Relation between Nurses' Cultural Intelligence and Adaptive Performance

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Abstract

Background: Cultural intelligence and adaptive performance development are central interests for today's healthcare organizations, nurses as health professionals increasingly need to be able to adjust behaviors to changing work situations which is essential to provide bias-free and culture-based care in nursing. **Aim of the Study:** Investigate the relation between cultural intelligence and adaptive performance among nurses. **Design**: A quantitative, descriptive and correlational design was conducted in this study. **Setting:** In 11 critical care units, including the intensive and intermediate care units at Benha University Hospital. **Subject:** A convenience sample of 300 nurses who were available and worked directly with patients. **Tools:** Two tools were used for data collection; The Cultural Intelligence Scale (CIS) and the Adaptive Performance Scale (APS). **Results:** This study displays that more than half of the studied nurses had moderate cultural intelligence levels and more than half of nurses had moderate adaptive performance levels. **Conclusion:** Nurses had a moderate level of cultural intelligence and adaptive performance. There was a statistically significant and highly positive correlation between adaptive performance and cultural intelligence and sub dimensions. **Recommendations:** The hospital administration should implement supportive policies that will ignite and stimulate the attributes of nurses, resulting in increased effectiveness and efficiency, and conduct in-service training sessions to enhance cultural intelligence and adaptive performance.

Keywords: Cultural intelligence - Adaptive performance - Nurses

Introduction

Globalization and extremely rapid change characterize the twenty-first-century health care environment, creating workplaces complex, unpredictable, and uncertain **(Suharti et al., 2019 and Niessen & Lang, 2021)** which expose organizations and individuals to culturally diverse workforces that require effective management and urge employee's efforts in producing better adaptive mechanisms to new challenges and this is more important than ever **(Park & Park, 2019)** for achieving standards of quality health care service and a requisite condition for sustainability **(Shahidanet al., 2018).**

The nature of health organizations has increasingly become dynamic, complex, and unpredictable. This increases the demand for adaptive individuals who have the proficiency to manage the challenges associated with adapting to and working effectively in a versatile environment is evident. According to the Levin Institute (2013), many healthcare professionals, especially nurses, now work and live outside the home country. Increasing cultural diversity highlights the importance of cultural intelligence in health care **(Başli et al., 2018).** Nurses have responsibilities to patients, peers, society, and the profession. Through Cultural Intelligence (CQ) nurses are better able to collaborate to create decisions that are widely accepted. This is crucial because leading diverse groups or operating in different traditions does not lend itself to common sense, which is guided by your instincts when making decisions **(Ott & Michailova, 2018).**

Cultural intelligence is "an individual's capability to function and manage effectively in culturally diverse settings which is a multidimensional construct targeted at situations involving cross-cultural interactions arising from differences in race, ethnicity, and nationality. Cultural intelligence is the capability of others to be flexible and malleable when interacting with others from differing cultures. Cultural intelligence also requires an individual to adapt effectively to new cultures **(Paiuc, 2021).**

The multifaceted notion of cultural intelligence is based on four interrelated domains of individual-level intelligence: cognitive, motivational, behavioral, and metacognitive. Mental abilities like metacognition and cognition serve as indicators of a person's cognitive functioning. Motivation acknowledges drive and choice as important domains of intelligence in addition to intelligence as a mental capacity. Unlike metacognitive, cognitive, and motivational intelligence, which are mental functioning,

behavioral intelligence is the ability to use motor skills and display a variety of verbal and nonverbal behaviors **(Shaik et al., 2021).**

Metacognitive intelligence is the ability to control one's cognitive processes by learning and remembering knowledge which is an individual's cultural consciousness and awareness during interactions with those from different cultural backgrounds. Cognitive intelligence is a person's mental capacities centered around knowledge, which is a person's cultural understanding of customs, behaviors, and norms in various cultural contexts. Motivational intelligence is the capacity to concentrate one's thoughts and energy on a certain situation while being aware of such motivating traits which is an individual's capability to direct attention and energy toward cultural differences. Behavioral intelligence" a person expresses mental ability via actions rather than thoughts which is an individual's

Work settings now require staff to adapt to changing organizational requirements and opportunities to work effectively, adaptability is a critical component of performance that is one of the most important in management science, resulting in excellent work performance, positive work behavior, and the ability to deal with stress and pressure. The different roles that staff nurses play as members of an organization's team demand adaptive performance. **(Tabiu et al., 2020, Saleh 2022).**

Performance in a work environment refers to the amount and caliber of work that an individual or group produces because of innate skills or skills that are learned and driven to succeed. Performance is the accomplishment of an objective and the execution of an activity as required. Adaptive performance is the ability of nurses to adapt to quickly changing work environments and is referred to as adaptive performance **(Pangarso et al., 2021)**. The successful adaptive performance is affected by some factors such as the ability of nurses to effectively handle ambiguous and unpredictable work environments, flexibility, decision-making in the face of ambiguity and inherent uncertainty, and problem-solving skills are all necessary and handling unusual, poorly defined, or complex problems, one must be able to come up with innovative solutions and methods **(Luo et al., 2021)**.

