and organize the work within the group

5- At the next meetings, class the group presented their solutions and the students discussed and debated various aspects of the case. After some discussion, the students discussed the problem and explained its causes, methods of diagnosis and their approach to solve the disease related health problem.

6- Finally, a sense of competition and cooperation was created and reinforced among students. The role of the researcher was to facilitate the learning process. Each group wrote their solutions and in each session, one member of each group was selected to present the response of his group. The students discussed the solutions, and the best answers were emphasized after that, the researcher organized and summarized the main agreed points.

7- The researcher started the LBL class on the same topic discussed previously with PBL, using lecture strategy at its predetermined time

8- Next week a crossover was done and the assuming roles were changed in which PBL turned on LBL and vice versa, and the next topic was manipulated by the same way.

9- After completion of each topic using PBL and LBL in both groups, an exam was taken to evaluate the students' knowledge, and then the students completed a satisfaction and self-confidence questionnaire.

10- The level of knowledge was calculated as a number of correct answer for all items for each topic in both groups (PBL & LBL).

Ethical Consideration:

Informed consent was obtained from the nursing students after explanation of the purpose and importance of the study and reassuring them that these responses would not affect their grades and they have the right to withdraw from the study at any time. Confidentiality of any obtained information was ensured. Anonymity of the study subjects was assured by coded sheets

Methods of Data Analysis

The collected data was tabulated, and summarized. Data was computerized and analyzed using appropriate descriptive and inferential statistical tests to answer the research questions. SPSS program version 20 was used. Level of significance was at $P < 0.05$.

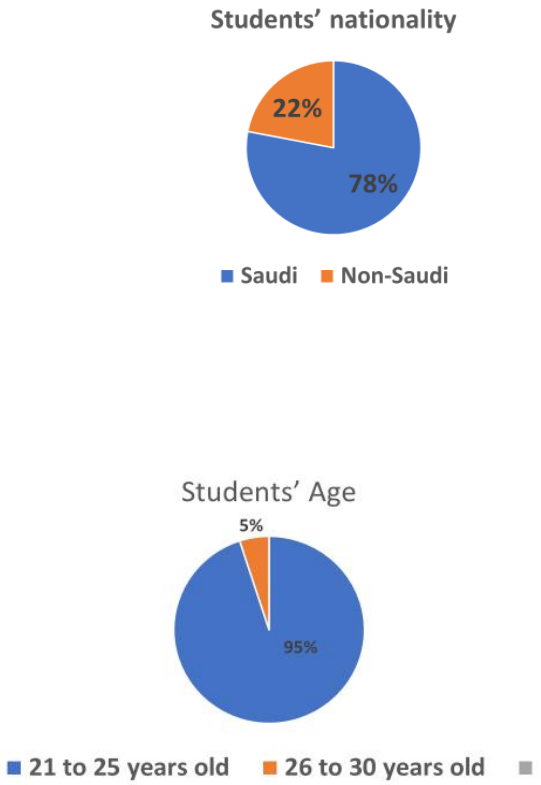
Novelty Journals

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 6, Issue 1, pp: (582-588), Month: January - April 2019, Available at: www.noveltyjournals.com

3. RESULTS

Figure 1: Demographic characteristics of the study sample



Demographic characteristics of the sample showed that 77(95%) of participants were in the age group 21 to 25 years old, and 4(5%) were in the age group 26 to 30 years old. 78% were Saudi and 22% were non-Saudi. All the participants except for one were residence of Riyadh city.

Table 1: Total knowledge, satisfaction and confidence regarding PBL and LBL for the 4 lessons (DM, Asthma, Hypertension and appendicitis)

Lessons	Methods of teaching	Satisfaction					Knowledge
		S. Agree	Agree	Neutral	Disagree	S. disagree	
DM	PBL	60%	30%	10%			61%
	LBL	18.2%	9.1%	63.6%	9.1%		39%
Hypertension							
	PBL	40%	40%	20%			55%
	LBL	18.2%	18.2%	36.4%	27.3%		45%
Asthma	PBL	70%	30%				50%
	LBL		10%	20%	40%	30%	50%
Appendicitis	PBL	60%	40%				56%
	LBL	10%	20%	50%	20%		44%

	Confidence						
DM	PBL	50%	50%				
	LBL	9.1%	9.1%	63.6%	18.2%		
Hypertension	PBL	40%	40%	20%			
	LBL		20%	60%	20%		
Asthma	PBL	100%					
	LBL			90%	10%		
Appendicitis	PBL	60%	40%				
	LBL	10%	20%	50%	20%		

The total results of students' knowledge regarding PBL versus LBL for the 4 lessons presented that the highest percentage in DM lesson, it was 61% in PBL approach and the lowest percentage in DM lesson, it was 39% in LBL approach and few improvements in hypertension lesson, it was 55% in PBL and Appendicitis lesson and remain same in the asthma lesson when using the PBL. The total results of students' satisfaction regarding PBL versus LBL for the 4 lessons showed that most students 70% were satisfied in asthma lesson than other topics in PBL approach. The total results of students' self-confidence regarding PBL versus LBL for the 4 lessons presented that 100% of students were high self-confidence in asthma lesson than other topics in PBL method.

