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Effect of Missed Nursing Care of Critically Ill Patients' Outcomes in Intensive Care Units

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Abstract:
Background: According to an international survey, the majority of nurses report leaving at least one task unfinished throughout a shift, making missed care a global issue. **Aim of the study:** Is to evaluate the Effect of missed nursing care of critically ill patients' outcomes in intensive care units. **Research design:** This study employed a descriptive correlational research strategy. **Setting**: This research was carried out at intensive care units in Al-Mabarrah Hospital for Health Insurance and Assiut University Hospital. **Sample:** The study subjects were included a convenience sampling of available critical care nurses who work in the previous mentioned setting and who give direct care to critically ill patients. **Tools**: Tool one: Nurse characteristics assessment tool; tool two: The missed nursing care questionnaire; tool three: Clinical outcome assessment sheet. **Results:** It was found that the most of nurses had moderate level of missed care and the most of patient`s hospital stay > 10 days. Also, the most of nurses were satisfactory reasons of missed care. There was relation between total score levels of missed nursing care and total score of clinical outcomes. **Conclusion:** the study concluded that the most of nurses had moderate level of missed care such as ambulation of patients three times per day and the most of patients' adverse events as unplanned extubating, phlebitis, transfusion reaction, pressure ulcers**. Recommendations:** Improving the quality care of the nurses through increase number of nurse staff.

Keywords: Critically ill, Effect, Missed nursing care, Intensive care unit & Patients' outcomes.

Introduction:
Unintentionally leaving out or failing to provide nursing care is known as "missed nursing care." More and more nurses are leaving their shifts with unfinished business and neglecting to provide essential patient care. The expressions "missed care" and "unfinished care" both have American roots. **(Mills & Duddle, 2022) & (Albsou et al., 2023)**. The majority of nurses report at least one activity left undone during a shift, according to an international analysis, making missed care a global issue. The term "nursing care left undone" was used in the first study on this subject from the International Hospital Outcomes Research (IHORC). **(Gustafsson, et al., 2020)**.

The term nursing care incorporates all aspects of emotional, clinical or administrative nursing care that a nurse is required to complete. Nursing is a crucial factor in determining the quality of care and health-related outcomes of patients. Nursing as a profession is constantly evolving and as more time constraints are placed on nurses, the less time they will have to complete their work so if this issue is not addressed, patient outcomes could increasingly worsen over time **(Kalankova et al., 2020).**

In addition to nurses' limited understanding of their own and their profession's responsibilities, environmental circumstances, urgent events, and a lack of staffing are all factors that contribute to nursing care being overlooked. **(Zhong, et al., 2023)**. In an effort to enhance patient and nurse outcomes, a more thorough examination of this phenomena, particularly its contributing elements, is strongly encouraged by the anticipated global nursing shortage. **(World Health Organization, 2020).**

The two main environmental factors affecting the frequency of missed care are nurse staffing and resource adequacy. There is strong evidence that fewer registered nurses on duty raise the risk of patient death on hospital wards and the possibility that many parts of care may be neglected or delayed. **(Chaboyer, et al., 2021).**

The ethical dilemma of missed care challenges nurses' moral and professional principles, resulting in an imbalance between patients' requirements and accessible or limited resources. As a result, nurses must prioritize their job, and missed care is a byproduct of this process. **(Haahr, et al., 2020).**

A mistake of omission, or failing to perform the proper thing, is known as missed care, and it can have a detrimental effect on the quality of care by possibly causing patients to suffer unfavorable consequences. Pressure ulcers, pneumonia, delayed wound healing, and increased pain and suffering can result from missing ambulation, whereas higher missed care has

been linked to a higher chance of patient falls. **(Gustafsson, et al., 2020)**.

Hospital-acquired infections, discharge planning, mortality, falls, patient mobilization, eating, and psychological and emotional support are among the patient outcomes linked to missed care that have been linked to the quality of care provided. **(Choi, et al., 2020).** Numerous factors affecting the nursing workforce have been implicated in the issue of missing care, which has drawn the attention of researchers due to its potential to impact quality and result in unfavorable patient outcomes, including satisfaction. A substantial amount of research emphasizes the significance of work conditions and patient-to-nurse staffing ratios as important factors. **(Simonetti et al., 2022)**.

Significant of the study:

According to the researcher's clinical observations, the majority of critical care nurses reported missing or leaving at least one or two tasks unfinished throughout a shift. MNC is a problem in hospitals, according to earlier research on the topic in Egypt, where 55–98% of nurses report missing one or more necessary care items during their most recent shift. **(Hammad et al. Journal of the Egyptian Public Health Association (2021)**

Aim of the study:

To assess the effect of missed nursing care on critically ill patients' outcomes in ICU.

Sub aim:

- Assess missed nursing care on critical patients in the Intensive Care Units
- Determine reasons contribute to missed nursing care in Intensive Care units
- Determined critically ill patients' outcomes in Intensive Care Units

Research questions:

The following research questions developed to guide the current study

1. How is missed nursing care determined in ICU?
2. What reasons contribute to missed nursing care in ICU?
3. How can determine critically ill patient outcomes in intensive care units?

