

Evaluation of the Effect of Clinical Education Based on Nursing Process on Self-Efficacy of Nursing Students

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Received: 22 November 2017 / Received in revised form: 18 May 2018, Accepted: 23 May 2018, Published online: 05 September 2018
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Abstract

Background: Self-efficacy plays important role in providing care for patient by nurses independently. In addition, the most important method to enhance the quality of nursing care is to use standards in care. Thus, the objective of this research is to evaluate the effect of clinical education based on nursing process on self-efficacy. **Methods:** This research is an experimental study. Samples of this research included fifth semester nursing students (n=24). Subjects were randomly assigned into two groups of intervention (n = 12) and control (n = 12). The intervention factor was providing nursing care based on the nursing process and data collection tool included generalized self-efficacy questionnaire. It included 17 questions in four clinical, theory, motivational, and organizational domains. To determine the validity of the tool, face and content validity methods were used and the Cronbach's alpha to determine the reliability of the tool was obtained to be 0.82. The data were analyzed using SPSS 19 software and Chi-square, and Mann-Whitney tests. **Results:** In this research, 18 subjects (75%) were male and 6 subjects (25%) were female. The age range of them was 21-27 years old. The Mann-Whitney test in comparing the two groups revealed no significant difference in mean score of self-efficacy before the program implementation, but the mean scores were increased in the intervention group after educating the nursing process domains and this increase was statistically significant ($p < 0.001$). **Discussion and Conclusion:** The current research showed that nursing process education is effective in improving self-efficacy and increased clinical self-efficacy leads to improved clinical performance. Thus, educators of this profession should pay special attention to their teaching method in this regard.

Keywords: Clinical Education, Nursing, Self-Efficacy, Students.

Introduction

Clinical education has a special status in the nursing education system (Campbell & Dudley, 2005) and its main goal is to help students achieve the highest level of learning, which is professional competence (Freiburger, 2002). One of the theories, which can be used to assess the confidence level of students in performing the clinical skills is Bandura's self-efficacy theory. He has defined self-efficacy as one's belief in the ability to perform the desired functions (Bandura, 1994).

Self-efficacy was derived from social recognition theory of Albert Bandura (1997), a well-known psychologist. This theory refers to one's beliefs or judgments and the ability to perform tasks. According to social recognition theory, it is based on a model, which has three aspects of behavior, environment and person (Sexton, 2016). Self-efficacy affects ideology of people, the way of coping with problems, decision-making, mental health, physical health, selection of goals and access to them, coping with stress, health behaviors and patients' satisfaction, and it plays major role in applying knowledge and professional skills (GHafari & Rezayi, 2011). Self-efficacy beliefs have a special status in different aspects of our daily lives (Maddux, 2002) and play major role in the process of individual decision making, thinking modes, and problem-solving methods (Abram et al., 2008). Self-efficacy is very important in educational settings, since according to Bandura, such settings are suitable for the growth and development of self-efficacy (Bandura et al., 1994). In traditional methods, students just memorize the materials and the only source to receive the information is educator. Such students merely perform the tasks unconsciously and they act passively (Su, 2007).

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One of the most important methods to enhance the quality of nursing care is to use the standards. One of these standards is the use of the nursing process (Taylor et al., 2010). The nursing process is being implemented in health systems of most of the developed countries (Akbari & Shamsi, 2011). The nursing process is a framework for planning and implementing nursing care for the patient and family. It is in fact a systematic approach to nursing thinking. (KaramiKabir & hasantehrani, 2012). If nursing process is implemented well, it would be possible to achieve comprehensive care of the patient based on scientific principles (Nohi et al., 2010).

Lack of implementing of nursing process as a care standard leads to reduced quality of care provided, reduced job satisfaction, reduced nursing quality scientifically and practically, lack of proper evaluation, indifference of some officials for this field of study, reduced value of the profession from the perspective of nurses themselves, excessive dependency of nurses to physicians, blind information, act without thinking, reduced independence of patients, and spending much money due to repeated actions (Akbari & Shamsi, 2011). Studies have indicated that most of the nurses consider lack of complete knowledge on the concept of nursing process and inadequate learning about it as the most important barriers in implementing the nursing process (Akbari, 2010; Akbari & Shams, 2010).

As the main goal of nursing is providing mental, biological and social care for patients, one of the main concerns of nursing managers is inadequate information of the nurses, affecting their performance. Thus, in order to prevent such problems, nursing educators should improve problem solving skills, creative thinking, and information storage capacity of learners by using new educational methods (Amouzeshi et al., 2015).

Researchers have realized that there is a positive relationship between student self-efficacy and critical thinking and self-efficacy should be considered as a motivational factor in improving critical thinking skills of students. They emphasized that self-efficacy can be considered as one of the predictors of critical thinking (Dehghani et al., 2011; Shaabani et al., 2011; Peyman, 2011). Thus, as self-efficacy is a major motivating factor affecting the critical thinking and lack of adequate motivation prevents development of critical thinking (Wang & Wu, 2008). Studies have shown a significant relationship between self-efficacy and nursing performance in students of different semesters (Oldenberg et al., 2005; Haghani et al., 2013).

