EMERGENCY DEPARTMENT NURSES’ CLINICAL COMPETENCE AND ITS RELATED FACTORS: A CROSS-SECTIONAL STUDY

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ABSTRACT

OBJECTIVES
This study aimed to assess perceived clinical competence levels of emergency department nurses in Iran and to identify association with the demographic variables.

METHODS
In this cross-sectional study, all 131 employed nurses from emergency departments of four educational hospitals were included in the study using a census method. Data collection tools included a demographic information form and the “Nurse Competence Scale”. Data were analyzed using descriptive and analytical statistics.

RESULTS
The mean age of the nurses was 32.41± 6.35 years. 14 nurses were male and 117 nurses were female, the average work experience of the nurses was 8.48±5.98 years. The mean score of nurses’ clinical competence score of the nurses was 68.68 ± 3.24 out of 100, which was a “good level”. Among the subscales of clinical competence, the highest mean score was related to “managing situation” and lowest to “ensuring quality”. There was no statistically significant difference of clinical competence by gender, age, and academic degree. However, the level of clinical competence differed significantly depending on work experience.

CONCLUSIONS
The emergency department nurses at Mazandaran University of Medical Sciences, Iran, reported a good level of clinical competence across all categories. Hospital managers’ awareness of the level clinical competence of emergency department nurses helps them design educational programs and effective training session to improve the quality of nursing services. Moreover, it is necessary to upgrade nursing education programs at all levels of nursing education in to improve graduating nurses’ clinical competences.

KEYWORDS
clinical competence, nurses, emergency department
INTRODUCTION

Emergency department (ED) nurses are at the front line of providing care for patients. They are in charge of the accurate assessment, management, interpretation of clinical data, interventions, and ensuring patient safety. [1] Emergency departments frequently encounter patients who are confronting a potential life-threatening circumstance, and the effectiveness of the healthcare providers’ clinical expertise is a significant concern. The capability of nurses to provide emergency care plays a crucial role in ensuring the safety of patients. [2] Emergency nursing care presents a distinctive feature in Iran, which is recognized as one of the countries with the highest incidence of earthquakes worldwide. The prevalence of trauma is a major factor in mortality and disability, with injuries accounting for 14.4% of all deaths. [3] In recent decades, competency has been a major issue for all healthcare providers, and its description and development has been a challenge. [4] Competence is a collection of knowledge, skills, attitudes, values and skills that increase efficiency and effectiveness in professional work environments. [5] Competence refers to one’s capacity to carry out a particular professional task with proficiency and productivity. This implies that the caregiver has the ability to apply their skills in a manner that is suitable for the specific area and can meet the needs of the clients. [6] Nursing managers within the healthcare have made significant strides in recognizing clinical competency and promoting it among nurses. [7] Given the need for quality patient care by nurses and the close association between nurse competence and the success of healthcare organizations, the clinical competence of nurses is a priority issue in all healthcare settings. [8] The implementation of competency assessment criteria is expected to result in significant increase in the knowledge and awareness of the nursing staff regarding their level of competency. Such assessments will aid in the identification of any inadequacies in their theoretical knowledge or practical skills. [9] The competencies required of emergency room nurses are unique due to the nature of the emergency room environment. In the emergency room, caregivers are faced with rapidly changing and unexpected situations, critical patients and time pressures. [3] Assessing the competency of practicing nurses is critical to identify areas for professional development and educational needs, and to ensure that nurses’ competencies are best utilized in patient care. [10] Developing, maintaining and assessing nursing skills are among the greatest challenges in the nursing profession. [11] Our knowledge of the status of clinical qualification and level of nursing skills is very low and not many studies have been conducted in this area in Iran. [12] The study results showed that the competence of ED nurses to provide care in critical situations is not at an optimal level and was below average in all competences. [13, 14] However, the results of other research have demonstrated that the clinical competency of nurses is desirable. [9, 12]

Accordingly, this study aimed to assess the perceived level of clinical competence of ED nurses in Iran.

METHODS

RESEARCH DESIGN AND SETTING

The present study was a cross-sectional descriptive study examining the clinical competence of ED nurses from the Mazandaran University of Medical Sciences (MUMS) in Sari, Iran, in 2018.

STUDY POPULATION

The statistical population of this study consisted of all 131 employed ED nurses from four MUMS-affiliated educational government hospitals. The sample was collected using the census method and all employed nurses in the four emergency departments were included in the study. The response rate to the questionnaires was determined to be 100%.