Subjects and Methods:

Research design:

Descriptive exploratory research design utilized in the current study.

Setting of the study:

The data were collected from three intensive care units two in Al-Mabarrah Hospital for Health Insurance (General intensive care units & critical care units) and critical care units at Assuit University Hospital.

Sampling:

A convenience sample of available nurses working in the above setting.

Data Collection Tools:

Three tools were used for data collection in this study, as following:

Tool one: Nurse Characteristics Assessment tool

This tool developed by researcher after review of literatures **(Chegini, et al., 2020), & (McCauley, Kirwan & Matthews 2021) (Simonetti, et al., 2022).** including age, sex, marital status, educational attainment, and experience in the role and current unit were all included. Workload is also measured by the number of patients cared for during the most recent shift, the number of hours typically worked, the number of sick days missed during the previous three months, the perception of proper staffing, teamwork, and whether they had any plans to leave their current job.

Tool Two: The Missed Nursing Care Questionnaire

This tool adopted by the researcher after reviewing the relevant literature **(Nymark et al., 2020)**. It included two parts;

Part (I): Missed nursing care elements (MNC)

It comprised 25 questions about the routinely care provided by nurses in ICU.

It measures the amount of MNC belonging to four areas as follows; assessment and vital signs (8 items), interventions and individual needs (6 items), interventions and basic needs (7 items), and planning (3 items).

Scoring system:

a 5-point Likert scale from never missed to always missed. the potential range of scores is 1 to 5, with higher scores indicating more MNC total score (25 - 50) as followed:

-	Low	24 < 31	< 60 %
-	Mild	31< 38	60 <70 %
-	Moderate	38 < 45	70 <75%
-	High	45-50	>75 %

Part (II): Reasons for missed nursing care questionnaire

It consists of 17 items related to the reasons for routinely missed nursing care.

Scoring system:

Satisfactory	> 26	≥ 75%
Unsatisfactory	<26	< 75 %

Tool Three: Clinical outcome assessment tool

This tool developed by the researcher after reviewing the relevant literature **(Cho, et al.,2020) & (Willis & Brady, 2022)**, which includes three parts as the following:

Part (1): Adverse patient events check list

Adverse patient events were assessed using check list which included 14 items as following; medication errors, falls, Unplanned extubation, Transfusion site swelling or bleeding, Phlebitis, nosocomial infections. **Scoring system:** total score ranged from 14 to 28 (unsatisfactory score =1 and satisfactory score = 2

- Satisfactory	> 21	≥75%
- Unsatisfactory	< 21	<75 %

Part (2): Patient`s Length of stay

That involve days of ICU hospitalization between admission and outcome. This period will be calculated by subtracting the date of admission with date of discharge or death. Length of stay are classified into three classes as short (0 -5days), medium (6-10 days), and long (more than 10days)

Methods

Technique for data collection: the study conducted through the following phases:

Preparatory phase:

- Official permission of carry out the study was taken from the responsible head of Assiut university Hospital and Al-Mabarrah Hospital for Health Insurance to conduct the study.
- The study tools were designed after extensive literature review.

Pilot study:

- A pilot study conducted at (10%) of nurses worked in the selected setting to examine the applicability, feasibility, efficiency and clarity of the developed tools.

Content validity and Reliability:

- Content validity of the study had done by jury of (7) experts who are specialists in the field of critical care nursing from Assiut University, and necessary modifications will be done.
- **Reliability** of the study tool: The reliability of the test was calculated by using correlation coefficient and it estimated by Alpha Cronbach′s test for this study. Alpha Cronbach′s test tool one =0.93, tool two = 0.89 and tool three = 0.91

Ethical considerations:

- Research proposal was approved from Ethical committee (ethics code 1120240722) at 25-2-2023 in the Faculty of Nursing. There is no risk for study subjects during application of the research. Informed consent was obtained from the nurses' participants that are agreement to participate in the study. After explaining the nature and purpose of the study. Confidentiality and anonymity were assured. The participants have the right to refuse to participate and/or withdraw from the study without any rational at any time. Study nurses' privacy was considered during collection of data.

Phase (II): Data collection:

- The researcher explained to each nurse participant what the study was about as well as their rights and roles as study participants.
- The questionnaires were retrieved after one to 2 weeks. All data were collected during the period of January 2024 to March 2024.
- After receiving signed informed consent forms, the researcher handed out the questionnaires to the participants in sealed envelopes.
- Instructions were provided on how to complete the questionnaires. The researchers conversed with the participants regarding any ambiguities where appropriate.

Statistical analysis:

The collected data was organized, categorized, coded, tabulated and analyzed using the Statistical Package for Social Sciences **(**SPSS) version 27. Data was presented in tables and figures using numbers, percentages, means, standard deviation and chi-square was used in order to find an association between two qualitative variables. Statistically significant was considered at P-value < 0.05.

Results:

Table (1): Percentages distribution of demographic data of critical care nurse (No = 100).

