A Study of the Effect of Integrated Education of Professional Operating Room Skills on the Undergraduate Operating Room Students' Professional Self-Concept

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Abstract

Introduction: Professional self-concept is an individual's perception of himself as a professional and influences his thinking, role evolution, professional behavior and performance. Integrated education technique provides the opportunity for interaction and feedback at higher levels of learning. Among employed job, nursing needs to be further enhanced by professional self-concept. Therefore, present study aimed to determine the effect of integrated education of operating room skills on the undergraduate operating room students' professional self-concept.

Background and objective

Professional skills training and patient safety have become ever-increasing challenges for operating room instructors and students. Integrated education technique provides the opportunity for interaction and feedback at higher levels of learning. Applying this approach results in the discovery of knowledge and active learning, and facilitates the learning of problem-solving skills, creative critical thinking, clinical reasoning, and self-efficacy. The present study aimed to study the effect of integrated education of professional operating room skills on the undergraduate operating room students' professional self-concept.

Methods: In this experimental study, 104 undergraduate operating room students who were studying the Faculty of Nursing and Midwifery of Shiraz University of Medical Sciences were selected as samples and randomly divided into two experimental and control groups. In both groups, the participants filled the research questionnaires before and immediately after the intervention (participating in an education program). The control group was taught only by the typical program and the experimental group weekly participated in 6sessions of blended education program. Kolmogorov-Smirnov statistical test was used to investigate the data normality. In addition, independent t-test, paired t-test, chi-square test and Fisher test were used to analyze the data.

Results: According to the results of present study, in the experimental group, there was a significant difference between the mean self-concept scores of the operating room students before and after the intervention (P = 0.005). Thus, the intervention increased the mean self-concept score. Also, the greatest change was observed in the leadership dimension.

Conclusion: The trainings designed with the purpose of developing the students' professional skills and provide a positive image of the profession, can increase the operating room students' professional self-concept.

Keywords: Self-concept, the operating room students' self-concept, Professional self-concept, Operating room students, Educational-orientation program, Integrated education,

1. Introduction

From the perspective of psychology, there are various definitions of self-concept presented with the emphasis on its various elements. Self-concept is one of the main concepts of Rogers's theory, and includes the features that a person, as a unique entity, understands about himself. Self-concept is acquired through social relations. Rogers believes that self-concept is a concept instructed as the result of the individual's interactions with the environment and is mainly based on the others' evaluations; therefore, the person assesses himself based on what others think of him and not what he thinks of himself. According to Rogers, one judges him/herself from the views of others because of his/her need to others' attention (Brahnei & Shambloo, 2001).

Byrne (quoted by HujiVerinzoli) provides a precise definition of self-concept and believes that self-concept includes our attitudes, emotions and awareness of our abilities, skills, appearance and social acceptance (Byrne, 1984).

In other words, self-concept affects both an individual's perception of the universe and his behaviors (Brahnei & Shambloo, 2001).

Professional self-concept is an individual's perception of himself as a professional and influences his thinking, role evolution, professional behavior, and performance (4.3).

In the last few decades, the psychologists' perspectives on the nature of self-concept have evolved. The early scholars assumed the nature of self-concept as one-dimensional, unitary and constant. While contemporary thinkers believe that self-concept is a dynamic and multi-dimensional construct (Campbell et. al., 1996). According to Rogers, a person who has a strong and positive self-concept, will have different views of himself and the world compared to a person with poor self-concept (Brahnei & Shambloo, 2001).

Professional skills training and patient safety have become ever-increasing challenges for operating room instructors and students. The main objective of the curriculum is to prepare the graduates to cope with the challenges in the operating room, such as the change in patient's characteristics, science and information technology, increased complexity of health and care, as well as setting policies and professional standards (Hegarty et. al., 2009).

The objective of the curriculum is to transfer the critical principals and basic skills of the operating room to the students and to stimulate wisdom and critical thinking in order to engage the learners in learning experiences. Despite the educational advancements in the training of operating room students, teacher-centered strategies still prevail over other methods internationally, so instructors need to find new ways to convey the contents (Brown et. al., 2009). Using learning theories such as experiential learning, adult learning, etc. and some concepts such as self-sufficiency and self-actualization are more or less common in the traditional operating room skill training. But it should be noted that learning cannot be interpreted just by a single perspective (Ironside, 2004). New interpretations of these learning theories are focused on the exploration of the knowledge related to learners and aim at expanding the learners' reference framework. This explored knowledge is based on the students' daily experiences and aims at integrating the cognitive and emotional aspects of comprehensive learning (Mezirow, 2000). Learning-based training should be focused not only on student's information and daily experiences, but also on achievement of new information (Beers, 2005).

