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Study of the Relationship between Nurses' Work Experience and Clinical Competency

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Abstract

Background: Assessing nurses' clinical competency (CC) would play a crucial role in managing the process of providing care and achieving care goals. The importance of the scope of this type of assessment lies in identifying the issues that need to be improved and determining the training needs of nurses. Hence, this study aimed to determine the relationship between nurses' work experience and their CC.

Materials and Methods: This cross-sectional study was conducted in 2020 on participating clinical nurses at Mashhad University of Medical Sciences, Mashhad, Iran. Sampling was performed in a multi-stage cluster-stratified manner. The clinical competence of 234 nurses was assessed by the Competency Inventory for Registered Nurses (CIRN) questionnaire which consists of 55 items and includes seven dimensions. A total score of 220-275 was considered a high qualification group; 165-220 was considered medium, and less than 165 was considered a low qualification group. Data were analyzed using SPSS software (version 25.0).

Results: CC score was a minimum of 160 and a maximum of 263 with an average of 226.6$\pm$ 21.7. There was no significant relationship between work experience and CC of employed nurses ($r = 0.06$, $P = 0.48$). Additionally, there was no statistically significant relationship between different groups regarding university education, marital status, gender, and the level of CC of nurses. However, this relationship was significantly different among the employment groups ($P=0.04$).

Conclusion: The level of clinical competence of nurses did not develop with increasing work experience. Environmental and organizational factors can affect the nurses' CC. The results of this study require more attention from teaching hospitals managers and the nursing education system.

Key Words: Clinical Competence, Work Experience, Nurse, Iran.

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1- INTRODUCTION

Nurses constitute the largest group of health service providers and play a key role in continuing care and responding to services that require their competency. Competency to perform a task is very important to maintain the power and authority to perform nursing activities (1, 2). CC is the ultimate goal of nursing education that includes the ability to apply nursing knowledge, interpersonal relationships, and problem-solving and decision-making skills. The concept of competency is defined in several ways. The common idea about competency is that competency includes related items of knowledge, skills, and attitudes that can be adequately used to solve a problem. Wilson and Lizzio, for example, defined competency as the ability to apply knowledge, skills, and attitudes to jobs (3).

It should be noted that the CC of nurses can be affected by environmental and organizational factors, including training facilities, retraining programs, in-service training, control and supervision, and an efficient training system. In qualitative research using grounded theory to determine the effective factors on the process of obtaining clinical nursing competency, internal / individual and environmental factors have been introduced as the effective factors (1, 4).

Another point to consider when assessing CC is the distinction between having and practicing skills, indicating the effect of workplace differences on the quality of nurses' performance. For assessing CC, Benner believed that the best method of assessment is the individuals', and managers also play an important role in assessing the CC of nurses under their supervision (5). Full achievement of competencies is the final product of an educational system (6). Therefore, one of the final ways to assess educational programs is to assess the CC of graduates in the workplace (7). A study by Floyd also showed that novice nurses have many clinical problems and ask for help and do not know what is expected of them in real workplaces (8). Assessment of the CC of nurses plays a very important role in managing the process of providing care and achieving care goals. Assessment of CC of nurses, especially for identifying fields that should be upgraded, determining the educational needs of nurses, and ensuring the proper delivery of care is so important that it is considered as the focus of quality assurance system functions, workforce planning, and human resource management and the key responsibility of nursing managers in clinical settings (9).

According to Benner's "from Novice to Expert" theory, nursing competencies are developed step-by-step over time. Relying on Dreyfus's Model of Skill Acquisition and trying to adapt and generalize it to the nursing profession, he stated that a person goes through five stages of competency when acquiring skills, including novice, advanced beginner, competent, proficient, and expert. He considered the work situation as a whole where the set of components are not of equal importance and only some important and related components are considered (10).

The results of some studies showed no relationship between age, work experience, and CC of nurses (9, 11). The study results of Parsa et al. showed no significant relationship between demographic information and competency reported by students, and regardless of age, gender, and employment, the students mentioned their competency at moderate and weak levels (3). However, the results of some studies have reported a significant relationship between these variables and nurses' CC (12, 13). Also, the results of a study conducted in the UK to assess CC of nurses who were covered by two different training programs showed that CC of these two groups was significantly different

immediately after graduation and after six and 12 months (8). The study results of Mokhtar et al. in Singapore and Stokke et al. in Norway showed that the use of evidence reduced with age (14, 15). So, it seems necessary to investigate the relationship between work history and CC of nurses and explain its factors. Therefore, the present study was conducted to investigate the relationship between work experience and CC of nurses.