Demographic data	No	%
Marital status		
Single	69	69
Married	31	31
Widow, Divorced	0	0
Level of education		
Secondary nursing school	5	5
Nursing technician	29	29
Bachelor degree	66	66
Years of experience		
From 6 months to 2 years	30	30
From 2 - 5 years	47	47
More than 5 years	23	23
Postgraduate Education		
Specialized Diploma in nursing (technical)	9	9
Master degree	11	11
None	80	80
Hours worked per week		
less than 36 hours	17	17
36 hours or more	83	83
Days or shifts absent in past 3 months		
None, 1 day or shift	69	69
2 or more days	31	31
Perceived adequacy of staffing		
Morning shift	83	83
Afternoon shift	7	7
Night shift	10	10
Leaving intentions of current position		
Yes	43	43
No	57	57

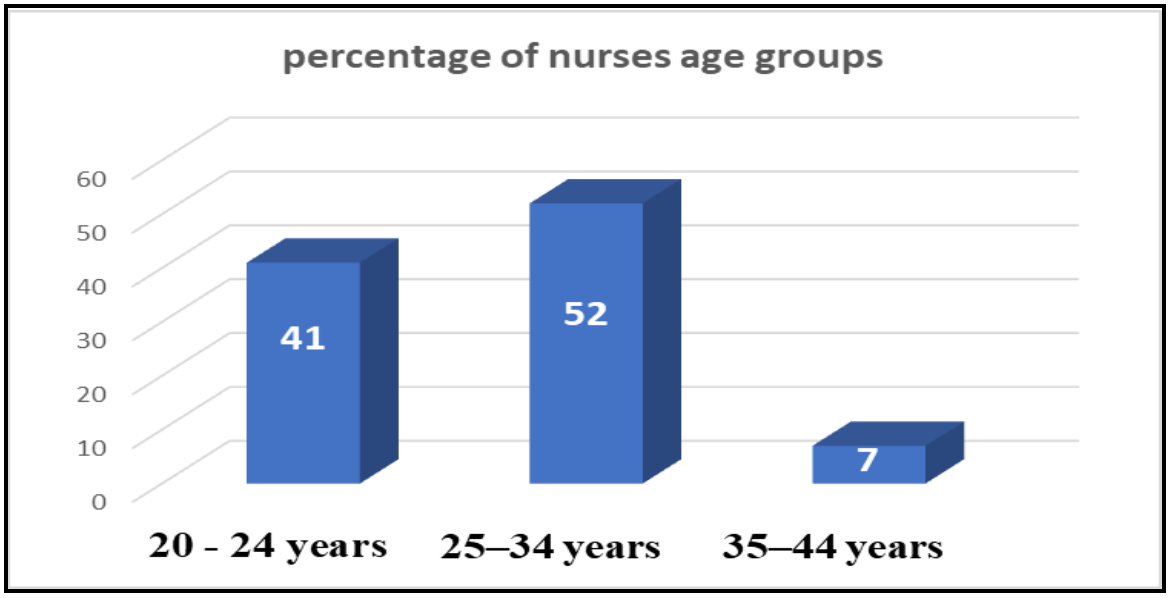

Figure (1): Percentage distribution of nurses age groups

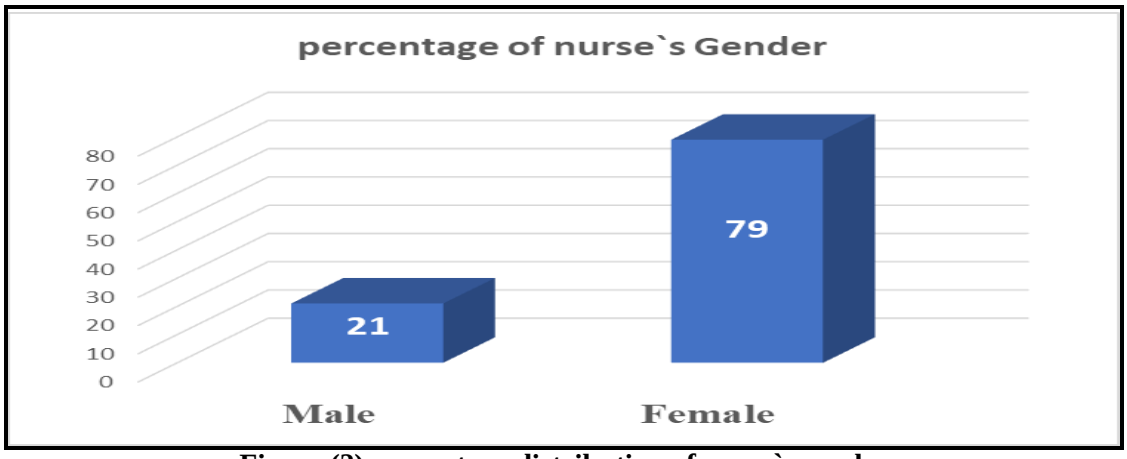

Figure (2) percentage distribution of nurse`s gender

Table (2): Percentages distribution of Reasons of Missed Nursing Care (No =100)