Integrated education technique provides the possibility of combining problem-based learning with simulation in order to facilitate the interaction and feedback at higher level of learning (Davies, 2008). Student's characteristics in relation to cognitive and emotional areas including learning styles, mental abilities, prior knowledge, motivation, perspectives and learning habits are considered in the integrated education approach. This approach allows the learner to discover his interested knowledge and to actively engage in learning; it also provides the possibility of learning problem-solving skills, creative critical thinking, clinical reasoning, and knowledge evolution over time (Linder & Pulsipher).

Simulation has been widely studied in adult education but it has been considered as an independent strategy. There are a few studies on the combination of both traditional methods and simulations in operating room instruction (Sullivan-Mann et. al., 2009). Steadman et al. (2006) have conducted a study in which medical students were randomly divided into two simulation and problem-based learning groups (Steadman et. al., 2006). The results of their study showed that simulation group acquired more patient assessment and management skills than problem-based learning group. In a study carried out in Singapore, a combined method of simulation and problem-based learning and a single strategy method of problem-based learning were compared in students' learning. The students' scores in the combined method group were higher than those in single strategy method group (Liaw et. al., 2009).

In a larger study in Korea, first year nursing students participated in a combined unit including problem-based strategy and simulation, and were compared with the control group taught only by traditional teaching methods. In this study, the core competencies of nursing students were measured over a period of 9 weeks. Researchers found that self-directed learning skills increased in intervention group, so that the students actively participated in learning (Lee et. al., 2009).

Liner and Pulsipher (2008) have described the undergraduate nursing students' learning experiences of simulation in Utah, USA. In their study, students spent one-day clerkship as a "Sim day". The sim day included 6 hours of clinical learning topics in which students used a human patient simulator to learn howto perform a physical examination of children, to identify the deterioration in the patient's condition, and to describe the findings systematically. This simulation program was implemented immediately before starting the pediatric clerkship, and it ended with inductive teaching-learning strategies as well as case-based learning. The results showed that using the combination of teaching and learning strategies improved the students' view of the child patients. The researchers noted to the need for strategic planning before combining active learning-teaching methods (Linder and Pulsipher, 2008).

Wong et al. (2008) reported the modification of a model including the use of problem-based learning in a simulated clinical setting. This study which was designed to facilitate the translation of theoretical knowledge to clinical information, was a part of a larger study aimed at introducing a problem-based learning strategy in clinical education in Hong Kong. This study presented a model could be used to apply problem-based learning in a simulated clinical setting by an instructor. The problem-based learning part included third-year nursing students, an experienced clinical instructor and a human patient simulator who simulated five caring measures before surgery. Each measured was taken and filmed for 45 minutes. Although much research is needed to validate validity of the model, success of the study was based on a specific event, that is, a patient that is being prepared for an appendectomy surgery (Wong et. al., 2008).

Sinclair and Ferguson (2009) have applied a combination of lecture and simulation techniques in Ontario to investigate the understanding of self-sufficiency for clinical care among second year nursing students (250 people). This hybrid method, in spite of much effort, increased the students' trust and supported learning from peers (Sinclair & Ferguson, 2009). According to its researchers, the obstacles to the implementation of simulation are lack of time, resources and technical abilities. Also, they were previously mentioned as the main reasons for the instructors' reluctance to implement simulations by Kardong-Edgren et. al. (2008). However, Kardong-Edgren, according to his findings, stated that experience of simulation provides more satisfaction of students and instructors compared to other learning methods (Kardong-Edgren et. al., 2008). Zarshenas et al.

showed that self- efficacy score increases after the use of interactive multimedia in high school students (Zarshenas et. al., 2017).

One of the factors affecting the academic achievement is self-concept. Students with more positive self-concept will have more academic achievement (Asadollah & Afsane, 2011). In recent years, raising the self-concept of learners has been discussed as an important objective in higher education (Haber et. al., 1987) and its importance in health professions was understood (Cowin & Hengstberger-Sims, 2006).

Among employed jobs, nursing needs to further raising of the professional self-concept (Badiyepeymaye, 2012; Shaw & Timmons, 2010; Badiyepeymaye et. al., 2014).