2- MATERIALS AND METHODS

2-1. Study design and population

This study is descriptive-correlation. At the beginning, 234 nurses were selected (n = 600, z = 1.96, α = 0.05, and p = 0.48), following the formula:

$$\left(n = \frac{N(z_{1-\frac{\alpha}{2}})2pq}{(N-1)d^2+(z_{1-\frac{\alpha}{2}})2pq} \right)$$

Finally, for higher accuracy, 270 nurses working in teaching, treatment, and research hospitals of Mashhad University of Medical Sciences, Mashhad, Iran, were included in the study.

2-2. Inclusion and exclusion criteria

The study included nurses with six months of work experience as a nurse in the assessed ward, having a bachelor's degree, and not having a supervisor or head nurse.

2-3. Method

Multi-stage sampling lasted from May to November 2020. First, each hospital was randomly selected by cluster sampling. Then, in the selected hospitals, the wards were considered as classes and random sampling was performed according to their number.

2-4. Measuring tools: validity and reliability

Data collection tools included the Persian version of the Demographic Information Questionnaire and Competency Inventory for Registered Nurse (CIRN) provided by Ghasemi et al. (2014). The validity and reliability of these tools were self-assessed (16, 17). CIRN has 55 items and seven dimensions (care, interpersonal relationships, legal-ethical practice, professional development, teaching-coaching, critical thinking, and leadership). Scoring was based on 5-point Likert scale: no competency = 1, low competency = 2, somewhat competent = 3, adequately competent = 4, and highly competent = 5. The minimum score of the questionnaire was 0 and the maximum score was 275. Higher scores indicated higher total competency. A high mean score in each dimension indicated high competency in that dimension, so that a mean score above 4 or a total score of 220-275 indicated high competency, 3-4 or 220-165 indicated mean competency, and less than 3 or 165 indicated low competency (18).

2-5. Ethical consideration

After the approval of the University Ethics Committee (IR.MUMS.REC.1399.087), and obtaining a letter of introduction from the Faculty of Nursing and Midwifery of Mashhad University and presenting it to hospitals, the researcher proceeded to sample and conduct research. First, the objective of the research was explained to the subjects. The researchers emphasized the anonymity of the questionnaires, the confidentiality of the information, and the lack of impact of their competency assessment on their evaluation, and asked them to provide all the information accurately and honestly. Then, explanations were provided to complete the CC questionnaire. Finally, their informed written consent was obtained.

2-7. Data Analyses

Data of the study will be analyzed by using descriptive (mean, standard deviation, and frequency and percentage distribution),

and inferential statistics (T-test, Tukey's test, Pearson correlation coefficient, and ANOVA). Data analysis will be performed with SPSS software version 25 and P-value less than 0.05 were statistically significant.

3- RESULTS

Out of 270 questionnaires distributed, 246 questionnaires were returned, of which 12 were incomplete. Therefore, 234 questionnaires were analyzed. Demographic information of the participants showed that 51.5% were female and 48.5% were male. **Table.1** shows the demographic information. The mean work experience of the participants was 15.6 with a standard deviation of 7.2. No statistically significant relationship was found between work experience and clinical nursing competency based on the Pearson test (p = 0.04). Also, no statistically significant relationship was observed between age and CC (p = 0.04, r= 0.06) (**Table. 2**). Higher CC was associated with nurses graduating from Islamic Azad universities than state Universities, but no significant difference was found between the two groups in terms of CC based on the t-test (p = 0.23). The CC of women was higher than men, but this difference was not significant (p = 0.06). The CC in different groups is shown in **Table.1** separately. Also, the ANOVA test showed no significant difference between the existing employment groups in terms of the CC. Using the Tukey's test, a difference was found in corporate and contract groups. CC was the lowest in the corporate group and the highest in the contractual group. CC was higher in single individuals than married couples, but no significant difference was between the two groups based on the t-test (**Table.1**). For the items, the highest CC was related to the item "I take responsibility for my performance" (S25 = 594), and the lowest was related to the items "I am aware of the role of professional organizations and I have an active participation in them" and "I collect and complete the necessary information from various references", respectively (S6, S7 = 428).

