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THE RELATIONSHIP BETWEEN CLINICAL COMPETENCE AND OCCUPATIONAL STRESS IN IRANIAN CLINICAL NURSES

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ABSTRACT

Purpose: Clinical competence is necessary to providing safe and effective patient care. Nursing is associated with high degree of stress. Despite the importance of quality care and nurse professional development, the relationship between the two has been neglected. The purpose of the study is to investigate the association between clinical competency and occupational stress
Design: A cross-sectional descriptive correlation design was used.
Methods: Iranian clinical nurses (N=230) were selected using stratified random sampling in seven university hospitals of Iran in 2015. Data was collected through Competency Inventory for Registered Nurse and occupational stress questionnaires. Data was analyzed with Spearman Correlation, Mann-Whitney-U and t-tests using SPSS /21 software.
Findings: The mean score of clinical competence and occupational stress were (173.59 ± 26.72) and (72.46 ± 12.95) respectively, and assessed in high level. There was a significant positive correlation between clinical competence and occupational stress (r= 0.153, P= 0.020).
Conclusions: It seems that when nurses' clinical competence is high, naturally the knowledge, practical skills and work experience as well as high, therefore their expectations and accountability will increase and this may increase stress. In addition, stress is an inseparable part of the nursing profession. Nurses experienced high stress in the workplace, and it may be possible, nurses despite having high clinical competence, have high occupational stress
Clinical Relevance: Nurses stress may cause adverse professional and organizational complications. Nurse Managers and hospital administration need to collaborate on coping strategies and education to advocate for reduced work-related nurse stressors.

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Introduction

Professional competency is an issue of central concern to all professional fields (1). Because of the close relationship between clinical competence (CC) and the quality of care for patients; NCC is in a unique position (2). NCC is necessary to providing safe and effective patient care (3). There is an increased emphasis on nurse continuing competence. Rapidly changing in healthcare environments, technology and related demands require increasing competence of nurses at all levels (4). Socio demographic, organizational, work environment related and nurse related variables have been associated with a higher degree of competence (5).

Competence is a complex concept that is difficult to define and measure (6). CC is defined as the nurse's capacity to act and to integrate knowledge, technical skills, attitudes and values in daily practice that underpin effective and superior performance in different health-care contexts for the benefit of the individual and community being served (7,8).

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The results of various studies in this area have shown that one of the most fundamental responsibilities of nurse managers is continuous assessment of clinical competence of nurses (9). Despite these efforts, data from more researches show that many patients do not receive appropriate care, or receive unnecessary or harmful care (10). In Iran, the results of a study by Bahraini et al. (2008) showed that the undesirability of CC in some areas, including training and guidance and the quality assurance (11). The findings of other studies related to the impact of factors on the CC in Iran are far from expectation. For example, in these studies with increasing in age and work experience, increasing in the rate of NCC was not seen. So the researchers recommended further research to discover the causes and factors suggest that this unexpected result (12). Understanding of the factors influencing on clinical competency is important. Kim et al. (2015) showed that nurses with high CC had high compassion and satisfaction, and low professional burnout (3).

Some researchers believe that occupational stress (OS) influences on different aspects of CC such as effective communication, responsibility, accountability and ethical and professional norms (13). OS is defined as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker (14). OS causes physical and psychological disorders. It also causes change in a person's physiology that forces them to deviate from their normal functions and work environment (15).

Nursing is a highly stressful occupation with high and complicated demands. The high job demands and the combination of too much responsibility and too little authority have been identified as some of the primary sources of OS in nursing staff (16,14). OS affects nurses' health-related quality of life negatively, while it can also be considered as an influence on patient outcomes (17). It causes loss of efficiency, work disability, increased absence from work and medical costs (18).

Clinical competence is an important necessity of nursing and nurses in this field have recently been criticized. Therefore, factors affecting the clinical competence and its promotion have been attention in health systems (19). On the other, due to the abundance of stress in nursing profession and the harmful personal and professional outcomes, it seems important to investigate the effective factors on OS. Nurses without CC are practically unable to do high quality and safety care. To express the challenge, despite the importance of clinical competence in quality of care and professional development and its relationship to OS among nurses, no similar study has been done and enough information is not available in this area.