Nurses with higher professional self-concept have more responsibility to patients and their outcomes. They care their patients with more respect and interest (Cowin & Hengstberger-Sims, 2006; Badiyepeymaye et. al., 2014; Najafi et. al., 2014); they have more effective staff relations and observe ethical principals in their care of patients (Kelly & Courts, 2007). They also use their experiences in the best way (Badiyepeymaye et. al., 2014).

In contrast, nurses with lower self-concept consider themselves less qualified in their clinical competencies (Badiyepeymaye, 2012), they have more work stress (Cowin & Hengstberger-Sims, 2006), less job satisfaction and more turnover intentions (Cowin & Hengstberger-Sims, 2006, Badiyepeymaye et. al., 2014, Najafi et. al., 2014; Kelly & Courts, 2007).

The operating room setting is one of the most stressful working setting. Unfavorable environmental factors, high workload, a few number of employees and heavy responsibility are effectively results in incidence of tension (Jahanbin et. al., 2012). The best time to learn how to deal with job stress and to raise self-concept is the time of being student. Therefore, present study aimed to investigate the effect of integrated education of professional operating room skills on the undergraduate operating room students' professional self-concept.

2. Methods

The present study is an experimental study with two-group pre-test and post-test design. The research population included all undergraduate operating room students at Faculty of Nursing and Midwifery of Shiraz University of Medical Sciences. To estimate the sample size, a study by Heydari et al. (2014) and statistical counseling were used (Heydari et. al., 2014). The variables of μ_1 = 169/5, μ_2 = 184/4, Sd = 26, α = 0.05 and β = 0.2 (power of 80%) were considered. Considering dropout rate of 10%, the sample size was estimated 104 people (52 persons for each Group).

$$n_1 = n_2 = \frac{2\left(z_{1-\frac{\alpha}{2}} + z_{1-\beta}\right)^2 Sd^2}{(\mu_1 - \mu_2)^2}$$

Sampling was done census sampling method. All undergraduate students at the Faculty of Nursing and Midwifery in Shiraz, who were eligible for present study, could voluntarily participate in it. After obtaining a permit from Shiraz University of Medical Sciences, the researcher referred to eligible students and asked them to participate in present study, if they accept, the informed consent was received from them. Then, the participants were assigned to two control and experimental groups by permuted block randomization method (permuted blocks of 4). Nurses' self-concept questionnaire was completed in two stages before and after intervention by participants. Double blinding was conducted to avoid probable bias to help researcher and statistical analyst. The inclusion criteria are:

- Being undergraduate student in operating room at Shiraz University of Medical Sciences
- Not having any illness or mental disorder

Exclusion criteria are:

- Being reluctant to continue cooperation
- Being absent in training classes for more than one time
- Being illness and hospitalized

The intervention was to participate in a six-day workshop on the integrated education of professional skills in the experimental group. Each session lasted about 4 to 5 hours, depending on the objective. The workshop was conducted within a week and at the break time between the two terms, to prevent the interactions between the two test and control groups. In the professional skills training workshop, the philosophy, the position and professional values of the operating room nursing, the introduction of operating room nursing as a profession, the professional role of operating room nursing, challenging situations management were trained by role-playing and combining problem-based learning and simulation. In the first session, interpersonal relation, effective communication, body language, the importance of verbal and non-verbal behaviors, awareness of the quality of their relations with others and observation of privacy in relations were trained. The second session was focused on self-awareness, the Johari window and its role in relation, self-esteem, self-confidence and other components of self-concept. Professional skills were trained in details during the third to fifth sessions. All sessions were held using problem-based learning strategies and role-playing. In each session, based on the objective, one topic was presented to the students. One hour was considered for group discussion and searching Internet resources and existing books at the workshop. Then, the students again joined their groups and provided new information to each other. The first and second researchers, as the leaders, guided group discussions and, in some cases, corrected the paths of explorations.

The sixth session was dedicated to the introduction of successful professionals. Successful professionals explained the factors playing key role in their successes, the global perspective on the profession and individual responsibility to the operating room profession, and described their bitter and sweet professional experiences for the participants in the experiment group. There was no intervention for the control group. The demographic information questionnaire and nurses' professional self-concept questionnaire were filled at two stages, before and immediately after the end of intervention by all participants.

Demographic information questionnaire included the items on age, gender, work experience, level of education, occupational status, marital status, etc. The formal content of the demographic information form was confirmed by three professors.