Reasons of Missed Nursing Care	Yes		No	
Communication	**No**	**%**	**No**	**%**
Unbalanced patient assignments	45	45	55	55
Inadequate hand-off from previous shift.	25	25	75	75
Other departments did not provide the care needed.	46	46	54	54
Lack of back up support from team members.	38	38	62	62
Tension or communication breakdowns with other ancillary/support departments.	25	25	75	75
Tension or communication breakdowns within the nursing team.	10	10	90	90
Tension or communication breakdowns with the medical staff	14	14	86	86
Nursing assistant did not communicate that care was not provided.	18	18	82	82
Caregiver off unit or unavailable.	17	17	83	83
Material Resources				
Medications were not available when needed	61	61	39	39
Supplies/ equipment not available when needed	53	53	47	47
Supplies/ equipment not functioning properly.	52	52	48	48
Labor resources				
Inadequate number of staff	74	74	26	26
Urgent patient situations	70	70	30	30
Unexpected rise in patient volume and/or acuity on the unit	56	56	44	44
Inadequate number of assistive and/or clerical personnel.	60	60	40	40
Heavy admission and discharge activity.	76	76	24	24

Table (3): Percentages distribution of Clinical outcome assessment tool (Adverse patient events chick list) (No =100)

Adverse patient events chick list	Present		Absent	
	No	**%**	**No**	**%**
Medication errors.	19	19	81	81
Falls.	30	30	70	70
Unplanned extubating.	**58**	58	42	42
Transfusion site swelling/ bleeding.	21	21	79	79
Phlebitis.	**65**	65	35	35
Transfusion reaction.	44	44	56	56
Pressure ulcers.	**56**	56	44	44
Surgical site infection.	49	49	51	51
Urinary Tract Infection.	**61**	61	39	39
Nosocomial Pneumonia infection.	**76**	76	24	24
Central line blood stream infections.	32	32	68	68
Cardiac dysrhythmias	32	32	68	68
hypoglycemia / hyperglycemia.	82	82	18	18
joint stiffness.	40	40	60	60

Table (4): Percentages distribution of length of stay of study sample (No =100)

length of stay	No	%
< 5 days	22	22
5 - 10 days	33	33
> 10 days	45	45

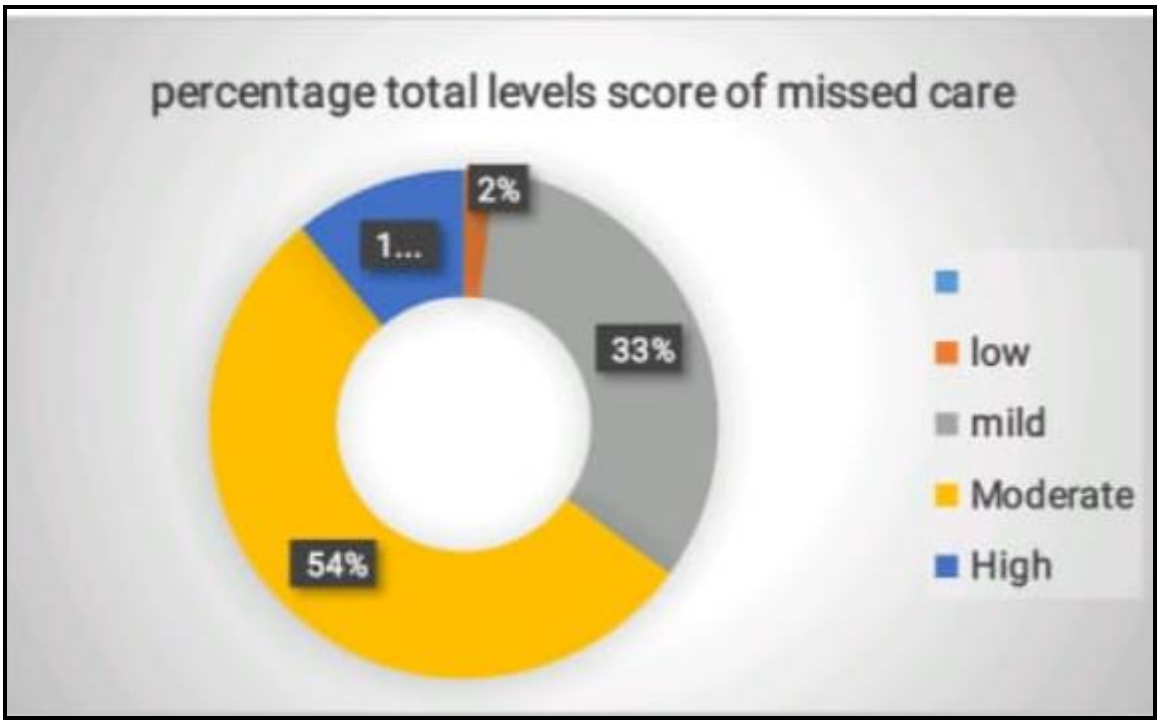

Figure (3): Percentage distribution of total levels of nurse`s score of missed care