Although the nursing profession in Iran has witnessed many improvements in recent years, it also faces a number of challenges, many of which may be universal. The main challenges include nursing shortage, job dissatisfaction, poor social position of nurses, and the gap between theory and practice (20). In Iran, the majority of nursing staff in governmental hospitals are women with a bachelor's degree and work under the guidance of physicians and over 150 hours per month. Nurses in bachelor degree are employed in different hospital wards without special training. In Iran, the most prior studies showed that 50-83% of the studied nurses had moderate to severe occupational stress (21,22,23). Also, the majority of Iranian nurses evaluated their overall professional competence at good level and at similar level of the nurses in other countries (11,19,24,25). Mirlashari et al. (2016) reported that the CC of nurses working in the neonatal intensive care units in Tehran university hospitals was in moderate level (26).

A review of studies has shown the OS among nurses is prevalent and had adverse effects on job performance and health care delivery (17,27). Al-Rasasi et.al (2015) reported 50% of the studied nurses experienced moderate or severe stress due to their work in Dubai hospitals and 73.4% of nurses reporting sever stress levels where those of higher experience (28). Admi & Eilon-Moshe (2016) in a study among 2616 hospital shift nurses recruited from 23 general hospitals across three countries, showed that nurses stress level was moderate and Thai nurses scoring the highest and Israeli nurses the lowest (27). Numminen et al. (2015) showed that newly graduated nurses' perception of their practice environment was mainly positive and associated with higher professional competence and higher perceptions of quality of care (29).

Due to the abundance of stress in nursing profession and the harmful personal, professional and organizational consequences, it seems important to investigate the effective factors on occupational stress. On the other hand, CC is considered as applying the knowledge, working skills and judgment; therefore, nurses without CC are practically unable to do high quality and safety care. Despite the importance of these two basic concepts in care quality and professional development, so far the relationship between them has been neglected and enough information on this area is not obtained.

Aim of study: This study aimed to assess CC and OS in nurses, and investigated the relationship in order to provide useful information to managers and nursing authorities for the formulation and implementation of prevention programs and control of OS and improving clinical competence. We asked the following research question: What is the association among the CC and OS for nurses who practice in university hospitals in Iran?

Methods

Design

A cross-sectional descriptive correlational design was used.

Participants

This study was conducted in seven (7) hospitals affiliated to Guilan University of Medical Sciences in Iran, 2015. Using the Cochran's sample size formula (N =1700, p=0.5, d=0.06, z=1.96), a sample number of 230 people was calculated, and adding 10% probable reduction of samples, the final sample size of the research sample was 250.

Stratified random sampling procedure was used to recruiting sample. First, each hospital was considered as a stratum, and then the number of samples in each stratum was determined in proportion to the total number of personnel per hospital. Second

nursing staff in each hospital had eligible criteria listed and samples were selected randomly at each hospital with simple random sampling. The inclusion criteria included; bachelor's degree or higher in nursing, informed consent, and having one year or more clinical nursing experience. The exclusion criteria included; presence of stressful situations (such as death of family, divorce) in the last year and mental illness under treatment according of self report, and incomplete questionnaires.

Measurements

Self-report questionnaires were used for data collection. Personal and professional characteristics were collected with the personal questionnaire including age, sex, marital status, level of education, clinical unit, type of work shift, total hours in monthly shift, monthly salary, job yenure and Years working in the present unit.

The CC assessed using the Persian version of the Competency Inventory for Registered Nurse (CIRN) that was a self assessment tool. The original version was designed by Liu et al. (2009) to assess the clinical competence of general nurses with appropriate reliability and validity (30). Wilkinson (2013) introduced this tool as a high validity and proper questionnaire (31). This tool has been translated to Persian by Ghasemi et al. (2014). This tool evaluates nursing competence in the seven dimension with 55 items; including "clinical care" (10 items), "leadership" (9 items), "interpersonal relationships" (8 items), "the legal/ethical practice" (8 items), "professional development" (6 items), "Teaching-coaching (6 items) and "Critical thinking/research aptitude" (8 items). This is scored based on Likert scale (0 = incompetent, 1= slightly competent, 2= somewhat competent, 3= competent enough and 4= high competency). Total score is 0-220 and higher scores indicating higher competence. The high average in each dimension also represents high competency in that dimension, so that the average score above 3 (total score 165-220) as high competency, scoring an average of 2-3 (total score 110-165) as moderately competent, and the average score less than 2 (total score less than 110) indicates low competency (30,32). The internal consistency of original version was assessed with Cronbach's α 0.908 for the scale and 0.718–0.903 for subscales and the construct validity was confirmed by confirmatory factor analysis (30). Content and face Validity of Persian version of this tool was confirmed and the reliability has been by the internal consistency with Cronbach's alpha 0.97 for the scale and 0.67 - 0.87 for the subscales (32).

