Quality of Nursing Care and its Effect on the Patients in Critical Care Units

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Abstract

Background: Quality of nursing care is a process that sought to attain the highest degree of excellence in the delivery of patient care. Hence, Quality nursing care refers to the provision of safe, effective, patient-centered, and evidence-based care by nursing professionals. **Aim:** This study aimed to evaluate quality of nursing care and its effect on the patients in critical care units. **Design:** A descriptive exploratory research design was conducted to achieve the aim of this study. **Setting:** The study was conducted in three critical care units; medical, surgical and cardiac units at El-Mahalla El-Kubra General Hospital in Gharbia, Egypt. **Study subject:** A convenient sample included all available nurses which including 60 nurses and 180 patients at the critical care units of the previous mentioned setting. **Tools: I- Quality of Nursing Care Scale in Intensive Care Units (QNCS-ICU):** It divided into two parts to assess the nurses' demographic data and measuring the quality of care through many nursing activities given to the patients in critical care units. **II- Quality of care indices:** It divided into two parts to assess the studied patients' demographic data and the key indicators of quality of nursing care among the studied patients. **Result:** It revealed that 80% of the studied nurses had incompetent quality of nursing care level and 20% of them had competent level. Also, the study results displayed quality of nursing care indicators (Mortality rate, restraint use, pressure sore density, infection density and tube-self extraction) (44.4%, 26.7%, 11.1%, 7.8% & 1.1%) respectively among the studied patients. **Conclusion:** The current study found a highly statistically significant strong positive correlation between quality of nursing care and its indicators on the studied patients. **Recommendations:** Hospital administrative staff should evaluate quality of nursing care in critical care units periodically to use results for creation of positive work atmosphere for enhancing productivity and quality of nursing care for meeting the quality standards of ensuring patients safety.

Key wards: Quality of Nursing Care, Patient Safety, Critical Care Units.

Introduction

Critical care units (CCUs) are highly organized systems that aim to provide care to patients in critical situations. In these units, specialized nursing and medical care is provided, which includes a wide monitoring capacity and multiple modalities of physiological support of organs intended to preserve life during periods of insufficient organ systems that threaten it ***(Vieira et al., 2021).***

The recently increasing demand in healthcare resources is influenced by many factors such as aging population, epidemiological changes, technological advances, and emerging epidemics. This may have led to many changes being applied recently in the healthcare management system leading to a better quality of care and decreased costs. Nursing activities are important in providing sound healthcare services, especially in the (CCUs) ***(Sikora, 2023).***

Nurses, as key personnel in healthcare delivery, play a critical role in the provision and coordination of care, prevention of adverse events, and optimization of health service productivity and patient outcomes. Nurses' responsibilities in healthcare quality extend beyond the provision of safe care that is aligned with best evidence and clinical standards, to participation in broader organizational and system quality and safety structures. Nurses have a professional mandate to measure, monitor and report on the appropriateness and effectiveness of healthcare, informing improvements in healthcare quality. They play a key role in the support, implementation and evaluation of health applications to improve patient safety ***(Oldland et al., 2020).***

Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes. It is based on evidence-based professional knowledge and is critical for achieving universal health coverage. As countries commit to achieving health for all, it is imperative to carefully consider the quality of care and health services. Also, it is defined as the degree of patient-care services which increases the probability of the desired outcomes, and reduces the probability of undesired outcomes; also, quality is described in nursing as the process for the attainment of the highest degree of excellence in the delivery of patient care ***(Fahim et al.,2020).***

Quality of nursing care (QNC) refers to the provision of safe, effective, patient-centered, and evidence-based care by nursing professionals. It encompasses a range of dimensions, including technical competence, communication skills, professionalism, and ethical practice. The QNC is essential for promoting positive patient outcomes, enhancing patient experience and satisfaction, and improving the overall quality of healthcare systems ***(Haddad & Geiger, 2022).***

To realize the benefits of quality health care, health services must be: Timely; reducing waiting times and sometimes harmful delays; Equitable; providing care that does not vary in quality on account of gender, ethnicity, geographic location, and socio-economic status; Integrated; providing care that makes available the full range of health services throughout the life course;