According to **Park et al., (2020)**, adaptive performance consists of eight behavioral multi-dimensional: Handling emergencies and crisis is find appropriate and rapid solutions to avoid work capability to exhibit appropriate verbal and nonverbal actions when interacting with people from different cultural backgrounds **(Ang et al. ,2020)**.

Nurses with high cultural intelligence levels make correct decisions in serious situations, establish healthy teamwork, and communicate effectively with patients, increasing the quality of patient care and patient satisfaction Culture-based care in nursing is established by effective communication, empathizing behaviors with the patient during care, choosing behaviors appropriate for cultural differences, respecting the culture encountered, being sensitive, and increasing motivation. In the twenty-first century organizations, professionals must be able to exhibit adaptive performance to flourish in environments marked by high levels of uncertainty and rapid change to foster the development of individuals, teams, and organizations **(Eldor & Harpaz, 2016).**
risks, managing work stress is remain calm when faced with circumstances and workload, solving problems creatively is the development of creative solutions to new problems, dealing with uncertain and unpredictable work situations is how effectively in adjusting goals and plans to deal with changing situations, training and learning effort is the process of analyzing the employee's needs and goals and developing a training system to meet needs, interpersonal adaptability is flexible and open when working with a variety of other people, cultural adaptability is takes action to learn and understand the needs, and values of groups, organizations, or cultures to integrate and maintain positive relationships and physical adaptability is the adjust to challenging environmental states such as extreme heat and cold **(Hashemi, et al.,2019,Quinteiro et al., 2018).**

Significance of the study:

Healthcare providers are under a great deal of strain due to the global nursing shortage and the healthcare system is facing significant challenges because of increasing workloads and decreasing resources. In most health systems, nurses are front-line personnel who deal with high stress levels, information technology, and deaths. Daily, particularly for those who work in critical units. The lack of cultural intelligence in hospitals is making these conditions worse. Nurses's success and ability to increase adaptive performance in these culturally diverse settings are significantly impacted by their capacity to function well in a variety of different

countries and with individuals from different cultural backgrounds **(Azevedo & Shane, 2018)**.

To the best of our knowledge, numerous international research studies have examined cultural intelligence in different areas among hotel employees, nursing students, healthcare professionals, and nurses (**Gu, et al.,2022**, **Majda et al.,2021**, **Phanphairoj, 2021**, **Bilal et al., 2019**).In the Middle East, research studies have examined the cultural intelligence of nurses in Turkey, Oman, and Iran (**Erçelik, et al.2022**, **Porkodi, et al.,2022**, **AlUbaidi et al., 2020**, **Fata, et al., 2017**, **Rahimaghaee et al. 2017**, **Darvish et al., 2014**). In Egypt, most research studies have examined the cultural intelligence among nursing students and intern nurses (**Abdallah & Mohamed, 2022**, **Elsayed, 2022**).

Related adaptive performance among nurses, numerous international research studies in China, Romania, Malaysia, and Indonesia have examined the relationship between self-efficacy, and the moral impact of the COVID-19 Pandemic on adaptive performance **(Zhang et al. 2021 Gherman et al., 2022, Shahidan et al. 2021**, **Mufarichah et al. 2021).** In the Middle East, research studies have examined the adaptive performance of nurses related to personality aspects in Iran. In Egypt, most research studies have examined adaptive performance and job crafting among staff nurses **(Badran and Akeel, 2020).**

Few research studies have examined the relationship between cultural intelligence and adaptive performance among nurses (**Al-Fatlawi et al., (2022)**, **Rahimaghaee et al., (2017)**, **Nafei, 2013**). In Egypt, almost none of the research, however, studied the relation between nurses' cultural intelligence and adaptive performance. Hence, the purpose of this study was to investigate the relation between nurses' cultural intelligence and adaptive performance.

Aim of the Study

This study aimed to investigate the relation between nurses' cultural intelligence and adaptive performance.

Research Questions:

1. What is the cultural intelligence level among nurses?
2. What is the adaptive performance level among nurses?
3. What is the relation between cultural intelligence and adaptive performance among nurses?

Subject and Methods

Study Design:

A quantitative, descriptive and correlational was conducted in this study.

Setting:

This study was carried out in 11 critical care units including intensive care units and intermediate care units in the Governmental Benha University Hospital, at Benha City, Qulubia governorate, Egypt. The total bed capacity was 793 for the hospital and 250 for critical care units, while the total nurses were 1651 for the hospital and 300 for critical care units.

Subjects:

A convenient sample of 300 nurses who worked directly with patients in the previously mentioned study setting and were available at the time of data collection.

Tools of data collection:

Data was collected by using two tools:

First tool: Cultural Intelligence Scale: It was developed by **Ang et al., (2007)** and modified by the researcher to assess nurses' cultural intelligence. It was included two parts:

First Part: Personal data of nurses as age, sex, marital status, level of education and years of work experience.