Table (5): Percentages distribution of total score levels for the Reasons of Missed Nursing Care of study sample (No =100)

Score levels	Minimum & Max score (17-34)	Range	No	%
Satisfactory	> 26	>75%	68	68
Unsatisfactory	<26	<75 %	32	32

Table (6): Percentages distribution of total score levels for Clinical outcome assessment tool (Adverse patient events chick list) of study sample (No =100)

Score levels	Minimum & Max score (14-28)	Range	No	%
Satisfactory	> 21	>75%	58	58
Unsatisfactory	< 21	<75 %	42	42

Table (7): Relation between total score levels of Missed Nursing Care and clinical outcomes (No =100)

Score levels	Satisfactory (58)		Unsatisfactory (42)		χ^2	P. value
	No	%	No	%		
Low	2	2	2	2	18.1	**0.001****
Mild	33	33	33	33		
Moderate	54	54	54	54		
High	11	11	11	11		
Mean & standard deviation	23.4 ± 6.12					

Chi square test for qualitative data between the two groups or more
**Significant level at P value < 0.05, **Significant level at P value < 0.01.*

Table (8): Relation between length of stay of study sample and total score of missed care of study sample (No = 100).

Score levels length of stay	Low (2) No	Mild (33) No	Moderate (54) No	High (11) No	P. value
< 5 days	22	22	22	22	**0.005***
5 - 10 days	33	33	33	33	
> 10 days	45	45	45	45	

Chi square test for qualitative data between the two groups or more
**Significant level at P value < 0.05, **Significant level at P value < 0.01.*

Table (9): Relation between Demographic data of critical care nurse and total score levels of The Missed Nursing Care Questionnaire (No = 100).

Score levels Demographic data	Low (2) No	Mild (33) No	Moderate (54) No	High (11) No	P. value
Age					
20 - 24 years	41	41	41	41	0.846
25–34 years	52	52	52	52	
35–44 years	7	7	7	7	
Sex					
Male	21	21	21	21	**0.030**
Female	79	79	79	79	
Marital status					
Single	69	69	69	69	0.176
Marred	31	31	31	31	
Level of education					
Secondary nursing school	5	5	5	5	0.273
Nursing technician	29	29	29	29	
Bachelor degree	66	66	66	66	
Professional experience					
From 6 months to 2 years	30	30	30	30	0.486
From 2 - 5 years	47	47	47	47	
More than 5 years	23	23	23	23	
Hours worked per week					
less than 36 hours	17	17	17	17	**0.013**
36 hours or more	83	83	83	83	
adequacy of staffing					
Morning shift	83	83	83	83	**0.013**
Afternoon shift	7	7	7	7	
Night shift	10	10	10	10	
Leaving intentions of current position					
Yes	43	43	43	43	0.776
No	57	57	57	57	

Chi square test for qualitative data between the two groups or more
**Significant level at P value < 0.05, **Significant level at P value < 0.01.*

Table (10): Relation between demographic data of critical care nurse and total score levels for the Reasons of Missed Nursing Care of study sample (No = 100).

Score levels & Demographic Data	Satisfactory (68) No	Unsatisfactory (32) No	P. value
Age			
20 - 24 years	41	41	0.144
25–34 years	52	52	
35–44 years	7	7	
Sex			
Male	21	21	0.364
Female	79	79	
Marital status			
Single	69	69	0.932
Marred	31	31	

Score levels & Demographic Data	Satisfactory (68)	Unsatisfactory (32)	P. value
	No	No	
Widow	0	0	
Divorced	0	0	
Level of education			
Secondary nursing school	5	5	0.863
Nursing technician	29	29	
Bachelor degree	66	66	
Professional experience			
From 6 months to 2 years	30	30	**0.050**
From 2 - 5 years	47	47	
More than 5 years	23	23	
Hours worked per week			
less than 36 hours	17	17	0.222
36 hours or more	83	83	
Leaving intentions of current position			
Yes	43	43	**0.018**
No	57	57	

Chi square test for qualitative data between the two groups or more
**Significant level at P value < 0.05, **Significant level at P value < 0.01.*

Table (11): Relation between demographic data of critical care nurse and Clinical outcome assessment tool (Adverse patient events chick list) of study sample (No = 100).

Score levels & Demographic Data	Satisfactory (58)	Unsatisfactory (42)	P. value
	No	No	
Age			
20 - 24 years	41	41	**0.088**
25–34 years	52	52	
35–44 years	7	7	
Sex			
Male	21	21	**0.073**
Female	79	79	
Marital status			
Single	69	69	0.329
Marred	31	31	
Level of education			
Secondary nursing school	5	5	0.472
Nursing technician	29	29	
Bachelor degree	66	66	
Postgraduate Education			
Specialized Diploma in nursing (technical)	9	9	**0.061**
Master degree	11	11	
Non	80	80	
Hours worked per week			
less than 36 hours	17	17	**0.035**
36 hours or more	83	83	
Perceived adequacy of staffing			
Morning shift	83	83	**0.035**
Afternoon shift	7	7	
Night shift	10	10	