Efficient; maximizing the benefit of available resources and avoiding waste ***(WHO, 2021).***

The QNC is universal and has implications for healthcare systems worldwide. High QNC is essential for promoting positive patient outcomes and ensuring that patients receive safe, effective, and compassionate care. Moreover, QNC is crucial for achieving the goals of healthcare systems, such as improving population health outcomes, reducing healthcare costs, and enhancing patient experience and satisfaction. By investing in nursing education and training, ensuring adequate nurse staffing levels, and providing resources and support to nursing staff, healthcare organizations and policymakers can promote high QNC and improve patient outcomes ***(Molina-Mula & Gallo-Estrada, 2020).***

Significance of the study:

The number of patients requiring admission into CCUs is increasing worldwide. The nurses caring of critically ill patients in such units face higher workload level compared to other hospital departments specially, after COVID-19 pandemic. Nursing activities in CCUs are dynamic and variable over the 24-h period, nursing team spends approximately 70% focus on the treatment of only one single patient ***(Tan et al., 2023).***

In low- and middle-income countries, access to quality nursing care can be limited due to factors such as a shortage of trained nursing staff, limited resources, and poor working conditions. This can result in inadequate care, poor patient outcomes, and increased mortality rates. Therefore, improving the quality of nursing care in these countries is essential for achieving universal health coverage and ensuring that all patients receive high-quality care ***(Tamata & Mohammadnezhad, 2023).***

The medical records and statistics department at El-Mahalla El-Kubra General hospital revealed that total number of patients admitted to the hospital during 2020/2021 were 7000, of them 2000 patients admitted to CCUs which representing 28.6%. Moreover, during 2022/2023 total number of patients admitted to the hospital were 17584, of them 5275 patients admitted to CCUs which representing 30%. So, there is an urgent need to conduct this study to evaluate quality of nursing care and its effect on the patients in critical care units that act as a starting point to address the affecting factors for establishing strategic measures that directly promote high-quality patients care and protect patient safety to improve patient outcomes and decrease mortality & morbidity rates. ***(Hospital statistical records at El-Mahalla El-Kubra General Hospital in Gharbia Governorate in 2020/2021-2022/2023).***

Aim Of The Study

This study aimed to evaluate quality of nursing care and its effect on the patients in critical care units through the following:

A. Assess level of quality of nursing care for the patients in critical care units.

B. Evaluate effect of quality of nursing care on the patients in critical care units.

Research Questions

A. What is the level of quality of nursing care for the patients in critical care units.

B. What is the effect of quality of nursing care on the patients in critical care units.

Subjects And Methods

The study portrayed under the four main designs as follows:

I. Technical design.

II. Operational design.

III. Administrative design.

IV. Statistical design.

I. Technical Design:

The technical design included research design, setting, subject and tools for data collection.

Research Design:

A descriptive exploratory design was conducted to achieve the aim of this study. The used design is a powerful tool used to gather information about a particular group or phenomenon by observing and collecting data on a given topic without attempting to infer cause-and-effect relationships to provide a comprehensive and accurate picture of the population or phenomenon being studied and to describe the relationships, patterns, and trends that exist within the data ***(Sirisilla, 2023).***

Setting:

The study was conducted at three CCUs; medical, surgical and cardiac units at El-Mahalla El-Kubra General Hospital in Gharbia Governorate. Where it provides health care services in various medical fields to the residents of El-Mahalla El-Kubra city and 54 of its neighboring villages, at a rate of one million people, it consists of 10 departments with different medical surgical specialists distributed in the five floors hospital. In addition, emergency department on the ground floor and three ICUs in the third floor.

Subjects:

- A convenient sample of all available nurses at CCUs of the previous mentioned setting which including 60 nurses divided into 20 nurses in each selected unit.
- 180 patients involved in this study from both genders (60 patients from each selected unit) by using power analysis equation. They were a representative of total patients admitted to critical/ICUs (N=2000) at El-Mahalla El-Kubra General hospital. Ratio of nurses to patients was 1:1 or 1:2.