In addition, the nursing process is considered as main component of nursing profession and a way to achieve critical thinking, to analyze patient care problems, and to make timely decisions (Nohi et al., 2010). As a result, as nursing process improves the quality of nursing care and strengthens critical thinking to make clinical decision effectively. Clinical education based on the nursing process can be a factor in increasing student self-efficacy in clinical settings. Given the importance of this issue and lack of available study in this regard, this research was conducted to evaluate the effect of nursing education on the self-efficacy of nursing students.

Methodology

This research is an experimental study, which its samples included all fifth semester nursing students (n = 24). Students were matched in terms of gender and GPA of the previous semester. Then, they were divided into four groups (n=6). The subjects were randomly assigned into two groups of intervention (n=12) and control (n=12). The intervention factor was providing nursing based on the nursing process. The duration of the course was one semester. The first and second groups admitted to the surgery unit performed their internship in routine way and they were considered as the control group and the third and fourth groups were educated based on nursing process and they were considered as intervention group. To ensure that the students of the groups have the same level of ability, they were pre-tested using researcher-developed writing skill test of nursing process. In order to determine the functional level, the intervention group students were asked to take care of one patient based on their knowledge and submit their care report to the relevant professor. In the intervention group, clinical education was provided by educator based on the nursing process for 10 days and 5 hours per day based on the basic concepts Brunner and Sudareth's book in the form of an internship course. Accordingly, educator along with the students fully implemented the nursing process for several patients, and asked each student to fully examine the patients and implement the nursing process and finally submit their report verbally in patient bed side and in written. In the first week, the educator educated the headlines of examination and recognition, nursing diagnosis, planning, prioritization and evaluation to make students familiar with the nursing process. Goals in one week and the continuation of process in the second week of internship and in total a course of a process report were delivered from the students. Then, during the course of care, it was presented based on the nursing process and verbal reports were taken from students. At the end of each week, students were required to submit their weekly work report in the form of paper work in the written. One week after the end of the course, the self-efficacy questionnaire of nursing care was provided to both groups. The group control method was so that the subjects in the intervention group were educated and they were told that they were being examined in this study and the control group subjects were not aware of the program. Moreover, the effectiveness of the program showed an increase in

self-efficacy score in the intervention group. After conducting the study for the control group, a workshop under title of nursing process education was hold for them in order to observe ethics. Then, the data were analyzed.

With consultation of statistics professor and based on the research conducted by (Nohi et al., 2010), the mean and standard deviation of ICIQ (International consultation on incontinence questionnaire) were obtained 90.7 ± 2.33 and 12.30 ± 3.6 for intervention and control groups, respectively, and 24 samples were found to be adequate.

$$N = \frac{\left(z \frac{\alpha}{2} + z\beta\right)^2 (S1^2 + S2^2)}{(\mu1 - \mu2)^2} = \frac{(1/96 + 0/84)^2 (2/33^2 + 3/6^2)}{(9/07 - 12/3)^2} = 24$$

Face validity and content validity were used to determine the validity of data collection tool, and two internal consistency methods were used to determine the reliability.

Data collection tool included generalized self-efficacy questionnaire (GSE), which includes 17 questions scored on a five-point Likert scale from "strongly agree, agree, no idea, disagree and strongly disagree", based on the questionnaire instructions. The general self-efficacy questionnaire was designed in the form of 17 questions with four domains of clinical domain (5 questions), the theory domain (4 questions), motivational domain (4 questions), and the organizational domain (4 questions), in which the maximum score is 85 and the minimum score is 17. In order to determine the validity of data collections tools, the content and face validity method was used. Accordingly, after studying several books and articles, the data collection form was prepared and after the approval of supervisor and advisor, it was provided for ten faculty members of School of Nursing and Midwifery of Bam and 5 nurses working in the hospital. It was also examined in terms of simplicity, clarity and relevance of the contents of the questions and inter-group coefficient of correlation was used to determine the tool stability and Cronbach's alpha was obtained to be 0.82 in determining the reliability of the tool.

Results

In this research, a total of 24 fifth semester nursing students were examined, which 18 (75%) were male and 6 (25%) were female. The age range of them was 21-27 years with mean of 21.67 and SD of 2.78. Out of them, 20 (83.33%) were single and 4 (16.665%) were married.

The Mann-Whitney test in comparing the two groups revealed no significant difference in mean score of self-efficacy before the program implementation, but the mean scores in the intervention group after educating the nursing process domains were increased and this increase was statistically significant (Table 1).