Chi square test for qualitative data between the two groups or more
**Significant level at P value < 0.05, **Significant level at P value < 0.01.*

Table (1): Shows percentage distribution of nurse`s demographic data. As regard Marital status, it was found that the majority of nurses were single 69%. As regard nurse qualifications, it was observed that the most of the nurse's qualifications were bachelor degree with percentage of 66%. Concerning years of experience of nurses, it was revealed that 47% from nurse's experience ranged from 2 years to 5 years. Concerning postgraduate education, it was revealed that 11 % from nurses had master degree. As regard

hours worked per week**,** 83% from nurses spend 36 hours per week. Regarding days or shifts absent in past 3 months, it was revealed that 69 % from nurses had none, 1 day or shift. Concerning perceived adequacy of staffing, about 83% from nurses worked in morning shift. Regarding leaving intentions of current position, it was found that 57% from nurses no leaving intentions of current position.

Figure (1): Concerning age groups, it was found that the majority of the nurses about 52 % from 25 - 34 years old.

Figure (2): Regarding gender, it was observed that the majority of the nurses was female with the percentage of 79 %.

Table (2): Shows percentage distribution of reasons for missed nursing care. As regard communication, it was found that the most reasons for missed care about 45% from reasons was unbalanced patient assignments, 46% from reasons was other departments did not provide the care needed. 88% from reasons was lack of back up support from team members.

Concerning labor resources, it was observed that the most reasons for missed care was 74%, 70%, 56%, 60% and 76% from reasons were inadequate number of staff, unexpected rise in patient volume and/or acuity on the unit, inadequate number of assistive and/or clerical personnel and heavy admission and discharge activity respectively.

Table (3): Shows percentage distribution of clinical outcome assessment tool

Adverse patient events chick list. It was found that about 58%, 65%, 56%, 61% and 76% from Adverse patient events were Unplanned extubating, Phlebitis, Transfusion reaction, Pressure ulcers, Urinary Tract Infection and Nosocomial Pneumonia infection respectively.

Table (4): Shows percentage distribution of length of stay. It was found that the most of patient`s hospital stay were 45% from patients > 10 days and 33% stay from 5 to 10 days.

Figure (3): Demonstrates percentages distribution of total score levels for the Missed Nursing Care Questionnaire (Element of Nursing Care). It was found that 54% was moderate level of missed care.

Table (5): Illustrates percentages distribution of total score levels for Clinical outcome assessment tool (Adverse patient events chick list) of study sample. It was observed that 42% was satisfactory clinical outcome.

Table (6): Illustrates relation between total score levels of Missed Nursing Care and toral score of clinical outcomes. It was observed that there are statistical significance differences between with p. value =0.001**.

Table (7): Illustrates relation between total score levels of Missed Nursing Care and levels of hospital stay. It was observed that there are statistical significance differences between with p. value = **0.005****.

Table (8): Relation between demographic data of critical care nurse and total score levels of The Missed Nursing Care Questionnaire. There was relation between total score levels of The Missed Nursing Care and gender, Hours worked per week and perceived adequacy of staffing with p. value = 0.030 and 0.013 respectively.

Table (9): Relation between demographic data of critical care nurse and total score levels of the Reasons of Missed Nursing Care. There was relation between total score levels of The Missed Nursing Care with Professional experience, Leaving intentions of current position with p. value = 0.050 and 0.018 respectively.

Table (10): Relation between demographic data of critical care nurse and total score levels of the clinical outcome assessment. There was relation between total score levels of the clinical outcome assessment with gender, postgraduate education and perceived adequacy of staffing with p. value = 0.088, 0.073, 0.061 and 0.035 respectively.

Table (11): Relation between sociodemographic data of critical care nurse and total score levels of the clinical outcome assessment. There was relation between total score levels of the clinical outcome assessment with gender, Postgraduate Education and Perceived adequacy of staffing with p. value = 0.088, 0.073, 0.061 and 0.035 respectively.

Discussion:

Missed nursing care can have catastrophic repercussions on patients, healthcare professionals, institutions, and even the broader societal framework. Thus, the critical identification of root causes is imperative for eradicating both missed care instances and their resultant effects. Nurses have the potential to mitigate instances of missed care and maintain continuity of patient care by evaluating the fundamental causes of missing care activities **(Andersson et al., 2022).** Consequently, the primary aim of the current research was to assess the effect of missed nursing care on patient's outcome at ICU.

Finding of the current study illustrated socidemographic data of critical care nurse. Regarding age, the finding of current of study noted that the half of nurses his age ranged from 25 to 34 years. This is explained by the researcher as his age group may represent a cohort that has recently graduated from nursing programs and is actively working in critical care settings. This results disagreement with **Janatolmakan & Khatony (2022)**

who reported that the mean age of the participants was 38.7 ± 7.7 years. However, this result goes on line with **Bergman et al., (2021)** who reported that age range of nurses was from 24 to 34 years.

