Cultural Intelligence and Professional competencies among Nurses: A cross-sectional Study

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Abstract

Background: *Since nurses come across patients from diverse cultures, cultural intelligence is reflected as an imperative competence for nurses. Pioneer healthcare organizations have a duty to enhance the professional nurses' competencies.* ***Objective:*** *To examine how cultural intelligence relates to nurses' perceptions of their own professional competencies.* ***Settings:*** *The study was carried out in in all in-patient care units at Shoubrakhit General Hospital.* ***Subjects:*** *All of the 460 registered nurses who met the inclusion criteria, had worked in the study's allocated settings for at least six months, and were available at the time of data collection were included. They indicated a willingness to take part in the study.* ***Tools:*** *two tools were used. Tool one: "the Cultural Intelligence Scale (CQS)". Tool two: "Competency Inventory for Registered Nurses (CIRN)".* ***Results:*** *The findings indicated that nurses have a moderate level of professional competence and cultural intelligence. Additionally, the results demonstrated a statistically significant positive correlation between educational level, nursing experience, and working units and professional competence as well as cultural intelligence.* ***Conclusion:*** *Cultural intelligence and professional competences have a strong positive significant association that is statistically significant positive correlation.* ***Recommendations:*** *training sessions should be undertaken to enhance cultural intelligence and professional nursing competencies through official and unofficial training of nurses' cognitive and behavioral skills. Hospital and nurse managers along with all nurses should perform a cultural competence self-assessment periodically to determine own strengths and weaknesses. Nurses should be rewarded and motivated for obtaining continuous education certificates in cultural competence. Nurses should develop communication and language barriers as language is the key to accessing any cultural values, beliefs, and viewpoints. Online networking and social media can have a great influence on cultivating nurses' cultural competency and awareness and keeping them up-to-date with cultural competency concerns.*

Keywords: Cultural intelligence, Professional competencies, Nurse

Introduction

Globalization, natural disasters, unemployment, and fluctuating living conditions have all contributed to migration as a serious issue in a world where the population is always growing (Meydanloolu, 2019).Nowadays, extra healthcare professionals live separate from their homeland (Levin Institute, 2013). Increasing cultural diversity highlights the need for cultural intelligence in medical care (Başli et al., 2018).

People's ideas about what constitutes health and what constitutes illness are heavily influenced by their culture. Cultural intelligence (CI) is a new-fangled realm of intelligence that is one of the most operational tools for performing tasks efficiently in environments with heterogeneous workforce as healthcare environment. CI is the proficiency in recognizing and relating to the feelings of those who belong to a culturally different background. (Rasooli et al., 2019; Faraji-Khiavi et al., 2015, 2017).

Cultural intelligence takes account of four domains as follows: Control of one's own cognitive processes—how one learns and retains information—is what is meant by the term "*metacognitive intelligence*." Knowledge is at the heart of a cognitively intelligent person's mental capabilities, as the term "*cognitive intelligence*" suggests by referring to knowledge structures and knowledge concepts. The ability to focus one's thoughts and energies on a particular job or scenario while also being aware of such motivational talents is a key component of *motivational intelligence*. *Behavioral intelligence* is a measure of outward expressions of a person's mental capacity, or what they do as opposed to what they think (Ang et al. 2007).

According to Rahimaghaee and Mozdbar (2017), CI is a remarkable talent for nurses in inter-cultural communication and improving nurses' professional competencies. The competency of nurses is a legal and ethical obligation to both patients and their insurers, as it directly affects the quality of care they receive (Flora et al. 2020). Therefore, the nursing profession needs to make clear claims about the abilities of its members and the standards of care that may be expected from them. When it comes to the healthcare industry, nurses make up the bulk of the workforce. They are supervised and held responsible by the public to ensure the public receives safe and effective service (Pullon et al. 2016).

Competence in nursing include the information, skills, and individual attributes and perspectives necessary to carry out nursing duties and meet the job expectations (Affara 2009). Nurses' competencies are helpful tool for managers and nurses to assess, learn, and hone the skills they need to do their jobs well (Hewitt et al. 2014). The success of healthcare systems depends on having a nurses that possesses core competencies and can thus provide safe, high-quality clinical services (Flora et al. 2020). Nurses' professional competences displaying the knowledge and skills for clinical care are recognized as nurses' own resources. Self-confidence in the nursing profession is significantly impacted by nurses' ability to demonstrate their core competencies. (Pullon et al. 2016).

The seven categories that make up the Core Competence Scale are as follows: *critical thinking and research aptitude; clinical care; leadership; interpersonal interaction; legal and ethical practice; professional growth; teaching and coaching* (Liu et al. 2009). Specifically, *research skills, critical thinking* reflects a nurse's ability to make informed clinical decisions and carefully consider all available treatment options. Encouragement and maintenance of optimal human functioning, comfort measures, assessment, planning, implementation, and evaluation are all examples of *clinical care* that nurses provide. *Leadership* illuminated nurses' potential to display genuine managerial and leadership abilities in the delivery of high-quality, safe nursing care through inspiring, and motivating colleagues to perform their best (Lee et al. 2017& Jokiniemi et al. 2021).

