The Effects of Team-Based Learning on Core Competencies in Undergraduate Nursing Students

Eun-Hee Kim¹, Sung Jung Hong²

¹Dept. of Nursing, Suseong College,
15, Dalgubeoldaero-528 gil, Suseong-gu Daegu, Korea 706-711,
Kkkeh35@hanmail.net
²Dept. of Nursing, Semyung University
579 Sinwoul-Dong, Jechon 390-711, KOREA
Corresponding Author : ag3926@naver.com

Abstract. The purpose of this study was to examine the effects of team-based learning (TBL) program on nursing students’ major satisfaction, critical thinking, communication skills, problem solving, and self-directed learning. A Quasi experimental design: nonequivalent control group pretest-posttest design was used. The TBL significantly improved nursing students’ major satisfaction, critical thinking, problem-solving ability, communication skill, and self-directed learning. Conclusion: TBL is a useful teaching and learning method for nursing students. Therefore, the nursing discipline should incorporate TBL into nursing curriculums to improve nursing core competencies.

Keywords: Team-based learning, Problem solving, Critical thinking, Self-directed learning

1 Introduction

In the complex medical field, nursing professionals are required to perform various nursing duties to meet the need of the consumers in the healthcare field. Subsequently reshaping goals of nursing education to prepare nurses who are competent in knowledge and skills [1]. Recent trends of undergraduate nursing education focus more on competence-based education to acquire and strengthen the knowledge and skills required for clinical nursing practice.

According to previous studies, nursing skills that are categorized as core competencies in undergraduate nursing education are: ability to perform nursing practice [2], communication skills [3] leadership [4] and problem solving [5] and these variables were scored slightly higher than middle, which is not satisfactory. Even if graduate nurses (GNs) are hired by the hospitals, most graduate nurses have extensive waiting period for job placement, thus are not able to start working immediately after their graduation. The new GNs are solely depending on job training provided by the medical institutions to enhance nursing skills required for job performance [3]. Therefore strategies to improve undergraduate nursing curriculum focusing on development and improving nursing core competencies such as nursing practice skills, communication skills, leadership, and problem-solving skills at the time of graduation. Therefore, to meet the needs of nursing practice with paradigm shift, adoption or conversion of
new curriculum that are learner-centered, enhances self-directed and active teaching-learning strategies, which are different from the traditional curriculum. The team-based learning (TBL) is a cooperative learning model and in it, a team becomes a learning unit. In this learning method, students develop or improve leadership and team skills while solving various issues that arise with ongoing collaboration [6]. In addition, unlike the problem-based learning that requires a large number of classrooms and tutors, the TBL is an effective teaching strategy for a large number of students [7]. In particular, team-based learning has shown to be effective in the cultivation of the students’ critical thinking skills through the process of self-identification of problems, evaluation, implementation, and integration of new information or ideas through active interaction and collaboration with team members [6]. The team-based learning is believed to play a positive role in nursing education. In this study, we applied a TBL in adult health nursing students to acquire practical nursing knowledge and to meet learning outcomes of the nursing education: problem-solving skills, critical thinking skills, and self-directed learning skills to improve the nursing core competencies through integration of disease and clinical practice.

2 Purpose

The purpose of this study is to identify the effects of TBL on adult health nursing course students’ core competence: problem-solving skills, critical thinking, and self-directed learning.

3 Method

3.1 Research Design

This study is a Quasi experimental design: non-equivalent pre- and posttest design study to determine the effects of nursing team-based learning on the undergraduate nursing core competences.

3.2 Study Sample

The samples of the study are students who are enrolled in an Adult Health Nursing Course in the 4th year of nursing undergraduate program and participated in TBL. Sixty two out of 90 students who understood the purpose of the research, agreed to participate in the study, and signed informed consent were selected as the final sample of the study. In ethical consideration of the study participants, prior to conducting data collection using survey questionnaires, the purpose and process of the study was explained, voluntary participation was encouraged, and confidentiality of research
participants was explained. The study participants were explained that the data collected in this research will only be used for this study.

3.3 Study Tool

Major satisfaction
To measure nursing students’ satisfaction of chosen major, The tool of Braskamp, Wise and Hengstler developed by the University of Illinois in the United States and modified by [8] to fit the culture of Korea. A total of 18 out of 34 survey questions that were relevant to students’ satisfaction of their major were selected and used for the study after receiving an approval from the developers. Each item has a 5-point Likert scale, which is the same as the major satisfaction, the higher the score the higher the major satisfaction. Cronbach’s α of the tool in this study was 0.94.

Critical Thinking
To measure critical thinking skills of nursing students, a tool consisting of 27 questions was developed by [9] and used after receiving a permission from the developer. Each item has a 5-point Likert scale, the same as major satisfaction. Negative-question items were calculated using inverse processing, thus, the higher the score was the higher the critical thinking skills of the nursing students. The reliability (Cronbach’s α) of the tool in this study was 0.89.