Second Part: It contained 20 items measures four dimensions: cognitive (six items), metacognitive (four items), motivational (five items), and behavioral (five items). Each subscale is composed of items that measure the construct in a direct way (the highest degree of agreement corresponds to the maximum degree of consensus with the detected perspective).

Scoring system:

The cultural intelligence scale are on a three-point Likert scale; Disagree (one), Neutral (two), Agree (three). The level percent score considered high was >75% of total scores= >45 point, moderate ranged from 60 to 75% of total scores= (36-45) point, while it considered low was < 60% of total scores= <36 point.

Second tool: Adaptive Performance Scale: It was developed by **Charbonnier-Voirin & Roussel, (2012)**

and modified by the researcher to assess nurses' adaptive performance. The APS consists of 36 items divided into eight dimensions: handling emergencies and crisis (four items), managing work stress (six items), solving problems creatively (five items), dealing with uncertain and unpredictable work situations (four items), training and learning effort (five items), interpersonal adaptability (five items), cultural adaptability (four items) and physical adaptability (three items).

Scoring system:

The adaptive performance scale is a three-point Likert scale; Disagree (one), Neutral (two), Agree (three). Higher scores indicated higher adaptive performance. The level of overall and each dimension of the adaptive performance was divided into low, moderate, and high levels. The level was considered high if the percent score was >75% of total scores= >81 point, moderate if the percent score ranged from 60 to 75% of total scores= (65-81) point, and low if the percent score was < 60% of total scores= < 65 point.

Validity

It was subsequently done for the two scales were tested by a panel of seven experts composed of three nursing professors one from critical care nursing department, Alexandria University and two from nursing administration department Benha University, two nursing directors from Ain Shams and Benha University Hospitals, and two nursing supervisors who were working at Benha University Hospital. The panel were reviewed the two scales to ensure the qualification of translation, the equivalence of terms, and verify that the Arabic language is clear and simple to nurses. Some words were modified to better fit the context of Egyptian nurses.

Reliability

It was tested using Cronbach's Alpha were 0.921 for cultural intelligence, and it was 0.897 for adaptive performance which were considered high internal consistency.

Procedure:

This phase started from May 2022 to October 2022. It included the following: the preparatory phase, pilot study and field work.

Preparatory phase:

This phase started at May 2022 and was completed at July 2022. In this phase, the researcher reviewed the national, international, current, and past related literature, and used textbooks, articles, journals, and the internet to be acquainted with the topic of the study, subjects of the study, and tools.

Pilot study

A pilot study was carried out in July 2022 to ascertain the clarity and applicability of the study tools. Thirty nurses were included in the pilot study representing 10 % of total study subjects. It has also served in estimating the time needed for filling the tools. No modification was needed. The pilot included in the study.

Field work:

Data collection took about three months from beginning of August 2022 to end of October 2022. The researcher met nurses and explained the aim and the nature of the study and the method of filling out the two tools. Then the researcher took oral consent. The researcher distributed the tools to the participated nurses to fill it in work times which determined before with head nurse of each unit according to type of work and work load. The number of collected questionnaire from nurses per day ranged from 10 to15 sheets. It took from 20 to 25 minutes to complete the tools. Data collected three days /week in the morning and afternoon shifts.

Ethical consideration

The study was approved by the Scientific Research Ethics Committee of the Nursing Faculty, Benha University. Each participant received a study information sheet informed consent before the participation which disclosed the study's purpose, potential conflicts of interest, anticipated benefits, and possible risks. The study was anonymous, and confidentiality was assured. The participants were informed of the right to withdraw without consequences.

Statistical analysis:

Data were verified before computerized entry. The Statistical Package for Social Sciences (SPSS version 25.0) was used for that purpose, followed by data analysis and tabulation. Data were presented using descriptive statistics as number, frequency, percent, mean, and standard deviation. The chi square test (X2) was used to identify differences in the study outcomes according to demographic characteristics. Pearson correlation coefficients (r) between study variables. Statistical significance level value was

considered when p- value < 0.05 and a highly significance level was considered when p-value ≤ 0.001, while p-value > 0.05 indicates non-significant results.

Results

Table (1): Shows that (50.3 %) of nurses were aged more than 20 to less than 30 years with (M±SD = 31.54±6.90). As regards to sex and marital status (89.3% & 86.3%) were females and married. As far as educational levels (55.3%) were had technical in nursing. Concerning years of work experience (39.0%) were had 2 to less than 20 years with (M±SD = 12.29±8.41).

Figure (1): Displays that more than half (50.4%) of nurses had moderate cultural intelligence levels. While, only (15.3%) of them were had low cultural intelligence levels.

Table (2): Illustrates that the highest mean score and standard deviation (11.47±2.38) was related to the motivational domain. At the same time, the lowest mean score (7.80±1.58) was related to the meta-cognitive dimension. The motivational dimension was at a high mean score level (76.4%). While cognitive, behavioral, and meta-cognitive dimensions were at a moderate level (74.5%, 68.9%, and 65%) respectively among nurses.