Table-1: The level of clinical competency and its differences in different groups of nurses in teaching, treatment, and research hospitals of Mashhad University of Medical Sciences, 2020.

Variables	Sub-group	Frequency (%)	Clinical competence Mean ± SD	P-value
Gender	Female	51.5	224±4.6	P= 0.06
	Male	48.5	218±4.6	t=1.84 df=132
Marital status	Single	26.9	223±4.6	P= 0.59
	Married	73.1	220±4.6	t=0.5 df=132
Type of University	Governmental	66.4	220±4.5	P =0.23
	Non- Governmental	33.6	224±4.7	t=1.18 df=132
Employment status	Temporary	1.5	186±4.2	P <0.05
	Definite contract	29.9	226±4.3	F=2.7
	Contractual	19.4	220±4.7	df=3
	Permanent (Governmental)	49.3	220±4.6	

SD: Standard deviation, df: Degree of freedom.

Table-2: Age, work experience and clinical competency of nurses in teaching, treatment, and research hospitals of Mashhad University of Medical Sciences, 2020.

Variables	Maximum-Minimum (Rang)	Mean± SD	Clinical Competency
Age, year	25-45 (20)	36.4±8.1	P=0.5, r=0.05
Work experience, year	5-30 (25)	15.6±7.2	P=0.4, r=0.06
Clinical competency	160-263(103)	221±21.7	1

SD: Standard deviation.

4- DISCUSSION

According to the study results, no significant relationship was found between work experience and CC of nurses. It might seem that as nurses' age and work experience increase, their clinical competencies should also increase. However, the study results provided evidence on the contrary. As the results of some studies showed, no significant relationship was seen between work experience and CC of nurses (9, 11, 19). The study results of Parsa Yekta et al. showed no significant relationship between demographic information and the level of competency reported by students, and regardless of age, gender, and employment, the students mentioned their competency at moderate and weak levels (3). The study results of Mokhtar et al. in Singapore and Stokke et al. in Norway showed that the use of evidence reduced with age (14, 15). The researchers believed that low income, burnout due to high workload, and dissatisfaction with jobs among nurses of university hospitals of our country result in higher burnout and dissatisfaction as the age and work experience increase so that they expressed it in their assessments (20). Full achievement of competencies is the ultimate result of an educational system. It can be stated that environmental and organizational factors can affect the CC of nurses including training facilities, retraining programs and in-service training, control and supervision, and an efficient training system. A review of studies conducted in different educational systems in other geographical areas inside and outside the country confirmed this. Similar results were obtained from a study by Mohsen Adib Haj Bagheri et al. (2017). In a cross-sectional descriptive study, they examined 145 nurses of different wards of Shahid Beheshti Hospital in Kashan by self-assessment method and obtained the perspective of 19 head nurses of those wards. The study results showed CC of nurses with a mean of 67.08 ± 15.21 at a good level and the percentage of application of clinical skills was 77%. The nurses also expressed CC of nurses with a mean of 78.24 at an excellent level. No significant relationship was found between CC and variables such as gender, marital status, level of education, type of employment, and work experience. The researchers referred to CC as a multifactorial variable and emphasized the improvement of nurses' CC by recognizing and controlling these factors (21). However, the study results of Kim et al. (2014) are not consistent with the results of our study. Their study titled "Variables affecting CC of Clinical Nurses" was conducted in South Korea. They selected 215 clinical nurses working at C University Hospital in D metropolis. This study showed that nurses' competency is significantly different from their age, marital status, total clinical experience, current workplace, and final educational background. Therefore, according to the environmental variables in the hospital and the country, a positive and significant relationship wasfound between increasing work experience and CC of nurses (6).

Information literacy is one of the components of professional competency. In this regard, Mokhtar et al. (2012) conducted a study titled "Evidence-Based Practice and Information Literacy Skills of Nurses in Singapore: An Exploratory Case Study". They found that with age, the score was lower on the use of research-based evidence. This paper is a quantitative study of more than 300 nurses of a large state hospital in Singapore. A self-report questionnaire was used to collect data related to the study and evidence-based activities. The reason for the relationship between age and number of working years with different outcomes could be that experienced nurses have experience based on functional knowledge that provides confidence in performing daily work tasks and managing unexpected events (15).