Occupational stress was assessed using the Persian version of the Toft-Anderson occupational stress scale (Gray-Toft & Anderson, 1981). It has 34 items that are scored on Likert scale (0-3). The range of scores is 0-102 (0-39= low stress, 40-62= moderate stress, 63-102= severe stress) (33). The Persian version of this tool is used in past studies and an optimal reliability has been reported (0.74 to 0.96). Confirmatory factor analysis confirmed that the scale had good construct validity (34).

Data collection & **Data analysis**

Data was gathered by researchers during October - December 2015. Nurses who had the inclusion criteria were invited to complete a self- reported questionnaires, which was administered under the supervision of the researchers. Among the 1750 nurses who worked in the seven university hospitals, 1700 were eligible and 250 persons selected.

Descriptive statistics were used to summarize the participants' characteristics, clinical competency and occupational stress. Data analyzed with Mann-Whitney-U and T test and Spearman correlation coefficient. All statistical analysis was performed using SPSS software (version 17.0; SPSS Inc., Chicago, IL, USA). The level of statistical significance was set at $p < 0.05$.

Ethical Considerations

The research project was approved by Medical Ethical Committee (code number: 23810403932043). Before completing the questionnaires the confidentiality and informed consent from all participants was provided by openly communicating and all information that is likely to influence their willingness to participate was provided. Also their anonymity was preserved. The questionnaires were anonymous and coded to classify hospitals and units without identifying individuals who completed the questionnaires.

Results

The 20 questionnaires were incomplete and excluded from the study, then data from 230 participants were analyzed (response rate=92%). The mean age of the nurses was (32 ±7) years and the majority were female, married, working in the morning shift and had bachelors' degree (table 1).

Table1: demographic characteristics of nurses

Variables	**N (%)**	**Mean± SD (Min- MAX)**
Gender		
Male	211 (91.7)	
Female	19 (8.3)	
Marriage		
Married	152 (66.1)	
Unmarried	78 (33.9)	
Educational level		
Bachelor's degree	219 (95.2)	
Master's degree or higher	11 (4.8)	
Working Unit		

General Units*	126 (54.8)	
Special Units **	104 (45.2)	
Shift type		
Work in morning	177 (76.0)	
Work in shift	53 (23.0)	
Age (Years)		33±7 (24-53)
Job Yenure (years)		9±6 (1-28)
Years working in the present unit (years)		5±4 (1-20)
Monthly Working hours		170±11 (140-200)
Total	230 (100)	

** Special Units consists: CCU ,ICU ,NICU, Hemodiyalsis, Emergency

* General Units consists: Medical, Surgical, Pediatrics, Orthopedics, OB&GYN units

The results showed that %66.1 of the nurses have high CC and at the same time also %77.8 reported high OS (table 2).

Table 2: Nurses' Reports of clinical competence and occupational stress

Variable	level	Frequency(Percent)
Clinical competence	Low (<110)	3 (1.3%)
	Moderate (110-165)	75 (32.6%)
	High (165-220)	152 (66.1%)
Occupational stress	Low (0-39)	1 (0.4%)
	Moderate (40-62)	50 (21.7%)
	Extreme (63-102)	179 (77.8%)
Total		**230 (100%)**

The findings showed that there was a significant positive correlation (r= 0.153, P= 0.020) between the NCC and OS (Table 3).