Figure (2): Shows that more than half (55.3%) of nurses were had moderate adaptive performance levels. While, only (7.0%) of them had low adaptive performance levels.

Table (3): Illustrates that the highest mean score and standard deviation (8.02±1.18) were related to physical adaptability. The lowest mean score and standard deviation (9.42±1.99) were related to the training and learning effort domain. Physical adaptability, dealing with uncertain and unpredictable work situations, cultural adaptability, and solving problems creatively dimensions were at a high mean score level (89.1%, 86.0%, 78.25% and 77.2%) respectively. While, interpersonal adaptability, managing work stress, handling emergencies and crisis, and training and learning effort dimensions were at a moderate level (71.4%, 68.2%, 65.6% and 62.8%) respectively among nurses.

Table (4): Shows that there was a statistically significant relation between nurses' cultural intelligence level and nurses' personal data about age and years of work experience (**p- value** = 0.041 and **p- value** = 0.031), respectively.

Table (5): Shows that there was a highly statistically significant relation between nurses' adaptive performance level and nurses' personal data about age and years of work experience (**p- value** = 0.001 and **p- value** = 0.000), respectively.

Table (6): Shows that there was a highly positive statistical significant correlation between dimensions of cultural intelligence and adaptive performance dimensions (**p- value** = 0.000 and **p- value** = 0.001), respectively.

Table (7): Shows that there was a highly positive statistical significant correlation between total cultural intelligence and adaptive performance (**p-value** = 0.000).

Table (1): Distribution of studied nurses' personal data (n=300)

Personal characteristics		No	%
Age	20-< 30 years	151	**50.3**
	30-< 40 years	100	33.3
	40 years and more	49	16.4
	M±SD	**31.54±6.90**	
Sex	Female	268	**89.3**
	Male	32	10.7
Marital status	Married	259	**86.3**
	Unmarried	41	13.7
Educational levels	Diploma	74	24.7
	Technical	166	**55.3**
	Baccalaureate	60	20.0
Years of work experience	2-< 10 years	117	**39.0**
	10-< 20 years	116	**38.7**
	20 -< 30 years	55	18.3
	More than 30 years	12	4.0
	M±SD	**12.29±8.41**	

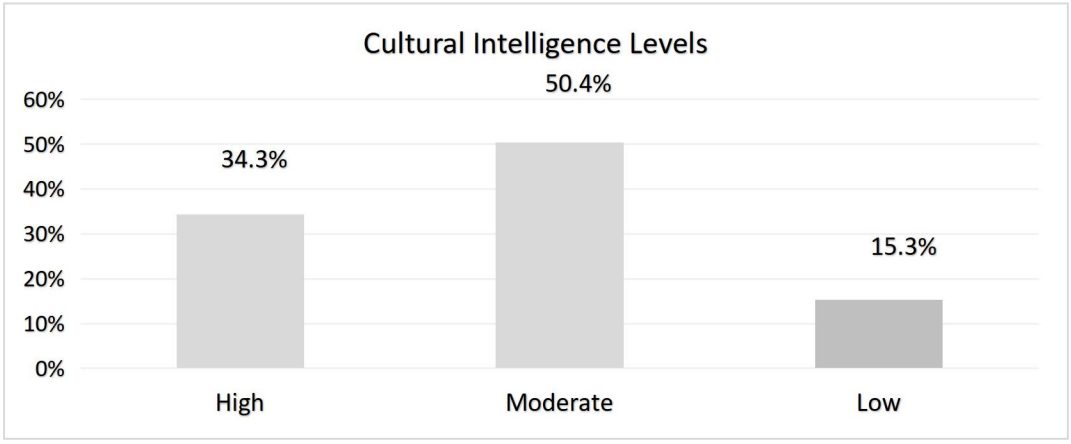

Figure (1): Percentage distribution of total levels of cultural intelligence among nurses

Table (2): Mean scores and ranking of cultural intelligence dimensions among nurses (n=300)

Domains	Maximum scores	M±SD	Mean %	Ranking
cognitive	18	13.42±2.80	74.5%	2
Meta-cognitive	12	7.80±1.58	65%	4
Motivational	15	11.47±2.38	76.4%	1
Behavioral	15	10.34±1.98	68.9%	3
Total	**60**	**43.03±8.74**		

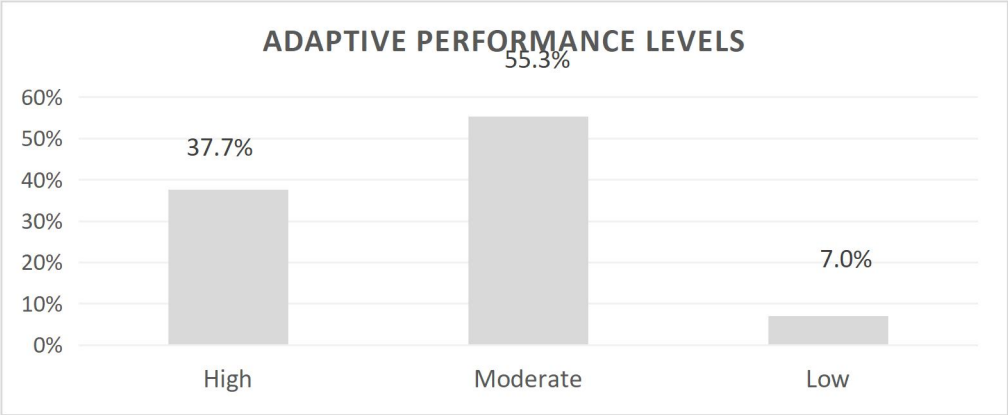

Figure (2): Percentage distribution of total levels of adaptive performance among nurses(n=300)