As the use of evidence in clinical practice is one of the important indicators of providing services and is important in the index of nurses' competency score, it seems that nurses prefer printed sources and human information compared to electronic information sources. As a result, they were not in the forefront of seeking evidence-based research and information; instead, they preferred to have such information provided for them and realized that they could not assess research papers or effectively search electronic information related to nursing or evidence-based practice. It was also found that more than 80% of nurses had no training on evidence. The results of the present study showed no significant difference between the two groups of nurses graduating from Islamic Azad and state universities in terms of CC. But a study by Adib Haj Bagheri and Vosoughi showed high mean competency of nurses graduating from Islamic Azad universities (9, 21). It is possible that CC varies from one hospital to another. Bahraini et al. compared CC of nurses working in hospitals affiliated to Shiraz and Bushehr Universities of Medical Sciences. They showed that CC and the application of nursing skills are different in these two hospitals. The results also showed no significant relationship between the mean CC of nurses and the variables of age, work experience, and work experience in the current ward. No significant difference was between the two groups of male and female nurses in terms of CC. The researchers believed that low income, burnout due to high workload, and dissatisfaction with jobs among nurses of university hospitals of our country result in higher burnout and dissatisfaction as the age and work experience increase so that they expressed it in their assessments (11). In the present study, no significant relationship was found between CC and variables such as gender, age, and marital status. But this relationship was significant between CC and type of employment as it was lower in the corporate employment group. No significant relationship was found between age, marital status, and type of employment in the study of Vosoughi et al. (2014) titled "Assessment of CC of Newly Graduated Nurses from their Perspective and that of Nurses" (9).

In this study, 70 nurses with bachelor's degrees and 35 head nurses working in educational and medical centers in Ardabil were selected by census method. The mean assessment of CC from the perspective of graduates in all fields except care measures and professional development was higher than the mean assessment from the perspective of supervisors. Investigation of the relationship between demographic information and CC showed no significant relationship between age or duration of employment and the mean assessment of CC (9). The results of the present study, along with some other evidence, do not support the theory of Benner. In his extensive studies, in addition to explaining competencies, Benner described the seven different fields of nursing competencies

where a nurse is expected to play a role: helping role, teaching and coaching function, diagnostic and monitoring function, effective management of rapidly changing situations, the administering and therapeutic roles, ensuring the quality of care, and organization and work role competency (22). This theory points to the positive role of experience, time, and training in increasing the skills and competencies of individuals in the profession. However, there are other factors to be considered, including the underlying factors, working conditions, environmental and organizational intervenors, and the characteristics of individuals themselves in acquiring these competencies (20, 23). Some factors related to CC are not fully known or may be related to other unclear factors. Investigating and recognizing these factors in different workplaces can help improve the professional competency of nurses. One of the limitations of the present study is the use of the self-assessment method. To reduce the bias of the results, for informed consent, emphasis was placed on the confidentiality of individual results and ineffectiveness on organizational evaluation. Also, despite variables such as the structure of the questionnaire, the commitment and responsibility, the training, and support of managers may affect nurses' perception of their professional competency. For this purpose, it is suggested to do evaluations by other evaluators in future research. Despite some predictions about the sample drop, up to one-third of the questionnaires were not completed by the participants which is another limitation. Although the results of the present study indicate the current status of nurses' competency, due to its cross-sectional nature, it is suggested to conduct studies with larger samples and similar statistical populations in the form of longitudinal studies to investigate the factors that affect nursing competency in the future.

5- CONCLUSION

The study results showed no relationship between age, work experience, and CC of nurses. Although the research took place in the teaching hospitals of Mashhad University of Medical Sciences, it is expected that the study results can be valuable for all those involved in educational planning and human resource management in the field of health. Having all competencies is the ultimate product of an educational system. It can be considered that environmental and organizational factors can affect the CC of nurses, including educational facilities, retraining programs, in-service training, control and supervision, and an efficient training system. Conducting further studies, a holistic view on this issue, and comprehensive planning can improve CC of nurses and enhance the quality of service to the patients.

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7- AUTHORS' CONTRIBUTIONS

Study conception or design: HA, and AH; Data analyzing and draft manuscript preparation: HE, HA; Critical revision of the paper: HA, and AH; Supervision of the research: HA and AH; Final approval of the version to be published: HA, AH, and HE.

8- CONFLICT OF INTEREST: None.

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