4. DISCUSSION

The linear way of teaching and delivering lessons needs to be extensively evaluated. The basic idea behind using different teaching methodology is to enable students to think critically and learn better. Problem-based learning is a teaching approach in which students investigate the problems rather than explained by the instructors (Norman and Schmidt, 2000; Pang, and Dorcas, 2002). Many research studies have proven the positive effect of using PBL on students' academic achievement. (Keshk et al., 2016; González et al., 2014). The aim of the current study was to investigate the effect of using PBL versus LBL approaches on students' levels of knowledge, satisfaction and confidence in medical surgical course among nursing students.

Results showed there was improvement in the students' knowledge in the DM and appendicitis lesson and few improvements in hypertension lessons and remain same in the asthma lesson when using the PBL. Although, results showed no significance difference in the level of knowledge between the 2 approaches of teaching, there were an improvement in the level of knowledge among students used the PBL approach. This could be attributed to fact that the study conducted in the same time with the regular quizzes which would affect students' motivation to the use of a new way of teaching which is PBL and would resulted in having no statistical differences, Hwang and Kim (2006) Their study reported that the positive effect of PBL on the students' scores was associated with their strong motivation for the study. This finding in accordance with Newman (1995) who indicated that the use of PBL produced no statistically significant difference in knowledge acquisition from the traditional lecture method in a nursing course for undergraduate nursing students. This results in agreements with Miller (2003) reported the same results in a pharmacology course for graduate nursing students.

Furthermore, (Pourshanazari et al. 2012) found that PBL enhanced the students' knowledge, understanding and retention of subjects, it reported no constructive effect on final exam of students and did not compromise performance on standardized tests for knowledge application.

The present study reported a significance satisfaction with the PBL method. That was in agreement with Sangestani, and Khatiban (2013) who compared problem-based learning and lecture-based learning in midwifery courses. They result showed that learning progress in PBL

group was significantly more than LBL. PBL improved application of theory lesson in clinical practice, increased learning motivation and enhanced educational activity in class. They recommended to consider the advantages of using PBL for quality of the midwifery education.

Similar results were also reported by Menzar and Menzar (2011) who studied the level of satisfaction among medical students regarding their medical activities. Results showed that students were not satisfied with the pattern of teaching using LBL.

In relation to the study finding concern may affect of use PBL V. LBL on student's confidence level. This was similar to many studies which reported confidence in learning in different ways. Williams (2004) concluded that students in their study were self-confessed that PBL helped them exploring knowledge, searching more information from journals and textbooks and arranging the knowledge they gained in a cohesive way.

On the other hand, the results of the current study not congruent with Tarlinton, et al. (2011) who found that a considerable percentage of participants in their study reported a lack of confidence in speaking in front of the other students about what they have learned through the PBL. Smith and Coleman (2008) also reported that students in their study reported feeling unsafe in what they learned rather than how the PBL helped them to learn. Likewise, Rowan et al. (2008) also indicated that students were worried about not having enough information that would prepare them for practice.

5. CONCLUSIONS

The current study was conducted to compare 2 different teaching strategies mainly PBL and LBL and their effect on nursing students' knowledge, satisfaction and self- confidence. Two groups of nursing students were tough 4 medical surgical lessons using both PBL and LBL methods. Results from the study confirm that the use of PBL method in medical surgical nursing course enhanced the learning experience among the students in terms of knowledge, satisfaction and confidence in the knowledge they learned. Compared with LBL, PBL had its leading position in enhancing students' learning abilities. Although, PBL is a relatively new approach in nursing, but it was found to be effective and accepted by nursing students. This approach can improve students' creative thinking and confidence in their learning experience which will intern improve their clinical practice and career development.

6. RECOMMENDATION

The study recommended replication with larger sample size, different nursing courses and qualitative methodology is required. Introducing PBL as a teaching strategy in nursing courses are mandated and including such new teaching approach in nursing curriculum is crucial. Application of PBL in clinical training experience so it important to apply it to enhance the students' critical and analytical thinking abilities.