Nurses' self-concept questionnaire was designed and validated by Cowin et al. (2001). The questionnaire consisted of 36 questions on six dimensions of general self-concept (questions 1-6), caring (questions 7-12), knowledge (questions 13-18), staff relations (questions 19-24), communication (questions 25-30) and leadership (Questions 36-31). Each of the questions was expressed positively and scored based on 8-point Likert scale. The total score of each person ranges between 36 and 288. A greater score indicates better self-concept. The overall score of each dimension is calculated by dividing the score obtained in that dimension by the number of questions raised in that dimension (24 and 33).

Badiyepeymaye et al. (2014) investigated the validity and reliability of the Persian version of the Nurses' Self-Assessment Questionnaire (NSCQ). The reliability of the questionnaire was measured usingsplit-half and Cronbach's alpha coefficient. In order to assess its validity, exploratory factor analysis and Spearman-Brown's correlation coefficient were used. Spearman-Brown's correlation coefficients and Cronbach's alpha were estimated 0.84 and 97, respectively (34).

In order to analyze the data, SPSS 18 software was used after data collection. Descriptive and inferential statistics were used to analyze the data. Kolmogorov-Smirnov test was used to examine data normality. Moreover, independent t-test, paired t-test, chi-squared test and Fisher test were used for data analysis.

3. Results

According to the findings of present study, the mean age of the participants was 23.2 ± 5.1 years. About 82% of participants were female and 22% of them were male. There was no significant difference between the control and experimental groups in age (P = 0.76). Also, the two groups were

similar in terms of gender, marital status, having chronic disease, and being satisfied with disciplinary (Table 1).

Table 1. Comparison of demographic data between control and experimental groups

Variable	Group	Experimental group n(%)	Control group n(%)	Total n(%)	p-value
Gender	Male	13(25)	9(17.3)	22(21.2)	0.33*
	female	39(75)	43(82.7)	82(78.8)	
Marital status	Married	17(32.7)	18(34.6)	35(33.7)	0.83*
	Single	35(67.3)	34(65.4)	69(66.3)	
Having chronic disease	Yes	1(2)	1(1.9)	2(2)	1**
	No	51(98.1)	49(98)	100(98)	
Being satisfied with disciplinary	Yes	36(69.2)	35(70)	71(69.6)	0.83**
	No	16(30.8)	14(30)	30(29.4)	

* Chi-square test

**Fisher test

About the main objective of present study, the mean of self-concept scores of the two groups were compared with each other using independent t-test (between group comparison). Then, the paired t-test was used to analyze the self-concept scores of each group obtained before and after intervention.

In the experimental group, the operating room students' average total score of self-concept significantly increased from (224.36 ± 38.47) to (237. 38 ± 27.17). But in the control group, it significantly decreased from (218.1 ± 42.80) to (211.9± 42.20) ($p < 0.001$).

In experimental group, there was a significant difference between the mean self-concept scores obtained before and after intervention ($p = 0.005$), while in the control group, this difference was not significant (Table 2).

As shown in Table, in the experimental group, the students' professional self-concept scores increased as much as13.2 points after intervention and in the control group, they decreased as much as 6.92 points**.**

Table 2. Comparison of mean and standard deviation of self-concept dimensions in the control and experimental groups before and after the intervention

Self-concept dimensions	Group	Before intervention Mean±SD	After intervention Mean±SD	Statistic*	p-value
General self-concept	Experimental	33.05±9.33	36.59±7.23	10.720	<0.001
	Control	34.01±8.44	33.34±9.22	3.665	.001
	Statistic	.551	2.000		
	p-value	.583	.048		
Caring	Experimental	36.30±7.13	38.86±5.98	8.418	<0.001
	Control	37.17±6.79	36.13±6.71	5.460	<0.001
	Statistic	.633	2.189		
	p-value	.528	.031		
Knowledge	Experimental	37.05±6.90	40±5.86	7.568	<0.001