Establishing and maintaining professional nurse-patient relationships and liaising with other healthcare professionals are outlined as nurses' *interpersonal interaction competence*. When it comes to *legal and ethical considerations,* nurses demonstrate an awareness of their professional responsibilities. They exhibit and uphold ethical nursing standards while providing treatment that is sensitive to the needs of the patient's culture. Responsibility for one's own education and advancement as a nurse is displayed through continued *professional development*. *Teaching and coaching* involve demonstration of instructional strategies in order to provide guidance to a variety of audiences, including students, patients, and coworkers (Lee et al. 2017& Jokiniemi et al. 2021).

In the field of healthcare, CI is rarely utilized to explain social phenomena (Keyvanara et al. 2014; Bernhard et al. 2015;

Rahimaghaee & Mozdbar 2017). Increased interest on CI can be attributed to the widespread use of cross-cultural teams in healthcare (Majda & Zalewska-Puchaa 2018). Nurses need strong intercultural communication skills in order to connect with patients from a wide range of cultural backgrounds. (Riley et al. 2012). Nursing's inherent nature necessitates a respect for human rights, cultural rights, the right to life, and the right to choose, according to the International Council of Nurses; to a large extent, nursing exists as a cultural phenomenon (ICN, 2012 ethical code). It is reasonable to assume that nurses who specialize in caring for patients of a particular culture will be culturally literate and so be able to give comprehensive care (Chen & Wang, 2015).

Aims of the Study

The current study aims to investigate the relationship between cultural intelligence and nurses' professional competencies as perceived by nurses at Shoubrakhit General Hospital.

Research questions

1. What are the nurses` perception regarding cultural intelligence at Shoubrakhit General Hospital?

2. What are the nurses` perception regarding their professional competencies at Shoubrakhit General Hospital?

3. What is the relationship between cultural intelligence and nurses' professional competencies as perceived by nurses at Shoubrakhit General Hospital?

Materials and Method

Materials

Design: A cross-sectional quantitative study was used to conduct this study.

Settings: This study was conducted in all in-patient care units at Shoubrakhit General Hospital. This hospital is affiliated with the Ministry of Health and Population. It is considered one of the main hospitals in the El Beheira governorate. This hospital was selected because it has the largest number of bed capacity (200 beds), and different educational qualifications of nurses. In addition, it provides a wide range of healthcare services such as intensive care, inpatient, outpatient, radiological, laboratory, and physiotherapy health services. The hospital units are classified as follows; Intensive and critical care units (n=3) as General Intensive Care Unit (ICU) (n=1); Pediatric ICU (n=1) and High risk (n=1). Furthermore, in-patient care units (n=11) as medical (free and economic) (n=2); pediatric (n=1); dialysis (n=1); obstetrics and gynecology (free and economic) (n=2); and surgical unit (free and economic) (n=2), out-patient care unit (n=1), emergency care unit (n=1) and infectious disease unit (n=1).

Subjects: All of the 460 registered nurses who met the inclusion criteria, had worked in the study's allocated settings for at least six months, and were available at the time of data collection were included. They indicated a willingness to take part in the study. Nurses who lacked the aforementioned qualifications were, nevertheless, barred from employment. Participants were split evenly among; professional nurses (n = 135), technical nurses (n= 175), and practical nurses (n= 150)

Tools: In order to collect the necessary data for the study two tools were used:

Tool one: "Cultural Intelligence Scale (CQS)". This tool was created by Ang et al. (2007). It consists of four sub-domains and 20 components as follows: metacognitive (4 items), cognitive (6 items), motivational (with 5 things), and behavioral (5 items). All of the opinions were ranked on a seven-point Likert scale, from 1 (strongly disagree) to 7 (completely agree) (strongly agree). The possible total score was ranging from 20 to 140. The cultural intelligence of nurses varied from 20 to -60, 60 to -100, and 100 to -140 on a scale from lowest to highest.

Tool two: LIU's Competency Inventory for Registered Nurses (CIRN), a collection of seven categories composed 55 items as follows: critical thinking and research aptitude (CT; 8 items), clinical care (CC; 10 items), leadership (LD; 9 items), interpersonal relationships (IR; 8 items), and legal/ethical practice (LE) (8 items) training for professionals (6 items) in addition to TC (teacher-coach) (6 items). All of the opinions were ranked on a five-point Likert scale, from 0 (completely incompetent) to 5 (very competent) (very competent). For negative statements, the score was reversed. Nurses' key competencies were rated from 0 to 73, 74 to 146, and 147 to 220, with higher scores indicating greater skill. If people have a favourable impression of nurses' key competencies, the score will be higher.

The researchers also created a demographic data sheet for the staff nurses to fill out with information about themselves, such as their age, gender, working unit, years of experience, etc.

