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Nursing Students' Self-Assessments of Their Professional Competencies

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ABSTRACT:
Purpose: This study aims to determine the effect of clinical practice on nursing students' professional competencies.
Material and Methods: This is a quasi-experimental study with a one-group pretest-posttest design. Its population consisted of 375 second-, third- and fourth-year nursing students who had completed at least one year of nursing education at the nursing department in a university where the study was conducted. No sampling was done, and the study was completed with 265 students who agreed to participate. The data were collected using an introductory information form and the Competency Inventory of Nursing Students (CINS). The pre-test data were collected in the second week when the students started their clinical practice, and the post-test data were collected in the twelfth week near the end of their clinical practice.
Results: A statistically significant difference was found between the nursing students' pre- and post-test mean scores on the CINS and its clinical biomedical science, general clinical skills, critical thinking and reasoning, caring, and lifelong learning subscales ($p < 0.05$).
Conclusion: Clinical practice increased the nursing students' professional competency.
Keywords: *Clinical practice, nursing, nursing students, professional competencies.*

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INTRODUCTION

Nursing is renewed over time by social, cultural and technological changes. Nursing aims to define all needs of an individual, family and society against both existing and potential problems with a holistic approach and to provide care (Akça Ay, 2010; Öz, 2010). Nurses play important roles in providing high quality health services and improving public health (Levett-Jones et al., 2011). Health services have progressed and developed along with technological developments leading to more conscious and demanding patients. Competent nurses equipped with knowledge and skills are needed to meet expectations of healthcare customers and to increase the quality of health care (Nehrir et al., 2016; Ülker, 2018). Competency is very important for quality, ethical and safe nursing care in educational and clinical environments (Flinkman et al., 2017). Competency in nursing is multidimensional and involves occupational, clinical and professional competencies. Occupational competency includes knowledge and skills related to nursing, clinical competency includes knowledge and skills specific to fields of study and professional competency includes the skills required by specific health fields (Karahan and Kav, 2018; Takase and Teraoka, 2011). Nurses with occupational competency are required to think critically, provide effective care, have a holistic approach, engage in evidence-based practices, establish effective communication and have functional competency (Cant et al., 2013; Karahan and Kav, 2018; Laird et al., 2015). Nursing students

are expected to have some competencies in order to determine patients' health conditions accurately during clinical practices and to predict and cope with health problems that may arise during nursing care (Nehrir et al., 2016). Nursing graduates are expected to be competent in skills such as physical assessment, wound care, tube and drain management, medication management, airway management, endotracheal intubation, cardiopulmonary resuscitation, patient education and infection control (Karahan et al., 2012). Training nurses with professional competency is one of the main goals of nursing schools (Boztepe, 2012).

Since inadequacies in nurses' competencies cause disappointment, job dissatisfaction and psychological exhaustion, it is important to train competent nurses and to increase competency in their work environments (Heydari et al., 2016; Karahan et al., 2012).

In a study conducted, it was determined that experience, opportunities, environment, personal characteristics, motivation and theoretical knowledge affect professional competence (Khomeiran et al., 2006). The study was conducted to determine the effect of clinical practices on nursing students' professional competencies.

MATERIAL and METHODS

Purpose and Type of the Study

This is a quasi-experimental study with one-group pretest-posttest design. It was conducted between September 2019 and January 2020 in the nursing department of a national university in Turkey.

Sampling and Participant

The population of the study consisted of a total of 375 second-, third- and fourth-year nursing students who had completed at least one year of nursing education at the nursing school where the study was conducted and had clinical practice experience. No sample selection was used, and the study was completed with 265 nursing students who agreed to participate.

First-year nursing students were not included in the study because they have no clinical practice experience.

Data Collection Tools

The pre-test data were collected in the second week when the students started their clinical practices, and the post-test data were collected in the twelfth week near the end of their clinical practices. The data were collected using an introductory information form and the Competency Inventory of Nursing Students (CINS). The data collection tools were distributed to the nursing students, and they were asked to fill them out. In order to match pre- and post-test measurements and to prevent researcher bias, the nursing students were asked to write a four-digit number on the tools.