	Control	37.61±8.63	36.17±8.84	4.889	<0.001
	Statistic	.364	2.600		
	p-value	.717	.011		
Staff relations	Experimental	36.67±7.83	43.44±4.90	10.908	<0.001
	Control	37.36±8.04	36.48±7.95	2.995	.004
	Statistic	.445	5.372		
	p-value	.657	<0.001		
Communication	Experimental	38.11±6.78	43.88±3.88	10.630	<0.001
	Control	39.34±7.75	37.86±7.82	4.106	<0.001
	Statistic	.661	5.059		
	p-value	.391	<0.001		
Leadership	Experimental	34.59±7.59	43.15±13.87	4.644	<0.001
	Control	32.50±10.15	31.09±10.14	3.070	.003
	Statistic	1.192	4.965		
	p-value	.236	<0.001		
Total	Experimental	224.36±38.47	237.38±27.17	4.901	<0.001
	Control	218.01±42.80	211.09±42.20	5.976	<0.001
	Statistic	.795	3.777		
	p-value	.428	<0.001		

*paired t-test
**independent t-test

According to the above table, the greatest change was observed in the leadership dimension, and the least change was observed in the caring dimension**.**

4. Discussion

The present study aimed to investigate the effect of integrated education program on the undergraduate operating room students' professional self-concept. Based on the results of present study, the integrated education program had a positive effect on the students' professional self-concept. Thus, those students who participated in the integrated education program showed a higher level of professional self-concept at the end of the program. Although, in terms of intervention type, no similar study was found by the research team, the results of other studies on the use of other interventions in raising the nurses' professional self-concept confirm the results of present study and indicate that implementing integrated education programs can raise the professional self-concept of operating room students. In this regard, the studies by Hansel and Stoelting in Latin America, Moattari et al. in Iran, and Caroos in Turkey (Hensel & Stoelting-Gettelfinger, 2011; Moattari et. al., 2005; Karaoz, 2005) can be mentioned.

Millsen and colleagues also suggested that an education program affecting the professional self-concept of nursing students should be consistent with the students' perceptions of relevant and important content. On the other hand, how to teach and to transfer professional experiences that play a key role in the development and maturity of students as a nurse are important (Milisen et. al., 2010). It can be concluded that if some education programs with predetermined goals are planned to develop the nursing students' skills and show nursing as an independent profession with a high degree of knowledge and practice, nursing students' professional self-concept can be raised. Based on the results of present study, the integrated education program had a positive effect on the general self-concept of the students. This is consistent with the results of the study on the effect of problem solving training on nursing students' general self-concept by Moattari et al. (2005). Randall believes that the general self-concept of nursing students is fragile and this fragile general self-concept leads to the creation of internal conflict in a person, so that even if he has a high professional self-concept, it will gradually decrease. Therefore, considering the side effects of this issue is of great importance,

so that one of the applied strategies for managing this situation is to change the course of nursing education and to provide opportunities for instructors to learn the constructive methods that raise the operating room students' general self-concept (Randle, 2003).According to the results of present study, the integrated education program has a positive effect on the "care dimension" of the professional self-concept. However, in a study by Hensel and Stoelting, the caringdimension of the self-concept has not changed significantly after intervention (Hensel and Stoelting- Gettelfinger, 2011). It can be argued that if, there is a possibility for nursing students to be developed more in the areas of knowledge and practice of nursing during an education program they will be more successful. The results of present study also showed that the integrated education program had a positive effect on the communication aspect of the students' professional self-concept. The results of present study were consistent with the results of a study by Hansel and Stoelting, in which it was shown that after the implementation of the education program, the communication dimension of nursing students' self-concept has significantly increased (Hensel and Stoelting- Gettelfinger, 2011). Effective communication has been emphasized as a major factor in nursing and it is considered as a necessary term for providing high quality care to the patient. Shafakhah et al. study showed that paying attention to improve communication skills are mandatory for nursing students (Shafakhah et. al., 2015). It seems that the educational and orientation sessions presented in present study, in addition to explaining the position of communication in nursing, provide an opportunity for participants to improve their communication and interpersonal skills through group discussion and learning. Also, the researchers have tried to prevent information transfer and exchange to the control group,but there was a probability of information exchange between the two groups which was outside the control of the researchers. Although in the present study, a classical experimental design was used in two post-test and pretest groups and this is one of the advantages of present study. There was a time limitation and it was not possible to study the long-term effects of the intervention (more than three weeks). Therefore, it is recommended that future studies will be focused on the long-term effects of the integrated education program on students' self-concept.

5. Conclusion

The present study showed that integrated education program is effective in raising the self-efficacy of the operating room students. The operating room students should acquired equate ability and knowledge of caring the patient in the clinical setting during their studies. Self-efficacy plays an important role in independently creating the capability to care patient. This, in turn, can have positive effects on the professional qualifications of the graduates of this disciplinary and ultimately the quality of service delivery in clinical settings. Therefore, university instructors play an important role in enhancing the students' self-efficacy which is the basis for acquiring professional autonomy and development of their abilities.