STUDY INSTRUMENT AND DATA COLLECTION

Data collection was performed using a demographic information form and the Nurse Competence Scale (NCS). The demographic information includes questions about age, gender, education level, work experience, and marital status. The NCS was developed based on theory “from beginner to skilled banner”. [15] It was provided by Meretoja and colleagues, (2004) and proved to be highly reliable and valid. [10] The instrument measures 73 nursing skills in seven different categories, including: “Helping roles” (7 skills), “Teaching-coaching” (16 skills), and “Diagnostic function” (7 skills), “managing situation” (8 skills), “Therapeutic interventions” (10 skills), “Ensuring quality” (6 skills) and finally the field of “Work role” (19 skills). The questionnaire was completed by the nurses using the self-assessment method and they were asked to give themselves a minimum score of zero and a maximum of one hundred for each skill. In addition, participating nurses were asked to use a 4-point Likert scale to determine the frequency of use of skills related to clinical competence,
including inapplicable, seldom used, occasionally used, and frequently used skills, rated from 0 to 3 respectively. In Iran, NCS was first translated by Bahreyni and Colleagues (2010). Subsequently, the validity of the questionnaire was confirmed based on the opinions of experienced experts and nursing teachers. The reliability of the questionnaire was assessed and the Cronbach’s alpha value in the seven domains was determined to be between 0.70 and 0.85, indicating the desired internal consistency of the domains and the high reliability of the tool. The nurses’ clinical competency level score was divided into four levels: low (0-25), relatively good (26-50), good (51-75), very good (76-100). [16]

DATA COLLECTION
The first author attended the hospitals affiliated with MUMS to collect data. She received a list of the nurses working in each hospital’s Ed from the nursing office. The employed nurses were then contacted during their shift schedule. After explaining the aims of the study, they were asked to participate in the study. They were then handed the questionnaires to fill out and later collected by the first author.

DATA ANALYSIS
Data were analyzed with SPSS software (version 22.0; SPSS Inc., Chicago, IL, USA) using descriptive statistics (mean, standard deviation, frequency, and percentage) and inferential statistics (the independent sample t-test, one-way analysis of variance and spearman correlation coefficient). Spearman's correlation coefficient was used to assess the relationship between clinical competency subscales and total clinical competency scores. A P-value less than 0.05 was considered statistically significant.

ETHICAL CONSIDERATIONS
The present study was approved by the Ethics Committee of Mazandaran University of Medical Sciences (Ethical code: IR.MAZUMS.REC.1397.91). The study aims were explained to all participants and written informed consent was obtained. Participants were also assured that their information would be treated confidentially.

RESULTS
The ED nurses’ mean age was 32.41 ± 6.35 years, with 14 male and 117 female nurses. Their average work experience was 8.48 ± 5.98 years. 93.89% of the nurses had a BSc. degree (n=123). The nurses had an average work experience of 8.48 ± 5.98 years, and 70.99% were married. There was no statistically significant discrepancy observed in the clinical competence assessments of nurses, as per their age, gender, or academic degree. (P≥0.05, Table 1). However, a significant relationship has been found between general work experience and clinical competence (r=0. 176, p=0.044). The scores of the seven categories of clinical competence were self-assessed by the Ed nurses. As described, the mean scores of categories were, helping role 70.42±3.58, teaching-coaching 70.58±3.78, diagnostic function 69.16±4.50, managing situation 74.63±3.40, therapeutic intervention 67.54±3.59, ensuring quality 55.38±7.05, and work role 73.04±3.31. This results in an average total score of 68.68±3.24. The highest mean score of clinical competence related to managing situation and the lowest to ensuring quality.

<table>
<thead>
<tr>
<th>Demographic variables</th>
<th>Number (%)</th>
<th>Competency level Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
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<tr>
<td>female</td>
<td>117(89.3)</td>
<td>68.29(2.99)</td>
</tr>
<tr>
<td>male</td>
<td>14(10.7)</td>
<td>68.72(3.28)</td>
</tr>
<tr>
<td>Age (year)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-26</td>
<td>34(26.0)</td>
<td>67.53(3.51)</td>
</tr>
<tr>
<td>27-33</td>
<td>47(35.8)</td>
<td>68.94(2.49)</td>
</tr>
<tr>
<td>34≥</td>
<td>50(38.2)</td>
<td>69.21(3.53)</td>
</tr>
<tr>
<td>Level of education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associate degree</td>
<td>5(3.8)</td>
<td>67.53(3.51)</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td>123(93.9)</td>
<td>68.94(2.49)</td>
</tr>
</tbody>
</table>
The total mean score of nurses’ clinical competence was 68.68±3.24 out of 100, which was at a “good” level. Most ED Nurses showed that their frequency of all clinical competences categories were at “good” level. 