The Introductory Information Form: This form has seven questions about the nursing students' age, gender, year of study, high school, employment status, income level and previous patient care experience.

The Competency Inventory of Nursing Students: This inventory was developed by Hsu and Hsieh in 2013 to determine the competencies of nursing students, and its Turkish validity and reliability study was performed by Ülker in 2018 (Hsieh and Hsu, 2013; Ülker, 2018). It is 7-point Likert-type scale with 43 item in six subscales: clinical biomedical science, general clinical skills, critical thinking and reasoning, caring, ethics and responsibility, and lifelong learning. Scale scores range from 43 to 301. Higher scores indicate higher competency. The Cronbach's α value of the CINS was 0.978, and the values ranged from 0.799 to 0.974 for the subscales. In this study, the Cronbach's α value of the scale was 0.97 for the total scale, and the values ranged from 0.80 to 0.95 for the subscales.

Statistical Analysis

The data were analyzed using SPSS for Windows 22 software and evaluated using numbers, percentages, minimum and maximum values, means and standard deviations, the dependent samples t-test, variance analysis, least significant difference (LSD) for homogeneous variances, Dunnet C and Kruskal-Wallis analysis for non-homogeneousvariances and the Mann-Whitney U test The data's kurtosis and skewness coefficients were also considered.

Ethical Approval

In order to conduct the research, ethics committee approval dated 07/08/2019 and numbered 08/11 and written permission from Erzincan Binali Yıldırım university where the research was conducted were obtained. Data were collected in accordance with the principles of informed consent, respect for autonomy and confidentiality.

RESULTS

Of the nursing students, 38.5% were in their thirdyear of study, 68.7% were female, and 80% hadgraduated from regular high schools. Of them, 94.7% had not worked in a health institution before, 80% had moderate incomes and 82.1% had not provided long-term care to someone before.

Table 1. Distribution and Comparison of the Nursing Students' Mean Pre- and Post-test CINS and Subscale Scores

	Pre-test				Post-test			Significance
	n	Min	Max	Mean ±SD	Min	Max	Mean ±SD	
Clinical Biomedical Science	265	5.00	35.00	23.67±5.19	7.00	35.00	25.17±4.87	t=-4.487 **p=0.000**
General Clinical Skills	265	9.00	49.00	36.86±7.51	11.00	49.00	38.72±7.16	t=-3.877 **p=0.000**
Critical Thinking and Reasoning	265	5.00	28.00	20.15±4.53	6.00	28.00	20.94±4.49	t=-2.658 **p=0.008**
Caring	265	7.00	42.00	35.79±6.24	6.00	42.00	36.60±5.77	t=-2.166 **p=0.031**
Ethics and Responsibility	265	17.00	105.00	93.22±13.30	19.00	105.00	94.39±11.79	t=-1.367 **p=0.173**
Lifelong Learning	265	6.00	42.00	34.13±6.57	6.00	42.00	35.11±5.78	t=-2.510 **p=0.013**
Competency Inventory of Nursing Students	265	61.00	301.00	243.82±36.38	65.00	301.00	250.93±33.69	t=-3.275 **p=0.001**

t: the dependent samples t-test

Table 2. Distribution of the Nursing Students' Mean Pre- and Post-test CINS and Subscale Scores by Year of Study