Method

An approval for conducting the study was obtained from the Research Ethics Committee of the Faculty of Nursing, Damanhur University. Permission for conducting the study was obtained from the Faculty of Nursing, Alexandria University, and the administrators of the study settings to collect the necessary data. The study tools were translated into Arabic, back to back translation will be done. The study tools were tested for their face and content validity by five experts in the field of the study and the necessary modifications were done. The study tools were tested for their reliability. The internal consistency of the items was measured using Cronbach's alpha to check the reliability of the study tools. Both the Cultural Intelligence Scale and the Competency Inventory for Registered Nurses demonstrated high levels of reliability (r = 0.92 and 0.90, respectively) at the 5% level of statistical significance. A pilot study was conducted on (10%) (n= 46) of the study subjects, they were excluded from the sample. This pilot study was done for testing the feasibility and applicability of the tools and identify obstacles that may be encountered during data collection and determine the average time of data collection but no changes were necessary. Data was gathered by the researcher through self-administered questionnaire, it was hand delivered to the study subjects at their study settings, after explaining purpose of the study. The subject was asked to return it back to the researcher after definite period of time at the study setting. Over the course of three months, from August 2022 through November 2022, data was collected. All participants' questions were answered and explanations were offered properly.

Ethical considerations:

A written informed consent from the study subjects was obtained after explaining the aim of the study. Confidentiality of data was maintained. Anonymity of the study participants was kept. Subjects participated in the study on voluntary base, and had the right to withdraw at any time from the study.

Statistical Analysis

The collected data were organized, tabulated and statically analyzed using the statistical package for social studies (SPSS) Version 25.0. Qualitative data were described using number and percent. Quantitative data were described mean ± standard deviation. Finally, analysis and interpretation of data were conducted. P-values of 0.05 or less were considered statistically significant.

Results

Table 1 presents 460 staff nurses participated in the study, including 82.6% female and 17.4% male, 42.2% of participants aged from 20 to less than years with mean age 35.43 ± 9.58. Staff nurses who were working in Surgical Care Units represented 42.4% of the sample. Education wise, 38.7% had a diploma degree of technical nursing schools. 29.1% had experienced working as staff nurses from 10

– less than 20 years of experience in nursing, then more than half of participants (59.8 %) had experienced less than five years in their units. 28.3% of the nurses worked Fixed morning shift.

Table 2 demonstrates cultural intelligence was measured by four dimensions. The overall score was (64.21 ± 12.85). *"Metacognitive "*dimension *achieved* the uppermost mean score (68.42 ± 6.59), and "*Cognitive*" achieved the bottommost mean (60.62 ± 15.90). It observed that more than half (59.3%) of participants had moderate level of cultural intelligence. Nurses' Professional competencies was measured by seven dimensions. The overall score was (63.30 ± 10.25). *"Clinical care "*dimension *achieved* the highest mean score (79.30 ± 11.71), and ". *Professional development*" achieved the lowest mean (48.30 ± 26.89). It observed that more than half (58.9%) of participants had moderate professional competencies.

Table 3 the correlation between cultural intelligence and Nurses' Professional competencies was conducted using Pearson correlation. There was a statistical highly significant correlation between cultural intelligence and Nurses' Professional competencies as perceived by nurses (*r*=0.996*, *p<0.001**).

Table 4 illustrates the relationship between cultural intelligence and participants' demographic data. In terms of the cultural intelligence dimensions, nurses' overall cultural intelligence differs significantly regarding all nurses 'sociodemographic data except sex, unit, and shift. Respecting age. Participants aged from 40 to less than 50 years had exceeding mean scores in overall cultural intelligence (68.12 ± 12.67) (0.002*). Pertaining to educational level, nurses holding Bachelor of Nursing Sciences had outstripped mean scores in overall cultural intelligence (66.55 ± 12.65) (0.025*). Experience wise participants experienced in the nursing field and working units 20 or more years had exceeding mean scores in overall cultural intelligence (67.80 ± 12.24) (0.001*), (68.26 ± 10.79) * (0.016*) in that order.

Table 5 explains the relationship between nurses' professional competencies and their demographic data. Nurses' overall professional competencies differ significantly regarding nurses' age, educational level, and experience in both the nursing field and working units. With reference to age, participants aged 50 years and more had the greatest mean scores in all professional competencies dimensions, (66.58 ± 7.22) (0.002*). Concerning educational level, nurses holding Bachelor of Nursing Sciences had exceeding mean scores in overall professional competencies dimensions (65.36 ± 8.95) (0.010*). In respect of experience in the nursing field and working units; nurses who experience 20 years or more had considerable mean scores in overall professional competencies dimensions (66.20 ± 8.64) (0.001*), (67.27 ± 7.04) (0.005*) respectively. In addition, sex, unit, and shift were out of the way of a significance level.