Table 1: The mean score of self-efficacy and pre-post difference in control group and intervention group before and after nursing process education

z	Control	Intervention	Result of Mann-Whitney test
	Score (Mean ± SD)		
Before intervention	7.23 ± 35.62	7.33 ± 29.87	1 ≠ P
After intervention	7.12 ± 35.89	7.18 ± 51.6295	0.001 < p
pre-post difference	0.50 ± 0.68-	0.380 ± 16.02	0.001 < P
Wilcoxon test result	0.520 = P	0.001 < P	

Investigating the correlation between the total score of education of nursing process domains and total score of self-efficacy revealed a positive and significant relationship ($r = 0.46$, $p < 0.001$) between these two variables. In other words, the total evidence-based education score explains about 32% (0.56) of the variations in total score of self-efficacy. The results of the correlation test between education of nursing process domains and clinical self-efficacy revealed a significant relationship between nursing process domains and total self-efficacy. As the value of this coefficient is positive, it can be stated by increasing one of them, the other one also increases (Table 2).

Table 2: results of correlation between nursing process domains and clinical self-efficacy

Variable	clinical/clinical self-efficacy	theory/clinical self-efficacy	motivational/ clinical self-efficacy
		organizational/self-efficacy	
Correlation coefficient	0.385		0.240
	0.220	0.189	
P	0.001		
	0.001		0.001

Discussion

The current research showed that nursing process education increases self-efficacy in students. Results showed that the difference in mean of self-efficacy scores in intervention group was significant ($p < 0.001$). Thus, nursing process education improves self-efficacy among students. In this regard, Oldenberg et al., showed a positive relationship between self-efficacy with nursing performance process (including patient examination, planning, implementation and evaluation of care program). Moreover, educator behavior was the only variable, which showed significant relationship with students' nursing process and their self-efficacy in the research (Oldenberg et al., 2005). Haghani et al also found a positive relationship between self-efficacy and clinical performance of students (Haghani et al., 2013). However, inconsistent results have been obtained in some studies. For example, in the research carried out by Choi (2005), the results did not show a significant relationship between self-efficacy and academic performance of students and self-efficacy adjusts the students' performance through increased effort, endurance, and self-correction (Choi, 2005).

As nursing process is a kind of critical thinking, the results of research conducted by Orujloo et al., which showed a positive relationship between self-efficacy beliefs and critical thinking skills of nursing students (Orujlu & Hemmati, 2017), are in with those of current research. Bandura also stated that there was a significant relationship between critical thinking and self-efficacy metacognitive variables such as motivation and self-efficacy beliefs (Bandura, 2001). Maafian et al conducted a study to evaluate the effect of blended e-learning on the learning and self-efficacy of nursing students. Given the inadequacies in the current system of education and traditional methods in preparing students, and considering the results of this research, the blended e-learning strategy not only enhances the learning and efficacy of nurses, but also can help planners in management of the diseases and enhancing the graduated students' services (Mafyan et al., 2014). As nursing process education is a critical and evidence-based thinking and can be a blended e-learning, they are in line with results of this research.

The results of the research carried out by Bahadori et al. also revealed a strong and positive relationship between clinical self-efficacy and creativity. It was stated that in the students' curriculum, in addition to inclusion of courses to increase the creativity students (with emphasis on expansion to details dimension), the process of evaluating the nursing process in clinical settings should be emphasized, since it might be effective in improving their clinical self-efficacy as a critical clinical skill in patient care (Bahador et al., 2016). Moreover, clinical care skills have been defined and accepted in various communities as one of the main competencies of professional nursing (Assadi et al., 2014). In this regard, frameworks, indicators and strategies, which can ensure patient diagnosis and care, seem to be essential. These frameworks can be presented as nursing process guidelines (Leoni-Scheiber et al., 2016). On the other hand, clinical education and preparation of students to accept different roles in the health system are considered as the important activities and goals of nursing schools (Akbari & Shams, 2010). In nursing profession, it is enough to perform the tasks, but the ability to combine knowledge, attitude, values, and psycho-motor skills are essential (Almutairi, 2017).

Thus, according to results of this research and the similar results of other studies, nursing education has an effect on the self-efficacy of nursing students. Hence, educators should create effective and stimulating settings, where students can improve their meta-cognitive skills and planning abilities. Increasing clinical self-efficacy helps improve clinical performance of students. Lack of attention to improving the self-efficacy of students in the clinical setting reduces the quality of trained human resources in the nursing profession and educators should pay special attention to their teaching method in this regard. Moreover, lack of their self-efficacy should be considered by educational authorities. Professors can guide the students toward constructive interaction and development of self-efficacy by creating desired conditions in the clinical setting and by discussion and exchange of the views with students.

Conclusion

The current research revealed that nursing process education is effective in improving the self-efficacy of nursing students. Nursing students need to acquire the ability and knowledge on taking care of the patients in clinical settings during their studies. Self-efficacy plays key role in providing care for patient independently. Thus, nursing educators play an important role in increasing the self-efficacy of students, providing the conditions to acquire professional independence and develop their nursing capability. This is outcome of selection of learning/teaching method in universities.

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