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References

Brahnei, M. T., & Shamloo, S. (2001). Translation of the field of psychology of the Hilgard, Rita El Etkinson, Richard Atkinson (author), Ninth Edition, Tehran, Grodow, pp. 100-102.

Byrne, B. M. (1984). The general academic self–concept nomological network: A review of construct validation research. Rev Educ Res; 54, pp. 427-56.

Milisen, K., De Busser, T., Kayaert, A., Abraham, I., & de Casterle, B. D. (2010) The evolving professional nursing self-image of students in baccalaureate programs: A cross-sectional survey. Int J Nurs Stud., 47(6), pp. 688-98.

Björkström, M. E., Athlin, E. E., & Johansson, I. S. (2008). Nurses' development of professional self: from being a nursing student in a baccalaureate programme to an experienced nurse. J ClinNurs. 17(10), pp. 1380-91.

Campbell, J. D., Trapnell, P. D., Lavelle, L.F., Katz, I.M., Heine, S.J., & Lehman, D.R. (1996). Self-concept clarity: Measurement, personality correlates and cultural boundaries. Journal of Personality and Social Psychology, 70, pp. 141-56.

Hegarty, J., Walsh, E., Sweeney, J., & Condon, C. (2009). The undergraduate education of nurses: Looking to the future. International Journal of Nursing Education Scholarship, 6(1), pp. 17.

Brown, S. K., Greer, M., Matthias, A., & Swanson, M. (2009). The use of innovative pedagogies in nursing education: An international perspective. Nursing Education Perspectives, 30(3), pp. 153-158.

Ironside, P. M. (2004). "Covering content" and teaching thinking: Deconstructing the additive curriculum. Journal of Nursing Education, 43(1), pp. 5-12.

Mezirow, J. (2000). Learning as transformation: Critical perspectives on a theory in progress. San Francisco: Jossey-Bass.

14- Beers, G. W. (2005). The effect of teaching method on objective test scores: Problem-based learning versus lecture. Journal of Nursing Education, 44(7), pp. 305.

Davies, R. (2008). The Bologna process: The quiet revolution in nursing higher education. Nurse Education Today, 28(8), pp. 935-942.

Linder, L. A., & Pulsipher, N. (2008). Implementation of simulated learning experiences for baccalaureate pediatric nursing students. Clinical Simulation in Nursing, 4(3).

Sullivan-Mann, J., Perron, C. A., & Fellner, A. N. (2009). The effects of simulation on nursing students' critical thinking scores: A quantitative study. Newborn and Infant Nursing Reviews, 9(2), pp. 111-116.

Steadman, R. H., Coates, W. C., Huang, Y. M., Matevosian, R., Larmon, B. R., McCullough, L., et al. (2006). Simulation-based training is superior to problem-based learning for the acquisition of critical assessment and management skills. Critical Care Medicine, 34(1), pp. 151.

Liaw, S.Y., Chen, F.G., Klainin, P., Brammer, D., O'Brien, A.J., & Samarasekera, D.D. (2009). Developing clinical competency in crisis event management: An integrated simulation problem-based learning activity. Advances in Health Sciences Education: Theory and Practice.doi: 10.1007/s10459-009-9208-9. Retrieved from http://www.springerlink.com/content/53717g2453m2644x/

Lee, W. S., Cho, K. C., Yang, S. H., Roh, Y. S., & Lee, G. Y. (2009). Effects of problem-based learning combined with simulation on the basic nursing competency of nursing students. J Korean Acad Fundam Nurs, 16(1), pp. 64-72.

Linder, L. A., & Pulsipher, N. (2008). Implementation of simulated learning experiences for baccalaureate pediatric nursing students. Clinical Simulation in Nursing, 4(3).

Wong, F. K., Cheung, S., Chung, L., Chan, K., & Chan, A. (2008). Framework for adopting a problem-based learning approach in a simulated clinical setting. Journal of Nursing Education, 47(11), pp. 508-514.

Sinclair, B., & Ferguson, K. (2009). Integrating simulated teaching/learning strategies in undergraduate nursing education. International Journal of Nursing Education Scholarship, 6(1), pp. 7-11.