Discussion

One of the key requirements for guaranteeing the quality of care is professional nursing competence, which, along with clinical competence, can be assessed to identify nursing areas that still need improvement and additional training (Prendi et al ,2022). Clinical careers are thought to require high levels of cultural intelligence. The golden rule states that in moments of vulnerability and fear, we should be treated as we would like to be treated by others. To give outstanding care for persons of diverse religions, ethnic groups, countries, and races, we do not need to know the social practices, prevailing beliefs, or rules associated with each culture. Focusing on the patient and showing them respect, sensitivity, poise, cooperation, honesty, acumen, curiosity, and tolerance are the keys to establishing cultural competencies and cultural intelligence. Everyone wants someone to take care of them (Majda et al ,2021).

This present study was run to investigate the relationship between cultural intelligence and nurses' professional competencies as perceived by nurses at Shoubrakhit General Hospital, Egypt. The results of the current study show that the "Metacognitive" dimension had the highest mean score, while the "Cognitive" component had the lowest mean. Given that nurses lacked an understanding of cultural similarities and differences, individual general knowledge, and the intellectual and cognitive plans of others, it could be explained that nurses had the capacity to control cognition and the processes people use to acquire and comprehend cultural knowledge.

More over half of the individuals were found to have a moderate level of cultural intelligence, according to the study. Coşkun Erçelik, amlica, zkan, and Güner et al. (2022) reported modest levels of cultural intelligence along the same lines. This finding conflicts with that of Rahimaghaee & Mozdbar (2017), who found that the behavioral aspect of cultural intelligence had the highest mean score of all and that the mean of cultural intelligence among the participants was higher than the average of the measurement indicator. The metacognitive dimension had the lowest mean score in most of the participants.

According to the findings of the current study, more than half staff nurses demonstrated a moderate perceived level of professional competencies. Also, "Clinical care "dimension achieved the highest mean score, and ". Professional development" achieved the lowest mean. This outcome may be explained by the fact that nurses had their own resources representing their clinical knowledge and skills, but lacked opportunities for professional development. Rahimaghaee & Mozdbar (2017) said that the professional competency of the researched nurses' mean score was higher than the average score that can be gleaned from the questionnaire. This finding is in opposition to their statement. The findings of the evaluation of professional competency showed that 34.3% of nurses attained high competence and 58.3% of nurses had moderate competence (Karami, Farokhzadian , Foroughameri ,2017).

Using Pearson correlation, the relationship between cultural intelligence and nurses' professional competences was examined. According to nurses, there was a statistically highly significant relationship between the two. This suggests that shifting cultural intelligence will result in shifting professional competencies. A high positive correlation between cultural intelligence and professional competency was found by Rahimaghaee & Mozdbar (2017) using data from the Pearson test (p 0.001, r = 0.685).

Additionally, the current study found that, with the exception of sex, unit, and shift, nurses' general cultural intelligence questionnaire considerably varies across all of their sociodemographic variables. Respecting the working units, nursing experience, and age. Participants who were older (40 to less than 50 years old) and more experienced had scores in overall cultural intelligence that were higher than the mean. This outcome may be explained by the fact that older nurses have greater cultural intelligence, or the capacity to comprehend and empathize with the attitudes and actions of people from different cultural backgrounds.

This is in line with the findings of Amiri and Ahanchian (2012), who stated that the study's findings indicated that factors such as economic level, age, sex, and work experience have an impact on cultural intelligence. Coşkun Erçelik, Amlica, and Zkan (2022) emphasize that there is a correlation between levels of cultural intelligence and a variety of factors, including age, gender, length of employment, fluency in a foreign language, and travel-related experiences. According to the results of the current study, nurses with bachelor's degrees in nursing sciences outperformed the national average for cultural intelligence. The results

were inconsistent with others that discovered a relationship between gender and cultural intelligence in nurses (Darvish et al ,2014).

According to the study's findings, participants 50 years of age and older obtained the highest mean scores across all professional competence dimensions. Nurses with bachelor's degrees in nursing sciences outperformed the national average in all professional competency criteria. The findings of Karami and collegues (2017) were in conflict with this outcome. Nurses with 20 years or more of experience in the nursing industry and in operational units had significant mean scores across all professional competency categories. Additionally, the results of Karami ,Farokhzadian , Foroughameri ,(2017) were consistent with the findings. They discovered that the Kruskal-Wallis test revealed a substantial difference in professional competency depending on job experience groups, with nurses having higher professional competency than others. Additionally, results with a significance level similar to those of Karami and others (2017) were not affected by sex, unit, or shift.

Conclusion

The findings indicated that nurses have a moderate level of professional competence and cultural intelligence. Results also showed a statistically significant positive link between educational attainment, nursing experience, and working units and professional competence as well as cultural intelligence. The relationship between cultural intelligence and professional competencies, on the other hand, was found to be significantly correlated.

Recommendations

In line with the findings of the study, the following recommendations are made:

Training sessions should be undertaken to enhance cultural intelligence and professional nursing competencies through official and unofficial training of nurses' cognitive and behavioral skills. Hospital and nurse managers along with all nurses should perform a cultural competence self-assessment periodically to determine their own strengths and weaknesses. Nurses should be rewarded and motivated for obtaining continuous education certificates in cultural competence. Nurses should develop communication and language barriers as language is the key to accessing any cultural values, beliefs and viewpoints. Online networking and social media can have a great influence on cultivating nurses' cultural competency and awareness and keeping them up-to-date with cultural competency concerns.