Table (3): Mean scores and ranking of adaptive performance dimensions among nurses (n=300)

Domains	Maximum scores	M±SD	Mean %	Ranking
Handling emergencies and crisis	12	7.88±1.94	65.6%	7
Managing work stress	18	12.29±2.63	68.2%	6
Solving problems creatively	15	11.66±2.91	77.7%	4
Dealing with uncertain and unpredictable work situations	12	10.33±1.44	86.0%	2
Training and learning effort	15	9.42±1.99	62.8%	8
Interpersonal adaptability	15	10.72±2.30	71.4%	5
Cultural adaptability	12	9.39±1.66	78.25%	3
Physical adaptability	9	8.02±1.18	89.1%	1
Total	**108**	**79.71±16.05**		

Table (4): Relation between personal data and nurses' cultural intelligence level (n=300)

Nurses` Personal characteristics / cultural intelligence level	Cultural intelligence level						X^2	P – value
	High (n= 103)		Moderate (n= 151)		Low (n= 46)			
	No	%	No	%	No	%		
Age								
20-< 30 years	64	62.1	66	43.7	21	45.7	9.945	0.041*
30-< 40 years	28	27.2	54	35.8	18	39.1		
40 years and more	11	10.7	31	20.5	7	15.2		
Sex								
Female	95	92.2	131	86.8	42	91.3	2.150	0.341
Male	8	7.8	20	13.2	4	8.7		
Marital status								
Married	89	86.4	135	89.4	35	76.1	5.300	0.071
Unmarried	14	13.6	16	10.6	11	23.9		
Educational levels								
Diploma	24	23.3	33	21.9	17	37.0	6.714	0.152
Technical	54	52.4	88	58.3	24	52.2		
Baccalaureate	25	24.3	30	19.9	5	10.9		
Years of work experience								
2-< 10 years	54	52.4	48	31.8	15	32.6	13.899	0.031*
10-< 20 years	32	31.1	63	41.7	21	45.7		
20 -< 30 years	15	14.6	31	20.5	9	19.6		
More than 30 years	2	1.9	9	6.0	1	2.2		

***A statistically significant correlation (P < 0.05).**

Table (5): Relation between personal data and nurses' adaptive performance level (n=300).

***A statistically significant correlation (P < 0.05).**

Nurses` Personal data / Adaptive performance level	Adaptive performance level						X^2	P – value
	High (n= 113)		Moderate (n= 166)		Low (n= 21)			
	No	%	No	%	No	%		
Age								
20-< 30 years	71	62.8	69	41.6	11	52.4	19.582	0.001**
30-< 40 years	31	27.4	59	35.5	10	47.6		
40 years and more	11	9.7	38	22.9	0	0.0		
Sex								
Female	103	91.2	148	89.2	17	81.0	1.945	0.378
Male	10	8.8	18	10.8	4	19.0		
Marital status								
Married	100	88.5	140	84.3	19	90.5	1.314	0.518
Unmarried	13	11.5	26	15.7	2	9.5		
Educational levels								
Diploma	25	22.1	44	26.5	5	23.8	5.871	0.209
Technical	58	51.3	100	60.2	8	38.1		
Baccalaureate	30	26.5	22	13.3	8	38.1		
Years of work experience								
2-< 10 years	61	54.0	48	28.9	8	38.1	24.378	0.000**
10-< 20 years	34	30.1	70	42.2	12	57.1		
20 -< 30 years	16	14.2	38	22.9	1	4.8		
More than 30 years	2	1.8	10	6.0	0	0.0		

Table (6): Correlation matrix between cultural intelligence and adaptive performance dimensions (n=300).

