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Effect of Logbook-Based Training as a Modern Educating Method on Clinical Competence of the Nursing Students

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ABSTRACT

Clinical training is one of the most important parts of nursing education. Success in this path requires effective measures to create necessary skills in the trainees in addition to considering the latest science and modern needs of the patients. The aim of this study is to investigate the effect of log-book based training on clinical mastery of the nursing students. In this semi-empirical before-after test study, 28 nursing students were sampled by census and randomly classified into two groups of test and control. Each group included 6-7 people. After pretesting of the cognitive skills of the students, control group and test students were trained by traditional and logbook-based method for 12 days, respectively. Finally, their cognitive skills were examined by post-testing of the behavioral skills and checklists. The data were then analyzed by SPSS software through implementation of Wilcoxon and U Mann-Whitney tests and Pearson correlation coefficient. Results have shown that logbook-based training can be effective in enhancing the students' knowledge and skills. Mean performance score showed significant differences before and after the logbook-based training. Comparing the clinical competency of the nursing students before and after conventional and logbook-based training also shows significant difference as well. Logbook-based training will provide a high level of learning and it seems that the mentioned structure can provide maximum opportunities for learning and professional development.

Key words: Logbook-Based Training, Clinical Experience, Competency, Nursing Students.

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INTRODUCTION

Combination of theoretical and experimental education is possible for all, especially for the nursing students in clinical situation. Many of learners may believe that real learning of a theoretical discussion is only possible in a clinical situation [1]. Clinical experience is an inseparable part of nursing education and proper clinical performance is the goal of logbook-based mastery learning. The structure of logbook-based mastery learning is in a way that the final structural items,

evaluations and goals will be obtained regarding the educational goals of each course. During each course, some decisions may be taken on the program and method of training and organization will be made to reach to the proper performance [2].

Definite educational program of this method will encourage the student for self-oriented learning and also determine the drawbacks of the educational program. The ability to identify the controversial items, focusing on the relationship between the educational program and clinical skills are other advantages of this educational method. It also determines the educational continuity for each

educational period from the low to high levels and also professional advances. This method will result in regular results and the program can be regulated from the beginning till reaching to the arbitrary goals. By expressing the anticipated results, this method has high potential to obtain the required outcomes. In the other words, it determines description of everything, parameters and the routs to achieve them [2].

One of the main concepts of competency-based mastery learning system is the clinical and professional competency.

Competency has been defined as the degree to which the people can use their professional knowledge and skills for a wide range of situations. Concepts such as knowledge, skill and standards are among the main concepts of professional competency [3].

Performance level difference of these two types of training with other methods can result in better development of scientific and experimental concepts and that's why it has replaced the conventional methods [4].

Bradshaw expressed that the concept of mastery is one of the main concepts of this system. Competency-based mastery learning systems is focused on students'' learning and also their performance. The concept of performance has to be clear and understandable for the students of this system. In this way, the education will result in enhancement of basic and expert skills [5].

He also said that the competency based mastery learning is the reflection of these three items;
1- What students know (their basic knowledge level)
2- What they can do according to their skill and performance capacity in clinical situations (level of basic skills)
3- Their self-confidence and ability to play the roles and achieve to the goals of competency-based mastery learning system (specialized knowledge and skills levels) [5].

Today, many of clinical trainers are searching for educational methods by which it is possible to teach the clinical skills to the students. The best method in this regard is application of a method in which the learners could actively participate in learning and be able to receive a proper feedback from their learning items. Mastery learning is the learning method up to becoming a master in the mentioned field [6]. Speady referred that it is important to know that competency-based mastery learning is to provide clear statements of learning which assure us that the education process is specifically designed for obtaining the anticipated outcomes. This type of education will result in flexibility in presentation and let the programmers design their programs based on their achievements without following the conventional methods [7].

The performances should be a reflection of educational content quality and the learners should be able to learn the items based on the predicted timetable and according to the factors of competency-based mastery learning. They should also enhance their performance skills [8].

Calmenhein et al. conducted a research on the concept of competency-based mastery learning in cancer care unit which was designed to train the nurses of these units with new method. They determined 4 levels to reach to the clinical competency: specialized education, skills of conducting specific treatments, quality of care and treatments and organization of the clinical role and its evaluation [9]. They concluded that achievement-based educational method formed a framework of clinical competency in these units by which the nurses can apply high quality decision making and cares for all the patients and present their specialized, supporting, treatment and management roles in a higher quality level [9]. Mastery learning is rooted in the thoughts of John Karol. He believed that what differentiates the learners is their required time for learning. By giving adequate time, all learners can learn to a proper level.