Study's Limitations

The current study reported improvement in the knowledge, satisfaction and self- confidence among nursing students in medical surgical course, the study acknowledges some limitations. The study used crossover in which crossover design is excellent research tools, however, there is some concern that the response to the second intervention had be influenced by their experience with the first one. There is no evidence if the gained knowledge were mainly from the new PBL approach experienced during the study or from previous exposure to the knowledge from their study.

REFERENCES

[1] Augusthy, V. C. (2017). A comparative study of the learning outcomes and students‟ satisfaction from problem-based learning and lecture- based learning in obstetrics and gynecology. International Journal of Reproduction, Contraception, Obstetrics and Gynecology, 5(5), 1368-1374.

[2] González Hernando, C., Carbonero Martín, M. Á., Lara Ortega, F., & Martín Villamor, P. (2014). Problem Based Learning and satisfaction of Nursing students. Global Nursing, 13 (3).

[3] Hwang, S.Y., Kim, M.J. (2006). A comparison of problem-based learning and lecture-based learning in an adult health nursing course. Nurse education today, 26(4), 315–321.

[4] Keshk, L.I., Qalawa, S. A. A., &El-Azim, S.A. (2016). Efficiency of Problem Based Learning Course at College of Nursing in Egypt and KSA: Comparative Study. American Journal of Educational Research ,4(6), 450-458.

[5] King Saud University -Retrieved from https://ksu.edu.sa/en/about-ksu.

[6] Menzar, B., & Menzar, N. (2011). To determine the level of satisfaction among medical students of a public sector medical university regarding their academic activities. BMC Research Notes, 4(1),380.

[7] Miller, S.K., (2003). A comparison of students' outcomes following problem-based learning instruction versus traditional lecture learning in a graduate pharmacology course. Journal of American Academic Practice 15 (12), 550–556.

[8] Neuman, L. H., Pardue, K. T., Grady, J. L., Gray, M. T., Hobbins, B., Edelstein, J., & Herrman, J. W. (2009). What does an innovative teaching assignment strategy mean to nursing students? Nursing Education Perspectives, 30(3), 159-163.

[9] Norman, G. R., & Schmidt, H. G. (2000). Effectiveness of problem-based learning curricula: Theory, practice and paper darts. Medical education, 34(9), 721-728.

[10] Pang, S. M., Wong, T. K., Dorcas, A., Lai, C. K., Lee, R. L., Lee, W., & Mok, E. S. (2002). Evaluating the use of developmental action inquiry in constructing a problem-based learning curriculum for pre-registration nursing education in Hong Kong: a student perspective. Journal of Advanced Nursing, *40*(2), 230-241.

[11] Pourshanazari, A. A., Roohbakhsh, A., Khazaei, M., & Tajadini, H. (2012). Comparing the long-term retention of a physiology course for medical students with the traditional and problem-based learning. Advances in Health Sciences Education, 18(1), 91-97.

[12] Rowan, C.J. McCourt C. and Beake, S. (2008). Problem based learning in midwifery, the students' perspective. Nurse Education Today, 28(1), 93-99.

[13] Sangestani, G., & Khatiban, M. (2013). Comparison of problem-based learning and lecture-based learning in midwifery. *Nurse education today*, *33*(8), 791-795.

[14] Sathya, P. & Reddemma, K. (2017). Development of problem based learning training module in nursing education. International Journal of Research in Medical Sciences,5(5),1986-1990.

[15] Sayyah, M., Shirbandi, K., Saki-Malehi, A., & Rahim, F. (2017). Use of a problem-based learning teaching model for undergraduate medical and nursing education: A systematic review and meta-analysis. Advances in Medical Education and Practice, 8, 691.

[16] Smith, L., & Coleman, V. (2008). Student nurse transition from traditional to problem-based learning. Learning in Health and Social Care, *7*(2), 114-123.

[17] Tarlinton, R., Yon, L., Klisch, K. and Gough, K. (2011). Confidence as a Barrier to the Use of Problem-Based Learning in Veterinary Undergraduate Students. Journal of Veterinary Medical Education 38(3):305-10.

[18] Types of Experimental Research Designs - Center for Innovation in Research and Teaching.Retrievedfrom https://cirt.gcu.edu/research/developmentresources/research_ready/experimental/design_types

[19] William, B. (2004). Self-direction in a problem-based learning program. Nurse Education Today, 24(4), 277-285.

[20] Yew, E. H., & Goh, K. (2016). Problem-Based Learning: An Overview of its Process and Impact on Learning. Health Professions Education, 2(2), 75-79.