Table (1): Distribution of the studied nurses according to demographic data (n =460)

Demographic data	No.	%
Age (years)		
20 – <30	194	42.2
30 – <40	135	29.3
40 – <50	96	20.9
≥ 50	35	7.6
Mean ± SD.	35.43 ± 9.58	
Sex		
Male	80	17.4
Female	380	82.6
Unit		
Surgical	195	42.4
Medical	140	30.4
Intensive (ICUS)	125	27.2
Educational level		
Nursing school diploma	178	38.7
Technical nursing institue	118	25.7
Bachelor science in nursing	164	35.7
Years' experience of nursing		
<5	69	15.0
5– <10	127	27.6
10– <20	134	29.1
≥ 20	130	28.3
Mean ± SD.	13.64 ± 7.72	
Years' experience of unit		
<5	275	59.8
5– <10	116	25.2
10– <20	23	5.0
≥ 20	46	10.0
Mean ± SD.	6.39 ± 6.55	
Shift		
Fixed morning	130	28.3
rotating morning and evening	114	24.8
rotating morning ,evening and night	116	25.2
Fixed night	100	21.7

SD: Standard deviation

Table (2): Distribution of the studied nurses according to their levels and mean percent score of cultural intelligence and Nurses' Professional competencies (n =460)

	Low (<33.3%)		Moderate (33.3 – <66.6%)		High (≥ 66.6%)		Total score	% score	Mean score out of 5
	No.	%	No.	%	No.	%	Mean ± SD.	Mean ± SD.	Mean ± SD.
Cultural intelligence	**3**	**0.7**	**273**	**59.3**	**184**	**40.0**	**71.37 ± 10.28**	**64.21 ± 12.85**	**3.57 ± 0.51**
A. Metacognitive	3	0.7	184	40.0	273	59.3	14.95 ± 1.05	68.42 ± 6.59	3.74 ± 0.26
B. Cognitive	6	1.3	270	58.7	184	40.0	20.55 ± 3.82	60.62 ± 15.90	3.43 ± 0.63
C. Motivational	12	2.6	356	77.4	92	20.0	18.39 ± 3.25	66.96 ± 16.23	3.68 ± 0.65
D. Behavioral	18	3.9	166	36.1	276	60.0	17.48 ± 3.14	62.41 ± 15.69	3.50 ± 0.63

Nurses' Professional competencies	**6**	**1.3**	**271**	**58.9**	**183**	**39.8**	**139.25 ± 22.55**	**63.30 ± 10.25**	**2.53 ± 0.41**
A. clinical care	2	.4	91	19.8	367	79.8	31.72 ± 4.68	79.30 ± 11.71	3.17 ± 0.47
B. Leadership	5	1.1	446	97.0	9	2.0	19.03 ± 1.23	52.86 ± 3.41	2.11 ± 0.14
C. interpersonal relation	12	2.6	80	17.4	368	80.0	22.39 ± 3.89	69.97 ± 12.14	2.80 ± 0.48
D. legal/ethical practice	20	4.3	5	1.1	435	94.6	22.36 ± 2.91	69.88 ± 9.10	2.80 ± 0.36
E. professional development	92	20.0	276	60.0	92	20.0	11.59 ± 6.45	48.30 ± 26.89	1.93 ± 1.07
F. teaching-coaching	12	2.6	265	57.6	183	39.8	13.50 ± 3.78	56.26 ± 15.74	2.25 ± 0.63
G. critical thinking/research aptitude	17	3.7	260	56.5	183	39.8	18.66 ± 3.56	58.32 ± 11.12	2.33 ± 0.44

SD: Standard deviation

Table (3): Correlation between cultural intelligence and Nurses' Professional competencies (n =460)

