

# Correlates of Missed Nursing Care in Selected Medical Intensive Care Units, Egypt

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## Abstract

**Background:** Missed nursing care is a universal phenomenon that could threaten patient safety across all countries and cultures, Missed nursing care is practiced by registered nurses, licensed vocational nurses, and nurses' aides alike. Therefore, when nursing care is not completed, the quality of care that follows is reduced. **Aim:** The current study was conducted to determine the correlates of missed nursing care in selected medical intensive care units. **Design:** Descriptive correlational design was utilized to carry out the study. **Setting:** The study was conducted in six medical intensive care units at EL Kasr El Ainy hospital and El Manial University hospital. **Sample:** included a convenience sample of (n = 73) staff nurses working at the selected units. **Tools:** Data were collected by using modified MISSCARE self-reporting questionnaire. **Results:** The findings of the study revealed that, the majority of staff nurses reported that they never missed the elements of missed nursing care. Meanwhile the most reported factors contributed to missed nursing care were related to patient, hospital system and polices followed by factors related to nursing staff. **Recommendations:** the current study recommended that the staff nurses need to realize the importance of reporting the factors that produce obstacles in providing adequate nursing care in addition, the importance to report and disclose the elements of nursing care being missed, ensuring that each nurse is assigned a manageable patient load to render all the needed care and maintaining adequate supplies and well working equipment enable nurses to provide higher quality of nursing care.

**Keywords:** Correlates, Missed Nursing Care, Medical Intensive Care Units

## 1. Introduction

Healthcare organizations are treating patients with increasingly complex disease processes and with increasingly complex treatments and technologies requiring stronger efforts toward applications of teamwork and collaboration among caregivers to achieve patient safety and prevent errors (National Quality Forum (NQF), 2006).

Most hospitalized patients with critical conditions whose requiring constant monitoring and comprehensive care consisting of complex therapies and interventions are cared for in intensive care units , that designed to provide extraordinary treatment by specially trained healthcare professionals, often with the use of high-tech equipment and stronger efforts toward applications of teamwork and collaboration among caregivers to achieve patient safety and prevent errors (NQF, 2006; Garrow, 2007).

One aspect of quality nursing care is the amount of necessary care that was omitted (Kalisch, Tschannen, Lee & Friese, 2011). Understanding of (MNC) is dependence on the professions' ability to identify the care not delivered. Once identified strategies for improvement may be developed and implemented. The ongoing identification of missed care will be required in order to ensure that it is minimized and not costing harm to patients. The study which addresses MNC supports nursing primary challenges to do no harm (Wegman, 2011).

The consequences of MNC present threats to patient safety, and should be given consideration in state and national policy development globally (Needleman & Hassmiller, 2009). Previous studies of MNC reported that not only that care was routinely being missed but also that the extent and type of MNC and the reasons for it were similar across hospitals (Kalisch, El Zein, Doumit & Lee, 2013).

MNC has been correlated with nurse staffing, unit type, material supplies, communication, teamwork, job satisfaction, intention to leave, job title, and patient falls (Kalisch & Lee, 2010; Tschannen, Kalisch, & Lee, 2010). Furthermore, the correlates of missed nursing care are in fact similar to those related to negative patient safety culture in hospitals, that include failed communication founded on mutual trust, interruption of the flow of information, absences of shared perception of the importance of safety, organizational learning and commitment from management and leadership, absences of a non-punitive approach to incident and error reporting. As well as the willingness of staff members to report events (kalisch, 2006; Stavrianopoulos, 2012).The frequency of MNC was also associated with nurses' perceptions of patient safety (Ball, Murrells, Marie, Morrow & Griffiths, 2014).

## 2. Significance of the Study

Health care errors are the root causes of a substantial amount of morbidity and mortality as well as the contemporary challenges in hospital nursing lay the foundation for enhances risk of missed nursing care, or nursing errors of omission (Castner, 2012). There is an ethical responsibility to study situations which affect patient outcomes. Specifically, acts of health care errors, or omissions, must be reviewed in order to enhance patient health and improve upon system policies (The American Medical Association's Code of Ethics, 2010). When tasks are missed by nursing staff, patients do not receive quality care, thus patient safety and patient outcomes can be compromised so health care-associated complications may result from the omission of appropriate quality patient care (Korniewicz & El-Masri, 2012).