Kardong-Edgren, S. E., Starkweather, A. R., & Ward, L. D. (2008). The integration of simulation into a clinical foundations of nursing course: Student and faculty perspectives. International Journal of Nursing Education Scholarship, 5(1), pp. 1-16.

Zarshenas, L., Keshavarz, T., Momennasab, M., & Zarifsanaiey, N. (2017). Interactive Multimedia Training in Osteoporosis Prevention of Female High School Students: An Interventional Study. Acta Med Iran, 55(8), pp. 514-20.

Asadollah, K., & Afsane V. M. (2011). Relationship between Achievement Motivation, Source of Control, Self-Concept and Academic Achievement in High School Students in Tabriz County, Educational Sciences, Vol. 4, No. 13, pp. 45-66.

Haber, G, Krainovich-Miller, B, & Price, H. (1987). Comprehensive psychiatric nursing. 5th ed. St.Louis: Mosby Co.

Cowin, L. S., Hengstberger-Sims, C. (2006). New graduate nurse self-concept and retention: a longitudinal survey.Int J Nurs Stud. 43(1), pp. 59-70.

Badiyepeymaye, Z. (2012). The impact of teaching professional self-concept on clinical performance perception in nursing students (dissertation), School of Nursing and Midwifery: Shiraz University of Medical Sciences. (Persian)

Shaw, K, & Timmons, S. (2010) Exploring how nursing uniforms influence self image and professional identity.Nurs Times, 106 (10), pp. 21-3.

Badiyepeymaye, Z., et al. (2014). The Relationship between Professional Self-Concept and Nursing Students' Decision for Job Retention. Journal of Pharmaceutical and Biomedical Sciences 4(2), pp. 156-161.

Najafi, S, et al. (2014). Study of professional self-concept of nursing students of Shiraz University of Medical Science. International Research Journal of Applied and Basic Science, 8(11), pp. 1916-1921.

Kelly, S., Courts, N. (2007). The professional self-concept of new graduate nurses. Nurse Education in Practice 7, pp. 332-337.

Jahanbin, I., et al. (2012). The impact of teaching professional self-concept on clinical performance perception in nursing students. Life Science Journal 9(4), pp. 639-653.

Heydari, A., Shokouhi Targhi, H. (2014), The Effect of an ducational-rientation Program Upon Professional Self-Concept of Undergraduate Nursing Students. Iranian Journal of Medical Education, 14(6), pp. 438-494.

Cowin, L. (2001). Measuring nurses' self-concept. J nurs res, 23(3), pp. 313-25.

Cowin. L. S., Craven, R. G., Johnson, M., & Marsh, H. W. (2006). A longitudinal study of student and experienced nurses' self-concept. Collegian: Journal of the Royal College of Nursing Australia, 13(3), pp. 25-31.

Badiyepeymaye, Z., et al. (2014), Determination of the reliability and validity of the Persian version of nurses' self-concept questionnaire (NSCQ). Journal of Nursing Education, 2(4), pp. 63-71. (Persian)

Hensel, D., & Stoelting-Gettelfinger, W. (2011). Changes in Stress and Nurse Self-Concept among Baccalaureate Nursing Students. J Nurs Educ., 50 (5), pp. 290-3.

Moattari, M., Soltani, A., Moosavinasab, M., & Ayatollahi, A. (2005). The Effect of a Short Term Course of Problem Solving on Self-Concept of Nursing Students at Shiraz Faculty of Nursing and Midwifery. Iranian Journal of Medical Education. 5 (2), pp. 147-155. [Persian]

Karaoz, S. (2005). Change in nursing students' perceptions of nursing during their education: the role of Self efficacy and self concept as predictors of college students' academic performance. Psychology in the Schools. 42(2), pp. 197-205.

Milisen, K., De Busser, T., Kayaert, A., Abraham, I., & de Casterle, B. D. (2010). The evolving professional nursing self-image of students in baccalaureate programs: A cross-sectional survey. Int J Nurs Stud. 47(6), pp. 688-98.

Randle, J. (2003). Changes in self-esteem during a 3-year pre-registration Diploma in Higher Education (Nursing programme). J Clin Nurs., 12(1), pp. 142-3.

Shafakhah, M., Zarshenas, L., Sharif, F., Sarvestani, R. S. (2015). Evaluation of nursing students' communication abilities in clinical courses in hospitals.Glob J Health Sci., 7(4), pp. 323-28.