\		Cultural intelligence					Nurses' professional competencies							
		Metacognitive	Cognitive	Motivational	Behavioral	Overall	Clinical care	Leadership	Interpersonal relation	Legal/ethical practice	Professional development	Teaching-coaching	Critical thinking/research aptitude	Overall
A. Metacognitive	r_s		0.891*	0.732*	0.895*	0.946*	0.914*	0.252*	0.912*	0.284*	0.889*	0.990*	0.968*	0.943*
	p		<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
B. Cognitive	r_s			0.904*	0.752*	0.971*	0.970*	0.317*	0.973*	0.363*	0.920*	0.898*	0.945*	0.971*
	p			<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
C. Motivational	r_s				0.697*	0.906*	0.820*	0.338*	0.819*	0.400*	0.918*	0.745*	0.813*	0.896*
	p				<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
D. Behavioral	r_s					0.872*	0.770*	0.237*	0.775*	0.412*	0.890*	0.907*	0.893*	0.872*
	p					<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
Overall Cultural intelligence	r_s						0.945*	0.308*	0.946*	0.383*	0.971*	0.951*	0.973*	**0.996***
	p						<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	**<0.001***
A. clinical care	r_s							0.263*	0.995*	0.364*	0.865*	0.922*	0.972*	0.945*
	p							<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
B. Leadership	r_s								0.272*	0.307*	0.299*	0.271*	0.264*	0.350*
	p								<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
C. interpersonal relation	r_s									0.389*	0.864*	0.924*	0.970*	0.946*
	p									<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
D. legal/ethical practice	r_s										0.350*	0.342*	0.390*	0.399*
	p										<0.001*	<0.001*	<0.001*	<0.001*
E. professional development	r_s											0.892*	0.917*	0.970*
	p											<0.001*	<0.001*	<0.001*
E. professional development	r_s												0.976*	0.951*
	p												<0.001*	<0.001*
G. critical thinking/research aptitude	r_s													0.973*
	p													<0.001*
Overall Nurses' professional competencies	r_s													
	p													

r_s: Spearman coefficient

*: Statistically significant at $p \leq 0.05$

Table (4): Relation between cultural intelligence (% score) with demographic data (n =460)

Demographic data	Cultural intelligence				
	Metacognitive	Cognitive	Motivational	Behavioral	Overall
	Mean ± SD.	Mean ± SD.	Mean ± SD.	Mean ± SD.	Mean ± SD.
Age (years)					
20 – <30	68.30 ± 7.13	59.13 ± 15.35	64.82 ± 64.82	61.70 ± 16.50	63.03 ± 12.90
30 – <40	67.18 ± 6.47	58.37 ± 15.56	65.37 ± 15.99	60.11 ± 15.71	62.31 ± 12.69
40 – <50	70.12 ± 5.61	65.37 ± 16.83	71.72 ± 16.70	66.25 ± 13.71	68.12 ± 12.67
≥ 50	69.29 ± 5.54	64.53 ± 14.69	71.86 ± 14.25	64.71 ± 14.45	67.36 ± 11.25
H(p)	**13.331*(0.004*)**	**13.924*(0.003*)**	**14.596*(0.002*)**	**9.662* (0.022*)**	**14.352*(0.002*)**
Sex					
Male	67.42 ± 7.29	58.34 ± 16.25	64.75 ± 16.38	60.56 ± 15.91	62.31 ± 13.27
Female	68.63 ± 6.43	61.10 ± 15.80	67.42 ± 16.18	62.80 ± 15.63	64.61 ± 12.75
U(p)	**13789.50(0.161)**	**13607.0(0.123)**	**13440.0(0.068)**	**14107.0(0.239)**	**13544.50(0.119)**
Unit					
Surgical	68.43 ± 7.12	60.54 ± 15.81	66.54 ± 16.21	62.54 ± 15.95	64.12 ± 12.95
Medical	68.71 ± 6.73	61.37 ± 16.05	67.57 ± 16.35	63.21 ± 15.35	64.85 ± 12.88
Intensive (ICUS)	68.10 ± 5.55	59.90 ± 15.95	66.92 ± 16.24	61.32 ± 15.71	63.65 ± 12.75
H(p)	**1.654 (0.437)**	**0.859 (0.651)**	**0.193(0.908)**	**1.013 (0.603)**	**0.898 (0.638)**
Educational level					
Nursing school diploma	67.63 ± 7.16	58.08 ± 14.92	63.90 ± 15.79	60.51 ± 16.49	62.05 ± 12.71
Technical nursing institue	68.70 ± 6.86	60.21 ± 15.96	66.40 ± 16.01	63.31 ± 15.83	64.23 ± 12.89
Bachelor science in nursing	69.09 ± 5.64	63.67 ± 16.45	70.67 ± 16.22	14.54 ± 14.54	66.55 ± 12.65
H(p)	**3.779 (0.151)**	**7.788* (0.020*)**	**10.932*(0.004*)**	**4.128 (0.127)**	**7.407* (0.025*)**
Years' experience of nursing					
<5	66.85 ± 9.24	57.13 ± 17.06	62.03 ± 18.91	57.83 ± 18.24	60.47 ± 15.02
5– <10	69.05 ± 5.50	60.14 ± 14.18	66.34 ± 13.76	63.78 ± 63.78	64.38 ± 11.32
10 – <20	67.26 ± 6.51	58.65 ± 15.81	65.60 ± 16.26	60.22 ± 15.71	62.50 ± 12.86
≥20	69.86 ± 5.58	64.97 ± 16.18	71.58 ± 15.96	65.77 ± 13.90	67.80 ± 12.24
H(p)	**13.617*(0.003*)**	**14.894*(0.002*)**	**16.105*(0.001*)**	**14.695*(0.002*)**	**16.171*(0.001*)**
Years' experience of unit					
<5	67.84 ± 7.17	58.61 ± 15.56	64.78 ± 16.09	60.71 ± 16.42	62.52 ± 13.01
5– <10	68.97 ± 5.59	62.68 ± 16.42	69.27 ± 16.41	64.14 ± 14.48	65.95 ± 12.66
11– <20	69.57 ± 5.75	64.86 ± 16.85	70.87 ± 17.36	65.87 ± 14.11	67.55 ± 12.92
≥20	69.97 ± 5.37	65.31 ± 14.41	72.17 ± 14.05	66.52 ± 13.66	68.26 ± 10.79
H(p)	**5.233 (0.155)**	**11.040* (0.012*)**	**11.924* (0.008*)**	**8.517* (0.036*)**	**10.329* (0.016*)**
Shift					
Fixed morning	68.27 ± 5.54	59.81 ± 15.59	66.19 ± 16.21	61.73 ± 15.81	63.58 ± 12.63
rotating morning and evening	67.82 ± 8.07	60.20 ± 16.03	66.80 ± 15.81	61.45 ± 15.58	63.68 ± 13.07
rotating morning ,evening and night	68.70 ± 5.68	61.17 ± 15.69	67.33 ± 67.33	62.33 ± 16.02	64.50 ± 12.74
Fixed night	69.00 ± 69.00	61.50 ± 16.54	67.70 ± 16.79	64.50 ± 15.30	65.30 ± 13.14
H(p)	**2.294 (0.514)**	**1.127 (0.770)**	**0.665 (0.882)**	**2.547 (0.467)**	**1.634 (0.652)**