The consequences of MNC are far-reaching in terms of patient outcomes. If the missed care, for example, is ambulation, a patient may be discharged from the hospital in a debilitated condition and may be required to have weeks of physical therapy. Not turning a patient may result in skin breakdown and pressure ulcer formation. The absence of patient teaching may lead to

complications and readmission. Mouth care missed with ventilated patients may lead to ventilator-associated pneumonia. Not bathing a patient could lead to not detecting a skin breakdown at an early stage, actually missed nursing care is in a link with patient morbidity and mortality (Kalisch 2006).

World wide release of several reports over the last decade found that approximately 5–15% of patients admitted to hospitals experience an adverse event that is related to health care providers performance, Moreover, these reports suggest that 37–52% of adverse events are preventable (Vincent, Neale, Woloshynowych, 2001; Baker, 2004). Also, critical deaths in Egypt represent the majority of hospital deaths with more than half a million deaths every year, the ministry of health reported that total numbers of admission to intensive care units was 40273 and number of death was 1807 in ratio of 4.5%, Manial university hospital statistics showed that the percentage of deaths was 4% of total admission to the intensive care units (Wahdan, 2010).

Thus, it is hoped that Findings from this study will provide a description of what are the nursing care aspects that regularly missed on the medical intensive care units and what are the reasons for this missed care. Furthermore, to point to the need to develop systems and approaches that are both efficient and cost effective that allow and encourage staff to miss less, if any, care. That will be regarded to the patient safety and quality of nursing care and expanded to reduce the patient's morbidity and mortality rate.

### 3. Aim of the Study

The aim of the present study is to determine the correlates of missed nursing care in selected medical intensive care units.

### 4. Operational definition

Correlates of missed nursing care are the factors contributing to, and associated with expected or scheduled patient care elements that were not provided on time or not provided at all by the staff nurses (e.g. labor resources, material resources and various relationship and communication factors,.....etc ).

### 5. Research Questions

The research questions for the study were as follows:

- What is the type and extent of nursing care being missed in medical intensive care units as reported by staff nurses?
- What are the correlates of care being missed as reported by staff nurses?

### 6. Subject and Methods

#### 6.1. Research design

Descriptive correlational design was utilized to carry out the study.

#### 6.2. Setting

The current study was conducted in six selected medical intensive care units (86 patient beds) at EL Kasr El Ainy hospital and El Manial University hospital, based on the predetermined inclusion criteria in which the six units had the largest number of staff nurses and patient's beds, different patient payment systems and each of the both units have the same corresponding patient services type.

#### 6.3. Sample

A convenience sample of (n = 73) staff nurses working at the six selected medical intensive care units that must be a staff nurses who took a daily patient assignment and provided direct patient care, had more than one year experience in their worked units, accepted to participate in this study and excluded from pilot sample.

#### 6.4. Tools of Data Collection

The study was collected by two tools as follows:-

**6.4.1. Modified MISSCARE self reporting questionnaire** that developed by (Kalisch, Landstrom & Hinshaw, 2009 a) was used to collect staff nurses perceptions of the type and extent of missed nursing care and correlates of MNC .This questionnaire was divided into four parts, as the following:

**6.4.1.1. Socio demographic data of the participants:** The Socio demography questionnaire was designed to gather the characteristics and background of the participants. It Contains (5) items that include participant gender, age, the level of nursing education, years of nursing experience as well as years of experience at the current worked unit.

**6.4.1.2. Work related background of the participants:** It Contains (9) items that include staff worked units' hospitals, target working units, type of patient payment at each unit, attended training courses related to nursing practice, type of attended courses , Work schedules e.g. (staffing pattern and length of worked shift),overtime (extra hours) shifts, absenteeism as well as average number of assigned patients per shift.

**6.4.1.3. MNC elements questionnaire:** The self reporting questionnaire that was designed to measure elements of missed nursing care contains (7) dimensions with (54 elements). The self reporting questionnaire was asked the participants to rate the frequency of missed nursing care on their unit, including themselves; which includes patient assessment dimension (4 elements), Monitoring of patients' medical devices and equipments safety (12 elements), various nursing interventions dimension (22 elements), medication administration dimension (2 elements), nursing documentation dimension (8 elements), patient education dimension (2 elements), patient's rights and privacy dimension (4 elements). As for the scoring system, for each question, respondents are asked to identify the frequency of care being missed using a 5-point Likert scale, with anchors (1) never missed (2) rarely missed (3) occasionally missed (4) frequently missed (5) always missed.