So, the sample size was calculated by adjusting the power of the test to 80% and the confidence interval to 95% with margin of error accepted adjusted to 5% and a known total population of 2000 patients using the following equation:

- Type I error (α) = 0.05
- Type II error (B) = 0.2

With power of test 0.80

$$n = \frac{N \times p(1-p)}{\left[\left[N-1\times\left(d^2 \div z^2\right)\right]+p(1-p)\right]}$$

$$180 = \frac{2000\times 0.15(1-0.15)}{\left[\left[2000-1\times\left(0.05^2 \div 1.96^2\right)\right]+0.15(1-0.15)\right]}$$

N= Community size

z= Class standard corresponding to the level of significance equal to 0.95 and 1.96

d= The error rate is equal to 0.05

p= Ratio provides a neutral property = 0.15 ***(Chow et al., 2007)***

Tools for data collection

Tool I: Quality of Nursing Care Scale in Intensive Care Units (QNCS-ICU)

It was developed by investigator based on recent relevant literature review ***(Webb et al., 2019; Zeraati & Alavi, 2014)***. It used for measuring the quality of care through many nursing tasks/activities that were given to the patients in CCUs. It included main 14 nursing tasks in ICU distributed as; Nursing assessment (10 activities), airway management (14 activities), pain management (7 activities), drug administration (7 activities), care of patient`s lines (12 activities), care of patient`s drains (8 activities), care of patient`s urinary catheter (4 activities), care of patients' wounds (4 activities), nutritional support (6 activities), activity and mobility (5 activities), hygiene procedures (3 activities), psychological support & health education (4 activities), infection control measures (8 activities) and promoting patient safety precautions (6 activities). Total activities of 14 nursing tasks were 98.

Each activity done correctly was given (one) grade and activity not done correctly was given (zero).

So, the total score was classified as follows:

- Competent level was considered if score ≥ 85% = ≥ 83.3 grades.
- Incompetent level was considered if score < 85% = < 83.3 grades.

Tool II: Quality of care indices:

It included two parts; Part one included demographic characteristics of patients as age, sex, marital status, educational level, length of stay, and causes of discharge from the unit. Part two covered the key indicators of quality of nursing care among the studied patients in CCUs including falls incidence, pressure sore density, restraint use, tube self-extraction, infection density and mortality rate ***(Chang et al., 2019).***

Scoring system:

The response for this index included two options, either present took (1) or absent took (zero).

Operational design:

The operational design included preparatory phase, ethical considerations, validity and reliability, pilot study and field work.

A- Preparatory phase:

A review of the current and past available literature and theoretical knowledge covering the various aspects of the study using books, articles, periodicals, internet and magazines to develop tools for data collection.

B- Tools Validity and reliability:

Testing validity of the proposed tools through a jury of seven experts (5 professors and 2 assistant professors of Medical-Surgical Nursing department, Faculty of Nursing Ain Shams University. The experts reviewed the tools for clarity, relevance, comprehensiveness, understanding and applicability, minor modifications were done and consequently the final forms were developed.

Testing tools reliability through Cronbach's Alpha reliability analysis for measuring their internal consistency. The reliability values of the used tools QNCS-ICU and Quality of care indices were (0.814 & 0.889).

C-Pilot study:

A pilot study was conducted to test feasibility and applicability of the study tools. It was carried out on 10 % of total study subjects (18patients & 6nurses). There were no modifications were done, so those patients in pilot study included in the study subjects.

D- Ethical Considerations:

All ethical issues were taken into consideration during all phases of the study. The ethical research considerations in this study included the following:

1- The research approval of protocol was obtained from scientific research ethical committee in Faculty of Nursing Ain Shams University before starting the study.

2- The investigator clarified the objective and aim of the study to the subjects included in the study.

3- The investigator assured maintaining anonymity and confidentiality of the subjects.