Variables	Cognitive		Meta-cognitive		Motivational		Behavioral	
	r	P-value	r	P-value	r	P-value	r	P-value
Handling emergencies and crisis	0.722	0.000**	0.525	0.000**	0.412	0.000**	0.593	0.000**
Managing work stress	0.933	0.000**	0.779	0.000**	0.831	0.000**	0.712	0.000**
Solving problems creatively	0.197	0.001**	0.220	0.000**	0.387	0.000**	0.387	0.000**
Dealing with uncertain and unpredictable work situations	0.419	0.000**	0.298	0.000**	0.497	0.000**	0.411	0.000**
Training and learning effort	0.70	0.229	0.348	0.000**	0.166	0.001**	0.252	0.000**
Interpersonal adaptability	0.605	0.000**	0.473	0.000**	0.627	0.000**	0.374	0.000**
Cultural adaptability	0.614	0.000**	0.352	0.000**	0.347	0.000**	0.226	0.000**
Physical adaptability	0.608	0.000**	0.189	0.001**	0.447	0.000**	0.231	0.000**

****Correlation is a highly statistically significant difference P ≤ 0. 001.**

Table (7): Correlation matrix between total cultural intelligence level and adaptive performance level (n=300)

Variables	Cultural intelligence	
	r	P-value
Adaptive performance	0.811	0.000**

****Correlation is a highly statistically significant difference P ≤ 0. 001**

Discussion

With the rich cultural diversity in hospitals, cultural intelligence is certainly a significant skill for nurses who interact with people from different cultures. Adaptive performance is important for organizations to thrive, it is important to have a climate that encourages individuals to engage in adaptability and adaptive performance. As the work environment is changing rapidly, organizations need more adaptable employees who can work creatively, learn new skills, and adapt to diverse social contexts and novel environments. Individual differences such as prior experience and self-efficacy have been extensively examined as predictors of adaptive performance. In contrast, the role of cultural intelligence in promoting adaptive performance has been overlooked **(Baratipour et al., 2021)**.The present study aimed to investigate the relation between nurses' cultural intelligence and adaptive performance at Benha University Hospital.

Concerning nurses' cultural intelligence, the current study results revealed that more than half of nurses had a moderate level of cultural intelligence; This could be due to that nurses are conscious of the cultural knowledge, cultural values, and religious beliefs of other cultures, interacting with people from different cultures and can deal with the stresses or adjusting to a new culture. Evidence shows that nurses' exposures to multiple different cultures increase an individual's cultural intelligence where nurses communicate daily with patients from diverse cultural backgrounds in addition to changes in hospitals' cultural diversity.

In the same line, **Suharti L., et al. (2019)** showed that the cultural intelligence score for nurses was near the average. The result of the present study was supported by **Wawrosz & Jurásek, (2021)** who found that study participants knew about how to deal with difficult times and problems effectively and most of them had a bureaucratic style concerned with laws and regulations application. Similarly, **Erçelik et al., (2022)** and **Porkodi et al., 2022)** concluded that nurses had moderate levels of cultural intelligence in Turkey and Muscat, respectively.

On the other hand, This result was contraindicated by the results of **Rahimaghaee & Mozdbar, (2017)** and **Abdallh & Mostafa, (2022)** who revealed that a high percentage of nurses had a high level of cultural intelligence. On the other hand, this result in disagreement with **Afsar et al., (2020)** who found that staff had low cultural intelligence levels. Related to the contraindicated results may be due to Individual differences and diversity among the study participants, which are highlighted by the emergence of varying results, attributed to cultural differences in research environments.

Related to culture intelligence dimensions, the present study points out that the highest mean score was the motivational dimension and was found to have a high mean score. This could be due to nurses having a variety of factors that influence nurses' motivation and engagement in the work such as intrinsic motivation, teamwork and collaboration, professional development, advancement, work-life balance, recognition, and appreciation. Motivated nurses find satisfaction in making a positive impact on patients' lives by understanding patients' cultures and feelings clearly and managing caring behaviors correctly and the work environment influencing the cultural intelligence of nurses.

Nurses can recognize differences within cultures, treat each multicultural interaction as unique, and have a higher tolerance for others, viewing that as a source of knowledge and an opportunity to learn new situations and approach others in a more relaxed manner, gain trust, communicate with individuals in a comprehensible way, and adopt a communicative strategy that encourages nurses to be more open and share ideas, thoughts, and experiences **(Abdallh & Mostafa, 2022).** Nurses are enthusiastic about interacting with patients from various cultural backgrounds and learning about new cultures, which leads to professional competency **(Rahimaghaee & Mozdbar, 2017).**

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In the same vein, **Abdallh & Mostafa, (2022)** show a high percentage of participant had high levels of motivational dimension. This finding was congruent with **Schlaegel et al., (2021)**, who found that the highest cultural intelligence domain mean score was observed for motivational. This was contraindicated by **Rahimaghaee & Mozdbar (2017)**, who found that the behavioral dimension had the highest mean score among the participants. On the other hand, this result is the opposite with **Van Dyne et al., (2018)**, who reported that the highest mean score belonged to satisfaction with the cognitive dimension.

The study findings showed that the lowest mean score was related to the meta-cognitive dimension and. This may be due to, that nurses with the lowest average scores metacognitive dimension are less aware of patients' cultural preferences, pay attention to cultural assumptions when interacting with patients from different cultural backgrounds, and use metacognitive skills when trying to adapt to a different culture and have awareness toward individuals' cultural preferences which has a far-reaching influence on cultural awareness, sensitivity, competence, and humility as well as increase biased decision-making.