In terms of gender, the most of the nurses were female and bachelor's degree was the most common qualification among nurses, accounting for nearly seventy percent of the sample. Nursing has historically been a female-dominated field, and this trend is likely continuing in critical care specialties. This results agreement with **Von Vogelsang et al., (2021)** who reported that the majority of nurse's gender was female. On the same line with **Vincelette et al., (2023)** who found that the majority of nurse's gender was female.

Concerning years of experience of nurses, it was revealed that less than half from nurse's experience ranged from 2 years to 5 years. This results disagreement with **Dutra & Guirardello. (2021)** who reported that most were ranged from 10 years and above years of experience in their current job. However, this results similarity **Kelly et al., (2021)** who found that half of nurses had 2-5years of experience working in their current word.

As regard nurses worked hours per week. The majority of nurses worked 36 hours per week. In the past 3 months, the most of the nurses had not been absent for any days or shifts. Working 36 hours per week is a common full-time schedule for nurses, especially in critical care settings where continuous patient care is essential. This standard schedule allows for adequate coverage while also providing nurses with some work-life balance.

The high percentage of nurses who have not been absent in the past 3 months may indicate a strong sense of dedication and responsibility among the nursing staff. It could also suggest effective management of work schedules and workload by both the nurses and their supervisors. These results agree with **Nobahar et al., (2023)** who found that the majority of nurses worked 36 hours per week. Additionally, **Vincelette et al., (2023)** who documented that in the past 3 months, 70% of the nurses had not been absent for any days or shifts.

Concerning nurses worked shifts, most nurses worked morning shifts and 57% expressed no intention of leaving their current position. The high percentage of nurses expressing no intention of leaving their current position could indicate job satisfaction, positive work environment, career growth opportunities, or other factors that contribute to retention. It suggests that the workplace may be conducive to long-term employment. This finding was in line with **Nobahar et al., (2023) & Vincelette et al., (2023).**

Regarding the missed nursing care (element of nursing care). In relation to assessment, the current results revealed that the majority of nurses in the study, had done full documentation of all necessary data, done IV site care & assessment according to hospital policy, monitoring intake/output, assessed vital signs, done focused reassessment according to patients and done bedside glucose monitoring as ordered at all three shift respectively. These results is congruent with **Duhalde et al., (2023)** who conducted the research on missed nursing care in emergency departments: A scoping review and found that the nurse had good knowledge and performance regard the assessment element of nursing care.

Moreover, these findings demonstrated that nurses excelled in implementing interventions tailored to individual requirements and strategic care planning as element of nursing care. This highlights their commitment to delivering personalized and effective nursing care. While demonstrating constraints in medications administered within 30 minutes before or after scheduled time. Additionally, adherence to the protocol of ambulation three times per day or as ordered and attend interdisciplinary care conferences whenever held. This related to time management, workloads, or systemic issues that could impact medication administration efficiency and attend interdisciplinary care conferences. These findings were in accordance with **Moustafa & Gouda (2023).** These results contradict **Hassan et al., (2024)** and **Labrague et al. (2022)** conducted a study about "Factors associated with the missed nursing care and nurse assessed quality of care." The study was conducted by nurses from the central region of the Philippines and revealed that most of the nurses had little knowledge about the domains of missed nursing care, including patient assessment items.

Concerning the reasons of missed nursing care**,** the current study denoted that the most prevalent factors of missed care were "labor resources, followed by material resources, and then communication factors. This is explained by the researcher as shortages in nursing staff can lead to heavy workloads and limited time to complete all necessary tasks, resulting in some care being missed. Nurses may be overwhelmed with the number of patients they are responsible for, making it challenging to attend to all care needs.

Finally, lack of essential supplies, equipment, or medications can hinder nurses from delivering care effectively. This result goes on line with **Diab & Ebrahim (2019),** who conducted a study about "Factors Leading to Missed Nursing Care among Nurses at Selected Hospitals" and found that the most prevalent factors of missed care were "labor resources, followed by material resources, and then communication factors. While disagree with **Hassan et al., (2024)** who said that the main reason for the missed nursing care were communication defects.

In relation to adverse patient events of missed nursing care, the current study indicated that the most adverse patient events were pressure ulcers about sixty percent, unplanned extubating about fifty eight percent, urinary tract infection sixty one percent, phlebitis sixty five percent, nosocomial pneumonia infection the majority had hypoglycemia or hyperglycemia.

The prevalence of adverse patient events resulting from missed nursing care, as indicated in the current study, highlights the critical impact of lapses in care on patient outcomes. These adverse events underscore the importance of timely and comprehensive nursing care in preventing avoidable harm to patients. These findings were in accordance with **Mainz et al., (2024)** who stated that the missed nursing care leads to adverse events such as medication errors and nosocomial pneumonia. Also, in agreement with **Recio-Saucedo et al., (2018)** who indicated that urinary tract infections, patient falls and pressure ulcers were most problem of missed nursing care.