<table>
<thead>
<tr>
<th>Categories</th>
<th>Mean (±SD)</th>
<th>Frequency of level of competence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work role</td>
<td>73.04±3.31</td>
<td>87.02 (0.0) 12.98 (0.0)</td>
</tr>
<tr>
<td>Therapeutic intervention</td>
<td>67.54±3.59</td>
<td>99.24 (0.0) 0.76 (0.0)</td>
</tr>
<tr>
<td>Ensuring quality</td>
<td>55.38±7.05</td>
<td>82.44 (16.80) 0.76 (0.0)</td>
</tr>
<tr>
<td>Diagnostic function</td>
<td>74.63±3.40</td>
<td>67.93 (0.0) 32.07 (0.0)</td>
</tr>
<tr>
<td>Managing situation</td>
<td>74.54±3.40</td>
<td>99.24 (0.0) 0.76 (0.0)</td>
</tr>
<tr>
<td>Teaching-coaching</td>
<td>70.58±3.78</td>
<td>96.18 (0.0) 3.82 (0.0)</td>
</tr>
<tr>
<td>Helping role</td>
<td>70.42±3.58</td>
<td>90.84 (0.0) 9.16 (0.0)</td>
</tr>
<tr>
<td>Total of clinical competence</td>
<td>68.68±3.24</td>
<td>96.94 (0.0) 3.06 (0.0)</td>
</tr>
</tbody>
</table>

DISCUSSION

In accordance with other research findings by Bahreyni (2010) and Farajis (2019), the number of female nurses (n=117) in this particular sample exceeded their male counterparts (n=14) [5, 16]. Most nurses in the study were married. Findings from Kalantary et al.’s (2016) research on ICU nurses competency level in educational hospitals revealed that 73.7% were married. [17] Moreover, in a study, it has been shown that 77% of nurses were married (18), which are consistent with the results of this study. In relation to educational level, the majority of nurses had a bachelor’s degree, a finding that aligns with prior research results. [5, 16]

In this study, nurses expressed their highest clinical competence in relation to managing situation, which is inconsistent with the results of the study by Habibzadeh and colleagues (2012), in which the work role area received the highest score. [19] However, it agrees with what the study found in Bahreyni et al.’s research, Meretoja and others as well as Istomina and colleagues. [10, 16, 18] The variation observed in the research findings might be attributed to dissimilar study populations and contextual settings. Other factors that could impact nurses’ competency, such as the hospital setting, level of patient acuity, and staffing levels, may also differ across studies. The ED nurses in the current research study reported a satisfactory level of proficiency in all of the seven clinical competency areas which aligns with the findings of Istomina and colleagues’ study. [18] In the Bahreyni and colleagues’ (2010) study, only the category of managing situation were rated as “very good”. [16] The results are reasonable in educational hospitals where nurses need quick reaction skills due to short patient stays, complex situations, and high-risk patients. The study participants demonstrated a minimal level of proficiency in the area of ensuring quality. Bahreyni et al. (2010) reported the lowest score of this category and the same as in the study of Istomina et al., which are congruent with the findings of the current study. [16] However, another research finding in the study conducted by Bahreyni and colleagues, (2010) and Meretoja et al. (2003) indicate that teaching-coaching category demonstrated the lowest scores. [10, 16] This is in contrast to the present study. The sample size and characteristics of the nurses included in
The present study found no correlation between demographic characteristics and clinical competence, except for work experience. The current study confirms Takase’s (2013) research that states nursing competence and clinical experience are correlated. [21] In line with the present study’s findings, there was no significant correlation between the competency of nurses and factors such as gender, age, and education level, as reported by Faraji and others in their 2019 study. [5]

STUDY LIMITATIONS:
The study was conducted in a single Mazandaran University of Medical sciences setting, which may limit the generalizability of the findings to other healthcare settings. Second, the study relied on self-reported data from the nurses, which may be subject to recall bias.

CONCLUSION

The present study revealed that the ED nurses at Mazandaran University of Medical Sciences demonstrated a satisfactory level of clinical competency across all categories. Hospital managers’ understanding of the clinical competency of ED nurses can aid in the development of impactful educational programs and training sessions aimed at enhancing the overall quality of nursing care. Offering continuous education and training can assist nurses in keeping themselves abreast of the most recent emergency department methodologies, technologies, and strategies. Various educational activities such as workshops, seminars, conferences, and e-learning courses may be part of these programs. In addition to offering educational activities, hospital managers can also implement a competency-based performance evaluation system for ED nurses. Such a system can identify areas where nurses require improvement and provide targeted training to address those needs. Regular assessments can also help track the progress of the nurses’ clinical competence and ensure that they provide high-quality care. It is important to note that training programs and competency evaluations should be tailored to meet the specific needs and challenges of the ED setting. Hospital managers should work closely with ED nurses to ensure that the training programs and evaluations align with their professional development goals and the needs of the patients they serve. In conclusion, this study highlights the significance of continuous education and training programs for ED nurses. Hospital managers should invest in such programs and evaluations to ensure that nurses have the necessary knowledge and skills to provide high-quality care in the emergency department.

ACKNOWLEDGMENT:
We are grateful to Mazandaran University of Medical Sciences for providing financial assistance that allowed us to conduct and analyze the results of this research. We would also like to extend our appreciation to the ED nurses who took part in the study.

CONFLICT OF INTEREST:
The authors declare that there is no conflict of interest regarding the publication of this manuscript.

Reference:
Emergency Department Nurses' Clinical Competence and Its Related Factors: A cross-sectional study