This finding was agreement with **Van Dyne et al., (2018)** who suggested that the metacognition cultural intelligence dimension can be developed through education, nursing education should aim to train interculturally competent nurses. The cultural intelligence metacognition dimension signifies whether people can control cultural information that they acquire such information during cultural interaction. In the same context, **Al-Fatlawi et al., (2022)** found that the total mean score of a metacognitive factor was low among the four dimensions. Besides, this finding disagrees with **Abdallh & Mostafa, (2022)** who found that more than two-thirds of participants had high metacognitive and behavioral intelligence levels.

This study revealed that the dimensions of cultural intelligence were found to be in the high and moderate mean score levels. This is due to clinical careers requiring high levels of cultural intelligence to care for patients of diverse religions, ethnic groups, countries, and races, and patients are more vulnerable and fear disease and hospitalization. The nurse code of ethics shows the patient's respect, sensitivity, poise, cooperation, honesty, acumen, curiosity, and tolerance which are the keys to establishing cultural competencies and cultural intelligence **(Baratipour et al, 2021)**.

This study along the same line, as **Şahin, & Gurbuz (2014)** found that the metacognitive, motivational, and behavioral dimensions had a high and moderate mean score. Finally, enhancing higher cultural intelligence in the health staff positively affects the working environment and the relationships between the patients and the staff **(Güner et al., 2022)**.

The result of this study clarified that more than half of nurses had moderate adaptive performance levels. These results indicate that most nurses considered adaptive performance good. These results indicate that the nurse's ability to adjust and handle competencies or strategies to be effective in a changing environment is quite good. This result may be due to nurses in critical care units can deal with uncertain and unpredictable work situations, handle emergencies, and exchange experiences, thoughts, and ideas with colleagues to improve their performance. For many nurses, adaptability has become increasingly important as the nature of work has changed in ways that demand a wide array of capabilities to deal with unstable competitive environments and adjustments to the ongoing evolution of technology.

This finding was congruent with **Mufarichah et al. (2021)**, who concluded that three-fourths of the study participants had a moderate level of total adaptive performance. Also, the present result is consistent with the study of**, Budhiraja & Rathi, (2022)** and **Shahidan et al., (2022)** who indicated that the majority of respondents have average adaptive performance. On the other hand, this was inconsistent with the results of **Loughlin & Priyadarshini, (2021)**, and **Yunhong et al., (2021)** who reported that the overall adaptive performance of head nurses was at a high level. Also, this result was inconsistent with **Park & Park, (2019)**, who showed that the perception of adaptive performance of the studied sample was relatively high.

Regarding the eight dimensions of adaptive performance as mentioned by the studied staff nurses, the study results illustrated that the highest mean score was related to physical adaptability. This could be due to nurses playing a major role in the delivery of critical care units where nurses provide care in a more complex and challenging environment than nurses perform in other hospital departments.

Critical care nurses are under high demands to fulfill nursing duties and working in complex multitasking, high workloads, and providing

specialized care to critically ill and reliant patients can be overwhelming for nurses who can adapt to specific and different working conditions such as the degree of risk/danger inherent in nurse occupation and ergonomic properties of the nurse workplace **(Al-Bsheish et al.,2022 Rosa et al.,2020)**. The physical aspects of a workplace environment include workplace layout, workstation set-up, furniture, equipment, space, temperature, ventilation, lighting, and noise can have a direct effect on the productivity of the staff **(Pickson et al., 2016)**.

The result was supported by **Shahidan et al., (2021)**, who showed that the staff felt physically adaptive in their current work and the physical adaptability domain had the highest mean scores. This finding disagrees with **Loughlin & Priyadarshini, (2021)** who reported that the study participants demonstrating physically orientated adaptability have the least frequency of experience, in comparison to the other seven dimensions.

According to the study's findings, the training and learning effort dimension had the lowest mean score. This outcome could be attributed to the reactions of staff nurses in critical care units, who have more tasks and responsibilities and face difficult circumstances and a highly demanding workload/schedule. Furthermore, the finding could be attributed to individual nurse characteristics, organizational structure, and the health care environment. Furthermore, the primary barrier to learning critical care nurses is a lack of time and a shortage of nursing staff increases workload, preventing nurses from finding time to invest in training and education.

The finding of this study contradicted by **Badran and Akeel, (2020)** who demonstrated that the training and learning effort dimension of adaptive performance had the highest mean score. Meanwhile, managing work stress and dealing with unpredictable work situations dimension had the lowest mean score.

This study revealed that the dimensions of adaptive performance were found to be in the high and moderate mean score levels, The result of the present research may be attributed to support this new trend avenue of inquiry emerged to account for changes in workplace expectations, as more factors and dimensions have been identified and recognized as important to job adaptiveness. Thus, in nurses' views, the changes will not be as stressful events and enable adapt more effectively to face unpredictable situations. This along with the openness to experience can increase compatibility with organizational change. Personality traits play a significant role in the actualization of the adaptive performance of nurses. In other words, the agreeableness, conscientiousness, and openness to experience of the nurses are a catalyst for nurses' adaptive performance **Shahidan et al., (2021)**. The finding of this study agrees with **Yunhong et al., (2021)** who found that the dimensions of adaptive performance were found to be in the high and moderate levels.