4- Patients were informed that they allowed choosing to participate or not in the study and they had the right to withdraw from the study at any time without giving any reasons.

5- Ethics, values, culture, and beliefs were respected.

E-Field Work:

Data were collected within six months from November (2022) to April (2023). An approval was obtained from hospital directors and nursing directors of El-Mahalla El-Kubra General Hospital. Purpose of the study was simply explained to study subjects who agreed to participate in the study. Data were collected from the three selected CCUs by visiting each unit 4 days/week in the morning and afternoon shifts from the investigator. Each nurse was observed by investigator while providing the care for the patients in the selected units around 2 or 3 nurses/ week in morning shift and around 1 or 2 nurses/ week in afternoon shift by using QNCS-ICU (Tool I). Each nurse was observed by investigator twice or three times and the mean average was taken. As well as, the investigator observed the key indicators of quality of nursing care among the studied patients through the data collection period by using (Tool II). Besides, the patients' medical records used to obtain the past and present medical history, treatment…etc. Data were collected from the selected settings sequentially for about two months in each ICU.

I. <u>Administrative design:</u>

Before starting data collection, the investigator prepared an official letter was issued from the faculty of nursing Ain Shams university to get permission from the medical and nursing directors of of ICUs at El-Mahla El-Kubra General Hospital where the study conducted. The investigator met the hospital director to explain the purpose of the study and requesting the permission for data collection.

II. Statistical design:

The collected data was revised, coded, and tabulated using Statistical package for Social Science (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.). Shapiro-Wilk test was done to test the normality of data distribution. Data were presented using descriptive statistics in the form of frequencies, percentages and Mean ± SD, Student T test was used to assess the statistical significance of the difference of parametric variable between two study group means. For the comparison of more than two groups' means, one way analysis of variance (ANOVA) was used, followed by post hoc test. which allows to explore the difference between multiple group means. Chi-Square test was used to examine the relationship between two qualitative variables. Fisher's Exact Test was used to examine the relationship between more two qualitative variables when the expected count is less than 5 in more than 20% of cells. Correlation analysis used to assess the strength of association between two quantitative variables. The confidence interval was set to 95% and the margin of error accepted was set to 5%. So, the p-value was considered significant as the following: Probability (P-value)

- P-value <0.05 was considered significant.
- P-value <0.001 was considered as highly significant.
- P-value >0.05 was considered insignificant.

Result

Table (1): Shows that, 70% of the studied nurses aged from 21 to 35 years, 13.3% aged from 36 to 45 years & 16.7% aged more than 45 years with mean (32.0 ± 9.6). Also, 83.3% were females, 23.3% were singles and 73.3% were married. As well as, 30% of them had nursing diploma; while 46.7% had technical institute.

Figure (1): Shows that, 80% of the studied nurses had incompetent quality of nursing care level, while only 20% had competent level.

Table (2): Shows the demographic characteristics of patients, their age ranged between 16 to 92 years with mean 61.7 ± 14.1, 54.4 % of them were females, 61.1% of them were married, while 33.3% were widow.Also, 37.8% of them had secondary school, while 23.3% were illiterate and 6.7% had university. As well as, 63.3% of the studied patients stayed in hospital from 2 to 7 days & 52.2% of them achieved recovery.

Figure (2): Shows quality of care indices among the studied patients; the mortality rate occurred in 44.4% of them, restraint used in 26.7% and pressure sore density in 11.1% of them. Also, infection density occurred in 7.8% & tube self-extraction in 1.1%.

Figure (3): Shows that, total quality of care indices was present in 51% among the studied patients; while, it was absent in 49% of them.

Table (3): Illustrates that, there was highly significant positive correlation between quality of nursing care level and quality of nursing care indicators.