SD: **Standard deviation**

U: Mann Whitney test H: H for **Kruskal Wallis test**

p: p value for comparison between the studied categories

*: Statistically significant at p ≤ 0.05

Table (5): Relation between nurses' professional competencies (% score) with demographic data (n =475)

Demographic data	Nurses' Professional competencies							
	Clinical care	Leadership	Interpersonal relation	Legal/ethical practice	Professional development	Teaching-coaching	Critical thinking/research aptitude	Overall
	Mean ± SD.	Mean ± SD.	Mean ± SD.	Mean ± SD.	Mean ± SD.	Mean ± SD.	Mean ± SD.	Mean ± SD.
Age (years)								
20 – <30	78.14 ± 12.97	52.47 ± 2.54	68.94 ± 13.50	68.16 ± 12.10	44.74 ± 25.81	56.12 ± 16.11	57.46 ± 12.19	62.09 ± 11.10
30 – <40	78.56 ± 11.31	52.68 ± 4.16	68.36 ± 11.89	70.40 ± 8.0	46.08 ± 25.96	52.78 ± 14.80	56.85 ± 10.59	62.14 ± 9.88
40 – <50	81.25 ± 10.51	53.42 ± 3.03	72.95 ± 10.23	71.88 ± 0.0	55.68 ± 29.48	60.85 ± 15.39	60.97 ± 10.08	66.16 ± 9.14
≥ 50	83.21 ± 6.88	54.29 ± 4.73	73.66 ± 7.16	71.88 ± 0.0	56.43 ± 24.17	57.86 ± 15.38	61.43 ± 7.61	66.58 ± 7.22
H(p)	**12.068* (0.007*)**	**16.220* (0.001*)**	**12.403* (0.006*)**	**14.868* (0.002*)**	**13.112* (0.004*)**	**14.533* (0.002*)**	**12.724* (0.005*)**	**15.140* (0.002*)**
Sex								
Male	77.53 ± 12.29	52.43 ± 3.26	68.24 ± 12.39	69.54 ± 9.64	45.00 ± 27.22	53.96 ± 15.22	56.53 ± 11.52	61.73 ± 10.54
Female	79.67 ± 11.56	52.96 ± 3.44	70.33 ± 12.07	69.95 ± 8.99	49.00 ± 26.81	56.74 ± 15.83	58.69 ± 11.01	63.63 ± 10.17
U(p)	**13448.50 (0.081)**	**14921.0 (0.454)**	**13625.0 (0.117)**	**14835.0 (0.390)**	**13784.50 (0.170)**	**13768.50 (0.157)**	**13572.0 (0.116)**	**13620.0 (0.138)**
Unit								
Surgical	79.50 ± 12.05	52.47 ± 3.24	70.13 ± 12.41	69.51 ± 9.85	48.10 ± 26.31	56.60 ± 15.92	58.54 ± 11.21	63.29 ± 10.45
Medical	79.59 ± 11.35	53.16 ± 3.45	70.45 ± 12.0	70.18 ± 8.32	49.14 ± 27.49	57.11 ± 15.77	58.75 ± 11.05	10.11 ± 10.11
Intensive (ICUS)	78.66 ± 11.62	53.16 ± 3.59	69.18 ± 11.93	70.10 ± 8.75	47.70 ± 27.32	54.77 ± 15.46	57.48 ± 11.10	62.80 ± 10.15
H(p)	**1.385 (0.500)**	**3.471 (0.176)**	**1.348 (0.510)**	**1.086 (0.581)**	**0.595 (0.743)**	**1.722(0.423)**	**1.526(0.466)**	**0.883 (0.643)**
Educational level								
Nursing school diploma	78.16 ± 12.35	52.31 ± 3.12	68.22 ± 13.59	68.28 ± 12.09	43.82 ± 24.54	54.33 ± 15.81	56.90 ± 11.76	61.61 ± 10.81
Technical nursing institute	78.81 ± 12.50	52.40 ± 2.88	69.84 ± 12.52	69.50 ± 9.69	47.10 ± 26.95	56.92 ± 15.83	58.19 ± 11.73	62.98 ± 10.64