Also, the study revealed a significant association between patients' length of hospitalization and missed nursing care. Findings indicated that 45% of patients experienced a hospital stay exceeding 10 days. The researchers postulated that this phenomenon may be attributed to missed nursing care, which has the potential to precipitate avoidable complications such as pressure ulcers, infections, falls, or medication errors. These complications can extend the duration of recovery and necessitate supplementary interventions, consequently elongating hospital stays. These outcomes align with the observations of **Janatolmakan & Khatony., (2022),** who highlighted that the repercussions of missed nursing care often contribute to prolonged hospital stays and increased healthcare costs.

The current results illustrated that more than half of the studied nurses had moderate level regarding missed nursing care. The explanation of this result may be because of the studied nurse have any previous training related to missed nursing care. The current findings disagreed with **Gabr & El-Shaer., (2020)** who studied factors affecting missed nursing care and its relation to nurses' workflow in general medical and surgical units at Mansoura University, and their study revealed that the greatest proportion of participating nurses held a diminished perception regarding missed nursing care.

With regard to the relation between total score levels of missed nursing care and total score of clinical outcomes. It was observed that there were statistical significance differences (p. value =0.001) between levels of missed nursing care and clinical patient outcomes. In the researcher point of view the missed nursing care can directly influence the quality and effectiveness of patient care delivery.

Tasks left undone or inadequately performed due to missed nursing care can lead to adverse events, complications, and compromised clinical outcomes. When essential nursing interventions are missed, patients may experience delays in treatment, increased risk of infections, medication errors, falls, or other preventable complications, all of which can negatively impact clinical outcomes. This finding was in harmony with the result of **Cho et al., (2020)** who indicted that adequate staffing is required to reduce missed care and to improve quality of care and clinical outcomes.

Concering the relation between demographic data of critical care nurse and total score levels of the missed nursing care. The present study illustrated that, there was relation between total score levels of the missed nursing care and gender with p. value =0.030, hours worked per week with p. value =0.013 and perceived adequacy of staffing with p. value =0.013. The results of the current study showed that, in comparison to male nurses, female nurses reported the highest amount of missing nursing care. This outcome is inconsistent with **Saqer & AbuAlRub., (2018)** who showed that a reduced level of missed care was reported by females' nurses.

Regarding hours worked per week and perceived adequacy of staffing, the present study results indicated that missed nursing care occur in morning shift. One reasonable explanation could be the higher workload and increased patient demands typically experienced during the morning hours. This period often sees a surge in activities such as medication administration, patient assessments, and doctor rounds, which may lead to time constraints and challenges in addressing all nursing care needs adequately.

The findings of the study align with previous research by **Gathara et al. (2020),** which also highlighted that nurses on day shifts tend to report more instances of missed care compared to their counterparts on night shifts. Moreover, as highlighted by **Labrague et al. (2022),** persistent overtime and the lack of adequate breaks due to staffing shortages can exacerbate the issue of missed care.

Pertaining to the relation between demographic data of critical care nurse and total score levels of the reasons of missed nursing care. There was relation between total score levels of the missed nursing care with professional experience, leaving intentions of current position with p. value = 0.050 and 0.018 respectively. In the researcher opinion this occur due to firstly, professional experience plays a crucial role in shaping a nurse's ability to manage their workload efficiently.

Nurses with more experience may have developed better time management skills, decision-making abilities, and clinical judgment, which can influence their approach to handling tasks and prioritizing care responsibilities. Secondly, intentions to leave one's current position can significantly impact a nurse's performance and commitment to their duties. Nurses who are considering leaving their current roles may exhibit decreased motivation, engagement, and job satisfaction, which could result in lapses in care provision and an increased likelihood of missed nursing tasks. This finding were consistent with **Labrague et al., (2020)**

Finally, In reference to relation between demographic data of critical care nurse and total score levels of the clinical outcome assessment. There was relation between total score levels of the clinical outcome assessment with gender, postgraduate education and perceived adequacy of staffing. As gender differences can impact care provision through varied communication styles and decision-making processes. Postgraduate education levels among critical care nurses can significantly impact their clinical knowledge, skills, and expertise. Nurses with advanced degrees may possess a deeper understanding of complex medical conditions, treatment modalities, and evidence-based practices, potentially leading to improved clinical outcomes.

Also perceived adequacy of staffing is a critical factor that can affect the quality of patient care in critical care settings. Insufficient staffing levels may lead to increased workloads, fatigue among nurses, and compromised patient safety, all of which can influence clinical outcomes. These results were in accordance with **Kalánková et al., (2020).**

Conclusion:

Based on the findings of the present study, it can be concluded that the most of nurses had moderate level of missed care such as ambulation of patients three times per day and the most of patients' adverse events as unplanned extubating, phlebitis, transfusion reaction, pressure ulcers, urinary tract infection and nosocomial pneumonia infection.

Also, the most of nurses were satisfactory reasons of missed care. There was relation between total score levels of missed nursing care and total score of clinical outcomes

Recommendations:

- Developing strategies aiming at improving the nurses care practices in intensive care units.
- Providing training for nurses regarding topic of missed nursing care
- Replication of this research regarding reasons for missed nursing care on a larger probability sample acquired from different geographical areas in Arab republic of Egypt for generalization.

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