Table (1): Number and percentage distribution of the studied nurses according to their demographic data **(n=60).**

Demographic characteristics	The studded nurses	
	No.	%
Gender		
Female	50	83.30%
Male	10	16.70%
Age		
21-35	42	70.00%
36-45	8	13.30%
≥ 45	10	16.70%
Mean ± SD	**32.0 ± 9.6**	
Rang	**(21-52)**	
Marital status		
Single	14	23.30%
Married	44	73.30%
Divorced	2	3.30%
Level of education		
Nursing diploma	18	30.00%
Technical institute	28	46.70%
Bachelor degree	14	23.30%

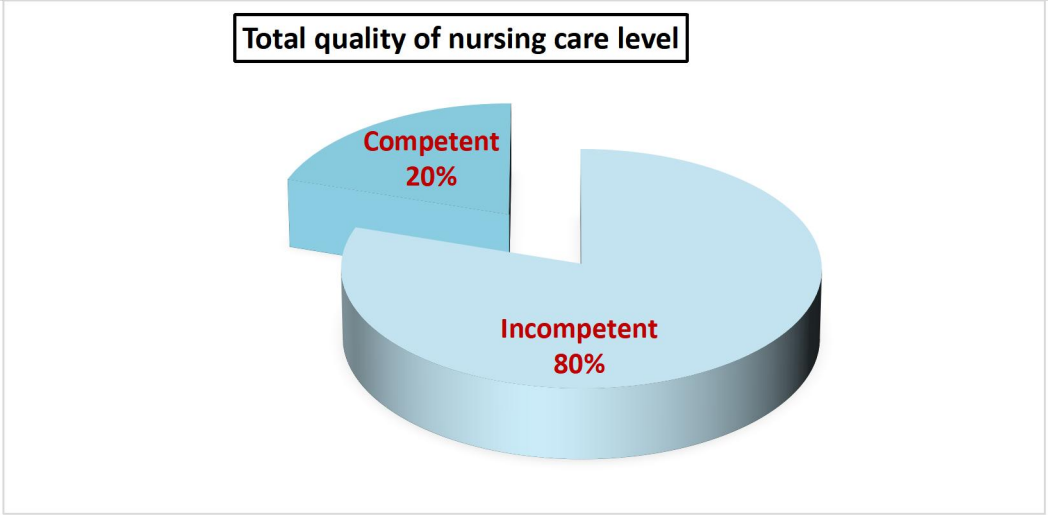

Figure (1): Total quality of nursing care level among the studied nurses.

Table (2): Number and percentage distribution of the studied patients according to their demographic data **(n=180).**

Items		Studied patients	
		N	%
Sex	**Female**	98	54.40%
	Male	82	45.60%
Age	**16-30**	10	5.60%
	31-45	8	4.40%
	46-59	32	17.80%
	≥60	130	72.20%
Mean ± SD		**61.7 ± 14.1**	
Rang		**(16-92)**	
Marital status	**Single**	10	5.60%
	Married	110	61.10%
	Widow	60	33.30%
Educational level	**Illiterate**	42	23.30%
	Primary	58	32.20%
	Secondary	68	37.80%
	University	12	6.70%
Length of stay	**< 48hrs**	42	23.30%
	48 hrs: 1 week	114	63.30%
	≥ 1 week	24	13.30%
Causes of discharge	**Recovery**	94	52.20%
	Death	80	44.40%
	Transferring	6	3.30%