		n	Pre-test Mean ±SD	Post-test Mean ±SD
Second Year	Clinical Biomedical Science	90	22.62±4.60	24.33±4.48
	General Clinical Skills	90	35.16±7.46	36.92±6.08
	Critical Thinking and Reasoning	90	19.23±4.90	20.01±3.67
	Caring	90	34.97±6.55	35.88±4.81
	Ethics and Responsibility	90	92.40±14.14	94.40±8.20
	Lifelong Learning	90	34.36±5.94	35.07±5.10
	Competency Inventory of Nursing Students	90	238.73±36.70	246.61±24.06
Third Year	Clinical Biomedical Science	102	23.28±5.82	25.34±5.53
	General Clinical Skills	102	35.82±7.91	38.23±8.12
	Critical Thinking and Reasoning	102	20.04±4.51	20.90±5.38
	Caring	102	35.16±6.73	36.30±7.12
	Ethics and Responsibility	102	91.85±14.93	92.58±15.35
	Lifelong Learning	102	33.17±7.51	34.53±7.05
	Competency Inventory of Nursing Students	102	239.33±40.57	247.88±43.34
Fourth Year	Clinical Biomedical Science	73	25.51±4.50	25.96±4.20
	General Clinical Skills	73	40.41±5.65	41.62±6.06
	Critical Thinking and Reasoning	73	21.42±3.81	22.14±3.77
	Caring	73	37.68±4.61	37.92±4.44
	Ethics and Responsibility	73	96.15±8.76	96.90±9.19
	Lifelong Learning	73	35.19±5.77	35.99±4.39
	Competency Inventory of Nursing Students	73	256.37±25.67	260.52±26.11

Their mean age was 20.98±1.57, ranging from 18 to 33. The students' mean pre-test scores were 23.67±5.19 for clinical biomedical science, 36.86±7.51 for general clinical skills, 20.15±4.53 for critical thinking and reasoning, 35.79±6.24 for caring, 93.22±13.30 for ethics and responsibility, 34.13±6.57 for lifelong learning and 243.82±36.38 for the entire scale. Their mean post-test scores were 25.17±4.87 for clinical biomedical science, 38.72±7.16 for general clinical skills, 20.94±4.49 for critical thinking and reasoning, 36.60±5.77 for caring, 94.39±11.79 for ethics and responsibility, 35.11±5.78 for lifelong learning and 250.93±33.69 for the entire scale A statistically significant difference was found between the nursing students' pre- and post-test mean scores on the CINS and its subscales, except for the ethics and responsibility subscale ($p<0.05$). The students got higher mean post-test CINS and subscale scores (Table 1).

The second-year students had the lowest pre- and post-test CINS mean score, and the fourth-year students had the highest pre- and post-test CINS mean score (Table 2).

DISCUSSION

Professional competency is very important for quality, ethical and safe nursing care (Flinkman et al., 2017). This study, which examined the effect of clinical practice on nursing students' professional competencies, found that their post-test CINS and subscale scores increased after clinical practice that the nursing students had a good level of professional competency both before and after clinical practice, and that clinical practice increased their professional competencies. Another study conducted with nursing students supports the results of this study, suggesting that clinical practice increases nursing students' CINS and subscale scores and professional competencies (Hsieh and Hsu, 2013). Clinical practice is an important part of nursing education, which is intended to allow nursing students to learn by practicing and living professional nursing practices and train nurses who are aware of their professional duties and responsibilities, know how to protect and improve health, and have professional values, attitudes, knowledge and skills (Karaöz, 2013; Polat et al., 2018). The present study concludes that both vocational education and clinical experience nursing students have gained in clinical practices may have increased their professional competency scores. This study found that the fourth-year nursing students' pre- and post-test scores indicated that were more professionally competent than the second- and third-year students. Another study has reported that nursing students with clinical experience have higher professional competencies than those without clinical experience (Jeon et al., 2020). Another study of senior nursing students found that they had a good and strongly developed competency (Lofmark et al., 2006). This study's result indicating senior nursing students' high level of professional competency suggests that nursing education curriculum is meeting its objectives. However, it should not be forgotten that nursing students work under the supervision of instructors and nurses during clinical practices. This study found a statistically significant difference between the nursing students' mean scores on the CINS and its subscales, except for ethics and responsibility. The study also determined that clinical practices affected the students' general clinical skills. Clinical practices help nursing students to acquire basic clinical skills, develop psychomotor skills, observe professional roles and adapt to roles by putting their theoretical knowledge into practice in a real clinical setting (Gemuhay et al., 2019). Another study also found that clinical practices affect general clinical skills (Porter et al., 2013).