Mastery learning method has some stages: determination of the educational goals, primary evaluation, determination of the mastery level, performance of the educational course, developmental evaluation and modification education and concentration evaluation. It has to be mentioned that, like other methods, this method also suffers from some disadvantages like being time-consuming and requiring more help for

weaker students as the trainers will spend most of his/her time for them. On the other hand, it has numerous advantages [10]. Experts believe that the learner has to understand that if he/she wants to advance he/she has to do it even if it requires long time. The most important advantage of this method is that the students will be very capable and you can be sure that they have the minimum requirements of their future duties. Regarding various weak pints in the performance of the nursing students and lack of a study on the effect of mastery learning on clinical training of nursing, this study is aimed to compare the conventional training with the mastery learning.

MATERIALS AND METHODS

This is a semi-empirical study whose research population included all day-time nursing students of nursing and midwifery faculty, Urmia University who had selected ICU internship in the first semester of 2010-2011 as one of their units.

Data collection was carried out by questionnaires. First, by means of Delphi method, the expected achievements of clinical internship in ICU were determined and then a test was designed according to the research objectives. After determination of the reliability and validity, the necessary coordination was made with the educational authorities of nursing and midwifery faculty and the students were asked to gather in a classroom in a specific time. In that session, the pretesting was conducted and the objectives of the research were explained and the consents of the students to participate in the study were obtained.

After the end of this session, the students were divided into two groups: control and test. The training session of the control and test groups were held in ICU of Taleghani Hospital. The control group received the conventional training while the test group was trained by competency-based mastery learning. After 4 weeks, the evaluation was carried out by checklist. Finally, after the training sessions, the students were asked to participate in a public session and they underwent post-test without previous inform. The results of pre-

and post-test were then compared and analyzed.

For evaluation, the results obtained were coded and analyzed by SPSS V 18 software. Descriptive statistical methods such as frequency distribution tables, mean, variance and standard deviation along with analytical statistics methods such as even T-test, single sample T test, correlation coefficient, Wilcoxon and U Mann-Whitney tests were employed. For completing the checklists, the obtained scores of each student were completed by observation and then calculated. Calculation of the scores involved score of 1 for complete and correct performance of the task while in case of incorrect performance the score of 0 would be considered for the students.

RESULTS

In both groups, girls were the majority (60%). However, in terms of U Mann-Whitney tests, there was no difference between the genders in terms of their and the type of training.

Table 1. distribution of the research units in control and test groups in terms of clinical skills

Groups / Clinical skill	Control group	Test group
Mean and standard deviation before training program	16.3±4.24	17.45±5.70
Statistical test result	P=0.47>0.05	

Table 2. distribution of the research units in control group in terms of their clinical skills before and after conventional training

Groups / Clinical skill	Control group
Mean and standard deviation before training program	16.3±4.24
Mean and standard deviation after training program	18.45±5.30
Statistical test result	P=0.40>0.05

Table 3. distribution of the research units in test group in terms of their clinical competency before and after competency-based mastery learning

Groups / Clinical skill	Test group
Mean and standard deviation before training program	17.67±4.90
Mean and standard deviation after training program	26.42±3.00
Statistical test result	P=0.001<0.01

Table 4. distribution of the research units in control and test groups in terms of clinical skills after he training

Groups / Clinical skill	Control group	Test group
Mean and standard deviation after training program	18.45±5.30	26.42±3.00
Statistical test result	P=0.011>0.01	

Based on Table 1 and T-test, regarding the amount of P-value (P=0.46) there was no statistically significant difference between the means of the control and test groups before the training program. Table 2 expresses that based on the T-test results of the two dependent samples (P=0.40), there is no statistically significant difference between the mean values of control group before and after the conventional training.

Table 3 shows that that based on the T-test results of the two dependent samples (P=0.001), there is a statistically significant difference between the mean values of test group before and after the training.

Table 4 says that based on the T-test results and P-value of the samples (P=0.011), there is a statistically significant difference between the mean values of control and test groups after the conventional training.

DISCUSSION AND CONCLUSIONS

Although the mentioned results and comparison of the findings indicate the key role of nursing education programs, especially competency-based mastery learning, in enhancement of professional competency, but this subject that whether application of competency-based mastery learning programs in nursing-related education can resolve all the weak points of classic training and education and fulfill all the needs of the nursing students including their professional knowledge and skills needs further studies and investigation.

As the results of this study revealed that the performance the control and test group (receiving conventional and competence-based mastery learning, respectively), therefore it is recommended to address the underlying reasons of such differences from the view point of the students.

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