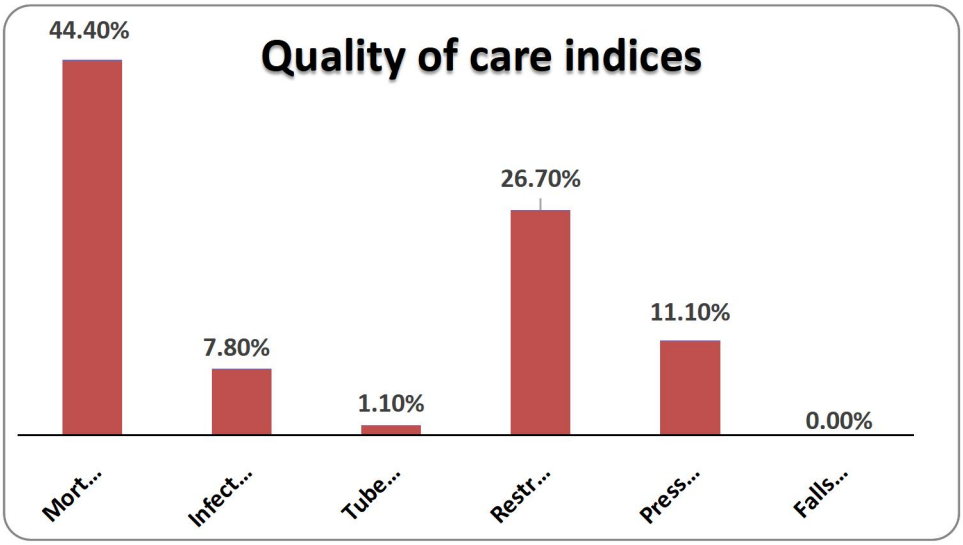

Figure (2): Quality of care indices among the studied patients.

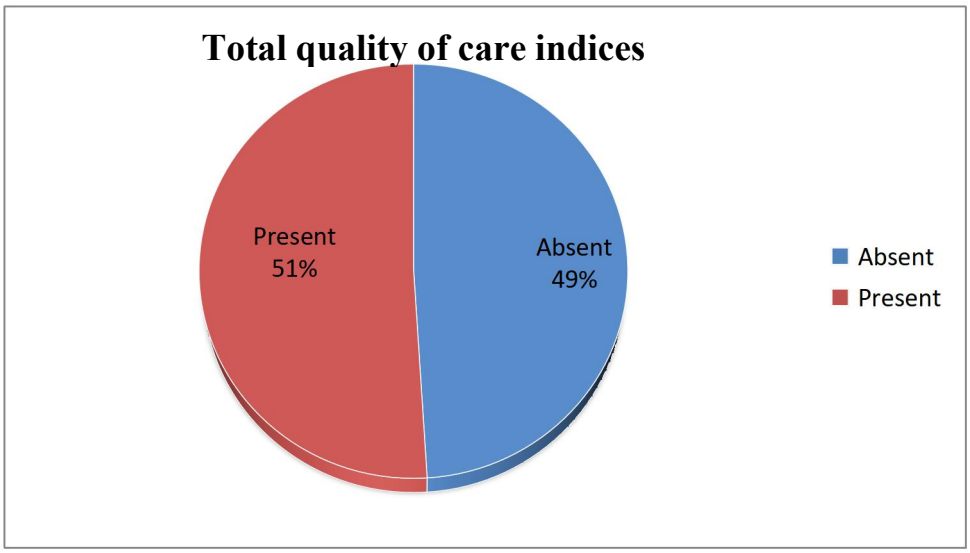

Figure (3): Total quality of care indices among the Studied Patients

Table (3): Correlation between total quality of nursing care level and total quality of care indices.

Items	Quality of nursing care level	
	r	P
Total quality of nursing care level	-	-
Total quality of care indices	0.824	<0.001

***highly significant p < 0.01.*

Discussion

According the demographic characteristics of the studied nurses; the current study result indicated that the majority of them were females. This might be because the nursing profession still depends on female nurses rather than the males. This result is agreed with ***Fasoi et al. (2020)***, who conducted a study about "Assessment of nursing workload as a mortality predictor in intensive care units using the nursing activities score scale in Athens" and found that the majority of the studied sample were females.

As for the studied nurses' age; the present study result represented that less than three quarters of them aged from 21 to 35 years old with a mean age and standard deviation of 32.0 ± 9.6 years. This might be because nursing is a diverse profession which include individuals from various age groups contributing their skills and expertise to patient care. This finding is matching with ***Khourshid et al. (2023)*** who conducted study entitled "Perceived Barriers among Intensive Care Unit (ICU) Nurses in the Delivery of Nursing Care to ICU Patients" and showed that less than three quarters of the study participants, were related to the age group 20 – 30 years. These findings are disagreed with

Soliman & Eldeep, (2020), who applied a study about "The relationship among workload, teamwork, and missed nursing care at intensive care units in Egypt", and found that more than one third of the studied nurses aged from 20 to less than 30 years old with mean age and standard deviation of 32.41 ± 7.88 years.