Biomedical science is the model on which current nursing practices are based. Since this model focuses on both body structure and functional impairment, nurses should also focus on identifying, correcting or preventing diseases or abnormalities (Şanlı and Platin, 2015). This study found that clinical practices affected nursing students' clinical biomedical science scores. This result is supported by others in the literature (Hsieh and Hsu, 2013). This result suggests that theoretical knowledge in biomedical science courses in the nursing curriculum is applied more effectively in clinical settings due to the increased frequency of clinical practice.

A clinical environment allows nursing students to interact with patients, giving them the opportunity to develop and use nursing professional knowledge and skills, make correct decisions, solve problems

and improve their critical thinking skills (Arli et al., 2017). This study found that clinical practice affected critical thinking and reasoning. Studies show that critical thinking skills develop during education (Erdoğan and Dolgun, 2012; Hsieh and Hsu, 2013; Zaybak and Khorsid, 2009). This result suggests that as nursing students encounter situations that require multidimensional thinking and gain clinical experience, their professional knowledge and skills increase, and they use different learning and teaching strategies such as case presentations in clinical setting and role-play, which also increase their critical thinking skills. Nursing students' adaptation to their roles in nursing care is influenced by the knowledge and clinical experience they acquire during nursing education (Birimoğlu and Ayaz, 2015). This study found that clinical practice affected caring. One study determined that senior nursing students had higher levels of care-oriented nurse-patient interaction than others, that meeting patient needs was very important in patient care, and that nursing students' competencies and capabilities in caring were at a good level (Erzincanlı and Yüksel, 2018). This study suggests that the continuum of cognitive, sensory and psycho-motor skills, which are involved in care behaviors and patient care, affects the care behavior of nursing students in clinical settings.

Lifelong learning is very important for the development of professional identity in nursing. Lifelong learning is an important concept for nurses for reasons that include: the rapid change of treatment and care opportunities in line with developing technology, society's increased expectations of better health services, the more widespread use of scientific knowledge in nursing practices, the development of nursing knowledge and skills, and the increase of nurses who want to specialize in specific fields (Şenyuva, 2013). This study found that clinical practices affected lifelong learning. Another study has reported that senior nursing students with more clinical experience have higher lifelong learning tendencies (Dikmen et al., 2016). Another study found that clinical experiences of nursing students improved their lifelong learning tendencies (Bazrafkan and Kalyani, 2018). This study suggests that providing nursing students with skills of searching for, obtaining and evaluating information and using this information for relevant objectives in clinical practices may have an effect on lifelong learning. This study found that clinical practice did not affect ethics and responsibility, but the students' post-test ethics and responsibility subscale mean score was higher than their pre-test mean score. One study of nursing students also found that clinical practice did not affect ethics and responsibility, but their ethics and responsibility subscale mean score was higher at the sixth week of clinical practices (Hsieh and Hsu, 2013). The fact that the nursing students were not aware of the ethical problems they experienced or encountered during clinical practices may have affected the results of this study. This study determined that clinical practices affected the nursing students' professional competency. Hsieh and Hsu (2013) evaluated nursing students' competency levels in the first and sixth weeks of clinical practice and determined that their CINS scale and subscale scores were higher in the sixth week (Hsieh and Hsu, 2013). Another study conducted in the final week of clinical practice found that the professional competencies of nursing students were at a good level (Kajander-Unkuri et al., 2014). Clinical practice, which is of great importance in nursing education, is considered the key to professional competency. Clinical training also helps nursing students to consider themselves more competent in performing treatment and care skills and fulfilling their professional roles in clinical practices.

CONCLUSION

This study determined that clinical practices increased the nursing students' level of professional competency, and that the students with more clinical experience had higher professional competency levels. In order for nursing students to graduate with competency, there should be more school-hospital cooperation from the beginning of nursing education, and nursing students should be allowed to put their scientific knowledge into clinical practice. The factors that can increase nursing students' professional competencies should be taken into consideration when planning the instruction of both theoretical knowledge and

clinical practice in nursing education.

Limitations of Study

There are two limitation of the present study. First-year nursing students at the nursing school where the study was conducted were not included in the study due to their lack of clinical experience. The data were collected in the second and twelfth weeks of the academic semester since nursing students generally do not participate in clinical practice then.

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