Additionally, the current study found that general personal data of nurses' cultural intelligence and adaptive performance respecting the years of experience, and age found that nurses who were younger and less experienced had scores in overall cultural intelligence that were higher than the mean. This outcome may be explained by newly graduated and young nurses developing adaptability in practices, contexts, and mindsets and are a more resilient future workforce, equipped to manage their own and the environment in a challenging healthcare setting that is increasing in complexity and more flexibility of work practices. Younger nurses can comprehend and empathize with the attitudes and actions of people from different cultural backgrounds, are more flexible and fresh working, and have high cultural intelligence and adaptive performance levels.

This is in the same line with the findings of **Amiri & 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. The results of Cultural Intelligence, adaptive performance, were inconsistent with **Darvish et al., (2014)** who discovered that there a relationship between gender and cultural intelligence in nurses.

According to the study's findings, participants twenty to less than thirty years of age and younger and less experienced obtained the highest mean scores across all adaptive performances. Nurses with fewer years of experience in nursing, especially in critical care units, had significant mean scores across all professional competency categories because of the type of work activities in that area.

The study findings in agreement with **Park and Park (2019)** focused on testing the association between age and adaptive performance but failed to detect a significant association among employees of a retail bank in Lithuania. On the other hand, the results of **Karami et al., (2017)** were inconsistent with the findings as they discovered that a substantial difference in professional competency depending on

job experience groups, with nurses having higher professional competency than others.

The present study revealed that there was a highly positive statistically significant correlation between nurses' cultural intelligence and adaptive performance and its dimensions. This might be due to nurses with higher motivational cultural intelligence being found to act and display more adaptable behaviors in a novel environment. In addition, this outcome may be due to cultural intelligence being a critical component of behavioral and mental factors that help nurses anticipate and understand similarities and differences across cultures.

Thus, nurses can execute work better in a diverse environment because of adequate knowledge to understand the needs and expectations of global clients and the nature of critical care work has changed in ways that demand a wide array of interpersonal skills, capabilities, and adjustments to the ongoing evolution of technology which has positive effects on nurses' adaptive performance levels. As well as the public hospital may be able to address critical unit difficulties as well as other connected issues such as excessive wait times and patient complaints and may use cultural intelligence is crucial in the selection of individuals based on technical expertise and a willingness to relocate.

In the same vein, **Nzitunga, & Nyanway, (2019)** reported that there was a statistically significant positive correlation between culture Intelligence and adaptive Performance. Also, this finding agreed with **Suharti, (2019)**, who reported that there was a significant and direct relationship with a high correlation between cultural intelligence and adaptive performance. Similarly, the results of this study also supported what **Azevedo & Shane, (2018)** said, that cultural intelligence affects performance outcomes. This is because someone who has cultural intelligence can adapt to a new culture and atmosphere and can ultimately improve their performance **Nunes et al., (2017)**. In the same context, this finding was congruent with **Sahin & Gurberz, (2015)** who found that the higher the staff's cultural intelligence, the more adaptive performance where the staff works.

Specifically cultural intelligence was found to be an important relationship of adaptive performance in critical care. Thus, this study contributes to the literature on cultural intelligence and adaptive performance by showing that, in the cross-border context, individuals' cultural intelligence can positively influence adaptive performance.

Conclusion

The findings indicated that nurses have a moderate level of cultural intelligence and adaptive performance. There was a highly positive statistically significant correlation between cultural intelligence and adaptive performance and sub-dimensions. Therefore, the research aim was achieved, and the research questions were answered.

Recommendations

In the light of the findings obtained from the present study, the following points are recommended:

1. Designing and implementing policies to stimulate the cultural intelligence and adaptive performance attributes of nurses.
2. Developing recruitment criteria to select nurses based on cultural intelligence traits, and individual desirable context for adaptive behaviors that can be evaluated through some tests.
3. Performing a cultural competence and adaptive performance peers and self-evaluation periodically to determine nurses' strengths and weaknesses.
4. Conducting educational programs for developing nurses' knowledge, skills, and abilities relevant to cultural intelligence and adaptive performance.
5. Shifting the head nurse's role from directive to facilitative by providing flexibility, improved job design, and positive reinforcement to trigger nurses' acceptance toward change in crisis and challenging environments.
6. Awarding bachelor's degrees and diplomas in nursing by universities and tertiary institutions and ensuring the curriculum committee on improving the competence of graduates in knowledge, skills, and capabilities of cultural intelligence, and adaptive performance.

Future studies:

Apply to the same study on different nursing job categories such as head nurse, nursing supervisors, and nursing directors in different departments in the hospital, and the profession has different and distinct job descriptions. Investigate the relationship between the type of cultural intelligence and

adaptive performance and some possible antecedents, during crisis and uncertain situations. Measuring the effect of Conducting cultural intelligence and adaptive performance educational programs on the development of adaptability and improve an individual's adaptive performance.

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