Concerning the studied nurses' marital status; the current study finding showed that less than three quarters of them were married. This might be because of the early marriage customs in the rural communities. This finding is supported with ***Osman et al. (2019)*** who conducted study entitled "Relationship between Nurses' Competencies and Quality of Patient Care at Intensive Care Units" and reported that approximately two thirds of the studied nurses were and married. The same finding is disagreed with ***Almenyan et al. (2021)***, who applied a study about "Effect of nursing workload in intensive care units in the United States" and found that about three quarters of the studied nurses were not married.

Regarding the studied nurses' level of education; the present study result revealed that less than half of them had technical education. This might be due to the system followed by nursing administration department since 5 years ago diploma degree nurses were replaced by bachelors' degree and technical health institute nurses, as they were more qualified and knowledgeable. This result is supported with ***Ragab et al. (2017)***, who conducted study entitled "Relationship between performance obstacles and workload among intensive care nurses at Assiut university hospital, Egypt", and found that less than half of the studied nurses had technical education. The same result is contradicted with ***Moghadam et al. (2021)***, who performed a study about "Nursing physical workload and mental workload in intensive care units in Iran", and found that the vast majority of the studied nurses had bachelor degree of nursing.

Concerning the studied nurses' total QNC level for the patients in CCUs; the present study finding described that the majority of them had incompetent level which answered the second research question of this study. This might reflect the nurses' need to attend an awareness rising program regarding the quality of care in nursing practices. This result is against ***Shouryabi et al. (2017)***, who developed a study about "Psychometric properties of the Persian version of the intensive and critical care nursing competence scale version-1 in Iran", and found that all of the studied nurses had competent total QNC level.

According the studied patients' demographic characteristics; the present study result showed that more than half of them were females. This might be because the female patients usually have a poorer health condition than male patients due to several factors such as pregnancy, labor and menstrual period. This result is disagreed with ***Ross et al. (2023)***, who performed a study about "Nursing workload and patient-focused outcomes in intensive care: A systematic review in England", and found that the all of the studied patients were males. The same result is also against ***Amadeu et al. (2020)***, who performed a study about "Nursing workload in burn intensive care unit in Brazil" and found that less than

three quarters of the studied patients were males.

Concerning the studied patients' age; the present study result indicated that less than three quarters of them aged ≥60 years old with a mean age and standard deviation of 61.7 ± 14.1 years. This might be because this age group is full of many risk factors for developing many diseases. This result is supported with ***Aguiar, (2021)***, who carried out a study about "Factors associated with nursing workload in three intensive care units in Brazil" and found that the mean age of the studied patients was 64.5± 15.2. The same result is contradicted with ***Cyrino et al. (2017)***, who carried out a study about "Nursing Activities Score by assistance sites in Intensive Care Units in Brazil" and found that the mean age of the studied patients was 56.8± 10.3 years.

Regarding the studied patients' marital status; the present study result showed that less than two thirds of them were married. This might be because this is matching with their age. This result is consistent with ***Ross et al. (2023)***, who applied a study entitled "Nursing workload and patient-focused outcomes in intensive care: A systematic review in Brazil" and found that more than three quarters of the studied patients were married. The same result is disagreed with ***Faltas & Abd-Allah, (2018)***, who applied a study entitled "Relation between nurses' workload and patients' safety in surgical and neurological intensive care units in Egypt", and found that more than two thirds of the studied patients were unmarried.

In relation to the studied patients' educational level; the current study result demonstrated that more than one third of them had secondary school. This might be because this is the most commonly seen level of education among the majority of people. This result is disagreed with ***Albuhumud & Mozo, (2023)***, who performed a study about "The effect of workload on nurses who are taking care of COVID-19 patients in Saudi Arabia", and found that more than of the studied patients had university education.