Table 3: Correlation coefficient of clinical competence and occupational stress

Variable	Range	Mean (SD)	Correlation/ P value
Clinical competence (0-220)	82-220	173.59 (26.72)	P= 0.020 r= 0.153
Occupational stress (0-102)	29-102	72.46 (12.46)	

Sig. ($p < 0.05$)

Discussion

In the present study, the relationship between the two essential concepts of nursing consisting CC and OS was studied. The mean score of CC was (173.59±26.72) and assessed at high level (165-220). In many of prior studies, NCC have reported in moderate or high level (35,36,24, 19,37,38). Also Numminen et al., (2013) showed that the overall level of NCC was high, and the quality of action correlated positively with the frequency of action, age, and work experience were positively correlated with the NCC (39).

The CC integrates knowledge, skills, attitudes, professionalism, application of evidence and translating learning into practice (40). On the other, in the new plan of Iranian health system, nurses working in university hospitals are evaluated continuously, thus leading to improving their CC. Casey et al. (2017) reported that CC is specific to the nurse's role, organizational and patient's needs and the individual nurse's learning needs. Competence develops over the time and change as nurses' work in different practice areas (40). However, the self-assessment method for collecting data may affect the finding. In this regard, simultaneous to the self-reported CC, a more detailed assessment of the NCC can be run by the colleagues, and supervisors.

The mean score of OS was (72.46±12.95) and the OS of majority of nurses (77.8%) was at high levels (63-102). In more studies, OS was reported in high or moderate level in Iranian nurses (21,23). In addition, OS was reported in moderate or high level in nurses working in other countries (41,42,43,27). Nursing is a high stress profession but the level of stress may be different due many factors like the working unit, working environment, and personal and social characteristics of nurses. Admi

& Eilon- Moshe (2016) showed that significant differences existed in nurses stress levels among countries (27). So government departments and hospital administrators should be formulated interventions to prevent OS and occupational burnout in nurses (44). Nurses OS has a negative effect on health-related quality of life and so can influence patient outcomes (17). Iranian nurses have high work load, high turnover and safety issues. These may be increased OS in Iranian nurses.

In the present study, there was a significant positive correlation between CC and OS. This is an unexpected finding and dissimilar with prior studies. Unfortunately, little similar studies found in literature review. Similarly, Al-Rasasi et al. (2015) reported that more than 73.4% of the nurses had high OS, had reported high job experience that in turn could be associated with high CC (28). But, Samadi et al. (2013) showed that high stress levels may decrease nursing skills in providing patients health care and supportive services to co-workers. They concluded that stress can prevent nurses from providing optimal clinical care and decrease CC (21). Chen et.al (2017) showed that the novice nursing practitioners after Interactive situated and simulated teaching demonstrated superior CC, as well as reported lower stress levels and increased confidence in professional competence (45). These studies are in contrast with present study.

However, in the specialized panel to justify this finding by nursing management professors, it was emphasized that as the CC is higher in nurses, naturally, the scientific and professional information and regulations, practical skills and work experience are higher, therefore the expectations and accountability of nurses will increase and this may increase OS. Conversely, when the NCC is low so, theirs knowledge, skills and work experience will be lower, as well as accountability nurses may be reduced and it seems that this may reduce stress levels.

Limitations:

Because using self-report instruments, it may be mental or emotional conditions and fatigue influence the completion of questionnaires that has been out of control of the researcher. Also, the low number of male nurses and few postgraduate nurses, these two variables were not separately analyzed. Lack of enough related studies for compare the findings was a limitation.

Conclusion and Implications

OS is a recognized main problem among healthcare staff particularly nurses, and present study and more studies reported high level stress in nursing staff. Although it is expected that with increasing CC, the nurses' stress will decrease, but the findings of present study showed that OS had a positive correlation with CC. It seems that stress is an inseparable part of the nursing profession and nurses experienced high level in the workplace, thus it is possible, despite having high CC, have high OS. Since stress may cause adverse professional and organizational complications, this study suggest that, necessary continuous interventions should be taken for reducing stressors and teaching coping strategies and stress management to modified OS in nurses. Future researches are recommended to identify other factors affecting CC and validate the findings of this study.

CC and OS is two major concepts in nursing profession. According to the findings of the present study, it is recommended that nursing policy makers set stress management course in nursing curriculum and nurse managers implement training short term courses of stress management and modified the stressors in nursing work place.

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