Problem Solving
The components of the tool to measure the problem solving skills consists of five competence categories such as clarification of problem (5 items), root cause analysis (10 items), development of alternative procedure (10 items), planning / implementation (10 items), and performance evaluation (10 items). These five competence elements then were divided into 9 sub-categories. Subcategories of the five competence categories consisted of a total of 45 questions. Each item was measured using a 5-point Likert scale. Possible total score of the tool to measure problem solving skills was from 45 to 225 points, the higher the scores the higher problem solving skills of the nursing students. The reliability (Cronbach's α) of the tool in this study was 0.94.

Communication Skill
To measure the communication skills, Hur’s tool [10] consists of: analytic ability (14 items), role performance ability (14 items), self-presentation skills (7 items), goal setting skills (7 items), and message-conversion ability (7 items). Each item was measured using a 5-point Likert. The reliability (Cronbach's α) of the tool in this study was 0.88.

Self-directing Thinking
To evaluate self-directed learning, the tool includes components such as plans, execution, and evaluation of learning, which then were subdivided into 45-item questionnaires, which includes: learning plans and learning needs diagnosis, goal setting, resources identification for learning, learning - basic self-management skills, selec-
tion of learning strategies, the consistency of the learning, learning assessment - effort attribution for results, and self-reflection. Items related to self-directed learning is measured using a 5-point Likert scale. The reliability (Cronbach's α) of the tool in this study was 0.95.

4 Data Analysis

The collected data was analyzed using the SPSS 21.0 WIN Program and the specific analysis method is as follows:
1. Prior to the TBL, control group and comparison groups’ general characteristics and homogeneity of the dependent variable between the two groups was analyzed using t-test and χ² –test.
2. Variables of this study: major satisfaction, nursing practical skills, critical thinking, problem solving ability, communication skills, and self-directed learning was measured before and after the study intervention and the difference was analyzed using t-test.

5 Results

Table 1. Core Competencies before TBL

<table>
<thead>
<tr>
<th>Variables</th>
<th>Exp.(n=31)</th>
<th>Con.(n=31)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major satisfaction</td>
<td>3.78 (.41)</td>
<td>3.77 (.43)</td>
<td>.041</td>
<td>.868</td>
</tr>
<tr>
<td>Critical thinking</td>
<td>3.42 (.40)</td>
<td>3.39 (.35)</td>
<td>.293</td>
<td>.770</td>
</tr>
<tr>
<td>Problem solving ability</td>
<td>3.18 (.24)</td>
<td>3.17 (.28)</td>
<td>.060</td>
<td>.860</td>
</tr>
<tr>
<td>Communication skill ability</td>
<td>3.45 (.48)</td>
<td>3.44 (.42)</td>
<td>.077</td>
<td>.872</td>
</tr>
<tr>
<td>Self-directing thinking</td>
<td>3.26 (.31)</td>
<td>3.28 (.43)</td>
<td>-.246</td>
<td>.807</td>
</tr>
</tbody>
</table>

Table 2. The Effects of TBL on Core Competencies

<table>
<thead>
<tr>
<th>Variables</th>
<th>Exp.(n=31)</th>
<th>Con.(n=31)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major satisfaction</td>
<td>4.58 (.28)</td>
<td>3.97 (.65)</td>
<td>4.798</td>
<td>.000</td>
</tr>
<tr>
<td>Critical thinking</td>
<td>4.28 (.29)</td>
<td>3.56 (.62)</td>
<td>5.858</td>
<td>.000</td>
</tr>
<tr>
<td>Problem solving ability</td>
<td>4.33 (.54)</td>
<td>3.47 (.67)</td>
<td>5.564</td>
<td>.000</td>
</tr>
</tbody>
</table>
Conclusions

This study conducted on undergraduate senior nursing students after providing TBL classes once (two hours) per week, total of 16 hours, over an 8-week period, and identified students’ major satisfaction, critical thinking, communication skills, problem solving ability, and self-directed learning (Self-directing thinking) were measured before and after the TBL classes. In this study, prior to the Team-based learning, the personal readiness self-learning Pre-Identification (IRAT) test was performed, and followed by the Group Readiness Assurance Test (GRAT) and application of the TBL using group discussion and case study scenarios. The result of this study indicated that team-based learning significantly enhances nursing college students’ majoring satisfaction, critical thinking, problem solving skills, communication skills, and self-directed learning ability. Therefore, the TBL can be a useful teaching and learning strategy for enhancing nursing core competencies of the undergraduate nursing students and new GNs to prepare for their role as a professional nurse. Based on the results of this study, the introduction of team-based learning into nursing education may significantly enhance nursing students’ academic achievement, critical thinking skills and foster problem-solving skills thus improving the quality of nursing education. Further research is needed to verify the effectiveness of TBL by comparing to other teaching-learning methods.

References