Bachelor science in nursing	80.88 ± 10.21	53.80 ± 3.85	71.95 ± 9.73	71.88 ± 0.0	54.04 ± 28.38	57.88 ± 15.48	59.95 ± 9.72	65.36 ± 8.95
H(p)	**4.571 (0.102)**	**25.541* (<0.001*)**	**4.945 (0.084)**	**14.912* (0.001*)**	**8.058* (0.018*)**	**4.545 (0.103)**	**4.925 (0.085)**	**9.153* (0.010*)**
Years' experience of nursing								
<5	74.82 ± 15.52	51.89 ± 4.22	65.45 ± 16.83	63.27 ± 17.30	41.42 ± 28.18	53.99 ± 17.26	54.58 ± 14.15	59.16 ± 13.73
5–10	80.02 ± 10.87	52.78 ± 0.0	70.84 ± 10.76	70.87 ± 6.53	46.52 ± 24.13	57.12 ± 15.33	59.03 ± 10.61	63.69 ± 8.94
11–20	78.56 ± 78.56	52.68 ± 4.18	68.45 ± 11.98	70.39 ± 8.03	46.49 ± 26.41	53.05 ± 14.95	56.93 ± 10.68	62.24 ± 9.98
≥ 20	81.73 ± 9.71	53.66 ± 3.58	73.08 ± 9.49	71.88 ± 0.0	55.58 ± 27.96	59.94 ± 15.39	61.04 ± 9.47	66.20 ± 8.64
H(p)	**13.671* (0.003*)**	**15.876* (0.001*)**	**14.451* (0.002*)**	**52.059* (<0.001*)**	**14.966* (0.002*)**	**15.197* (0.002*)**	**15.182* (0.002*)**	**17.484* (0.001*)**
Years' experience of unit								
<5	77.95 ± 12.71	52.32 ± 3.13	68.42 ± 13.46	68.53 ± 11.58	44.54 ± 25.95	55.02 ± 15.97	57.02 ± 11.98	61.81 ± 10.99
5–10	80.26 ± 80.26	53.38 ± 3.06	71.34 ± 10.11	71.88 ± 0.0	52.23 ± 28.42	57.26 ± 15.29	59.32 ± 10.05	64.73 ± 9.06
11–20	81.63 ± 9.85	52.90 ± 0.58	72.69 ± 9.75	71.88 ± 0.0	55.98 ± 29.03	59.42 ± 15.55	60.74 ± 9.60	65.95 ± 8.75
≥ 20	83.80 ± 6.19	54.83 ± 5.31	74.39 ± 7.02	71.88 ± 0.0	57.06 ± 23.81	59.60 ± 15.21	62.30 ± 7.23	67.27 ± 7.04
H(p)	**7.715 (0.052)**	**32.965 (<0.001*)**	**8.890* (0.031*)**	**17.730 (<0.001*)**	**12.893* (0.005*)**	**6.250 (0.100)**	**7.934* (0.047*)**	**12.903* (0.005*)**
Shift								
Fixed morning	78.92 ± 11.48	53.14 ± 3.02	69.23 ± 12.43	70.03 ± 8.84	47.02 ± 26.62	55.13 ± 15.56	57.69 ± 11.16	62.84 ± 10.13
rotating morning and evening	78.93 ± 12.34	52.39 ± 2.93	69.93 ± 11.83	70.62 ± 7.26	47.40 ± 27.07	55.96 ± 15.87	58.17 ± 11.05	63.10 ± 10.14
rotating morning ,evening and night	79.61 ± 11.27	53.21 ± 2.66	70.18 ± 12.19	69.21 ± 10.39	48.74 ± 27.18	56.65 ± 15.94	58.49 ± 11.28	63.46 ± 10.29
Fixed night	79.85 ± 11.90	52.64 ± 4.84	70.72 ± 12.18	69.60 ± 9.75	50.50 ± 26.96	57.63 ± 15.71	59.10 ± 11.08	63.93 ± 10.59
H(p)	**1.214 (0.750)**	**5.069 (0.167)**	**1.184 (0.757)**	**1.348 (0.718)**	**2.223 (0.527)**	**1.938 (0.585)**	**1.687 (0.640)**	**1.578 (0.664)**

SD: **Standard deviation**

U: Mann Whitney test H: H for **Kruskal Wallis test**

p: p value for comparison between the studied categories

*: Statistically significant at p ≤ 0.05

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