According the studied patients' length of stay in hospital; the current study finding indicated that less than two thirds of them stayed in hospital from 2 to 7 days. This might reflect the severity of their illness. This finding is consistent with ***Faltas & Abd-Allah, (2018),*** who found that less than two thirds of the studied patients stayed in hospital for less than 10 days.

According the studied patients' causes of discharge; the present study results denoted that more than half of the achieved recovery. This might be because of the quality of care provided. This result is in the same line with ***Almenyan et al. (2021),*** who found that three quarters of the studied patients leaved the hospital after their complete recovery.

As for the QNC indices related to mortality rate among the studied patients; the present study finding represented that the mortality rate occurred in less than half of them. This might be associated with the patients' diagnosis and their overall health. This finding is agreed with ***Kolene & Bailey, (2020),*** who carried out a study entitled "Nursing workload associated with ICU in-hospital

mortality in England", and found that nursing workload is usually associated with higher mortality rate among more than half of the studied patients.

Concerning the QNC indices regarding the use of restrain among the studied patients; the present study result showed that the restrain was used more than one fourth of them. This might be because this practice is used among the agitated patients. This result is supported with ***Abd El-hamid et al. (2019),*** who found that the physical restrain was used among more than on fourth of the studied patients. The same result is contradicted with ***Chang et al. (2019),*** who found that the average incidence of patients' restraint was only among a minor percent of them.

Regarding the QNC indices related to pressure sore density among the studied patients; the present study result represented that only more than one tenth of them were suffering from pressure sore. This might be because of the patients' prolonged length of stay in hospital as well as, their poor health status. This result is against ***Banda et al. (2022),*** who performed a study about "Nurses' perceptions on the effects of high nursing workload on patients' care in an intensive care unit of a referral hospital in Malawi: a qualitative study" and found that the majority of the studied patients developed pressure sore due to nursing workload.

According the QNC indices related the infection density among the studied patients; the study finding described that the infection density was seen among the minority of the studied patients. This might be because those patients develop low immunity level. This finding is similar to ***Chang et al. (2019),*** who found that the incidence of infection was seen among less than tenth of the studied patients. The same finding is against ***Rae et al. (2021),*** who performed a study about "Outcomes sensitive to critical care nurse staffing levels: A systematic review" and found that the infection density among the studied patients was associated with the prolonged length of stay as it was seen among more than half of them.

Concerning the correlation between the studied nurses' QNC, and quality of care indices; the present study result showed that there was a highly statistically significant positive correlation. This might be because the QNC and the quality of care indices is usually interrelated, this means that high QNC leads to good key indicators and patients outcomes and vice versa results. This result is supported with ***Osman et al. (2019),*** who found that there was a highly statistically significant positive correlation between the studied nurses' QNC level, and quality of care indices.

Conclusion

In the light of the present study findings, the following can be concluded;

The majority of the studied nurses had a total incompetent quality of care level for the studied patients in CCUs. As well as, quality of nursing care indices revealed that the mortality rate occurred in less than half of the studied patients & the restrain was used for more than one fourth of them. Also, more than one tenth of the studied patients were suffering

from pressure sore and infection density was seen among the minority of them.

Additionally, the study results revealed that there was a highly statistically significant positive correlation between quality of nursing care level and quality of care indices among the patients in critical care units which answered the research questions.

Recommendations

Based on the present study findings, the following recommendations are suggested;

- Periodical continuous training program for nurses regarding activities of all tasks demand for caring of patients in critical care units.
- Availability of procedure book for the activities of all tasks should be performed by the nurses for caring of patients in CCUs for enhancing quality of care for such group of patients.
- Further research is recommended to address multi factors affecting quality of care for patients in CCUs to suggest evidence-based guidelines according to studied factors to enhance quality of care for patients in CCUs.
- Replication of this study on large number of the patients in different critical care units in different hospitals is recommended to generalize the study results.
- Hospital administrative staff should evaluate quality of nursing care in critical care units periodically to use results for creation of positive work atmosphere for enhancing productivity and quality of nursing care for meeting the quality standards of ensuring patients safety.

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