**6.4.1.4. factors related to MNC questionnaire:** The self reporting questionnaire contains (5) dimensions with (39) elements as follows; 1) factors related to hospital system and polices (11 elements), 2) factors related to nursing staff (13 elements), 3) factors related to patient (5 elements), 4) factors related to medical staff communication and relationship (4 elements), 5) non-nursing unit workload per shift (6 elements). As for the scoring system, the rating was based on a five-point scale with anchors of (1) strongly disagree (2) disagree (3) don't know (4) agree (5) strongly agree.

### 6.5. Tool Validity

Content validity was established by five experts in nursing administration and critical care & emergency nursing at Faculty of Nursing Cairo University as they were asked to examine the data collection tool for their content coverage, clarity, wording, length, format, and overall appearance. Based on experts' comment and recommendations some changes had been made at the data collection tool.

### 6.6. Pilot study

Pilot study was carried out on (9 staff nurses) which constitute about 10% of staff nurses worked at the six selected medical intensive care units in El Manial specialized and El Manial University Hospitals to test the applicability and clarity of the questions.

### 6.7. Tool Reliability

Internal consistency reliability was determined using Cronbach's alpha for Modified MISSCARE Self Reporting Questionnaire that was 0.95 .

### 6.8. Ethical Consideration

An official permission to conduct the study was obtained from the Vice Dean for Higher Education and Research- Faculty of Nursing Cairo University, ethical committee of research at the faculty and medical directors of Critical Care Units. Verbal consents were obtained from head nurses of these units. In addition, staff nurses' agreements to be included in the study were obtained formally after explanation of the nature and purpose of the study. Each staff nurse was free to either participate or not in this study and have the right to withdraw from the study at any time without any rational. Also, they were informed that data will not be included in any further researches without another new consent if they do not mind. Confidentiality and anonymity of each subject were assured through coding of all data. After data was collected from staff nurses the final approval letter was obtained from ethical committee, faculty of nursing, Cairo University to confirm that all participants were accepted to participate at this study based on their informed consents.

### 6.9. Procedures

Purpose of the study and methods of data collection were explained to the head nurses of the 6 medical intensive care units to obtain the permission from them to conduct the study.

The investigator had met the staff nurses at their working units either was individually or in groups, who worked morning shift during break time to handle the questionnaire to them, explain what the main idea and purpose of the study, and how to fill the questionnaire, the forms which has been filled in, were taken by the investigator in the same day meeting with each staff and filling the self reporting questioner took from 30 to 40 minutes. Meanwhile, the investigator had met afternoon and night shifts worked nurses at the beginning of night shift to handle the questionnaire to them, explain what the main idea and purpose of the study, and how to fill the questionnaire. The forms which have been filled in were taken by the investigator in the next day. All data were collected in six months period started from the beginning of October 2013 till the middle of April 2014.

### 6.10. Statistical design

The data collected from the self-reporting questionnaire was coded and entered into the statistical package for the social science (SPSS), version 20.0 for analysis. Data were analyzed using the descriptive statistics in the form of Frequency distribution, Percentage, Mean and Standard deviation and Inferential statistics in the form of one way ANOVA and Chi square. The significant level of all statistical analysis was at  $< 0.05$  (P-value).

### 6.11. Limitation of the study

The researcher conducted the current study with small sample size and the study was conducted in medical intensive care units limited to intensive care staff nurses and patients therefore the finding of the study were difficult to be generalized

## 7. Results

The findings of the current study were presented in five mean sections as follows:

**Section (1): Percentage distributions of study participants according to their socio-demographic and work related data (figures 1-15):** Figure (1) illustrates that (77 %) of the study sample were females and the rest were males (23%). figure (2) illustrates that (29 %) of the study participants age was between 36-40 years old with the total mean score ( $\bar{X}$  = 32.2466, SD = 6.79620). Figure (3) illustrates that (75%) of the study sample hold diploma degree in nursing. Figure (4) illustrates that (34%) of the study sample had nursing experience ranged from 16-20 years with total mean score ( $\bar{X}$  = 13.3562, SD = 7.14020). Figure (5) illustrates that (63 %) of the study sample were working at EL Manial specialized hospital, while (37 %) of the sample were working at EL Manial university hospital. Figure (6) illustrates that (63 %) of the study sample were working at intensive care units where have paid patient services in which these services were provided at EL Manial specialized hospital. Figure (7) illustrates that (41.1%) of the study sample had years of experience in the current working units ranged from 1-5 years with total mean score ( $\bar{X}$  = 10.6438, SD = 7.93615). Figure (8) illustrates that over half of the study sample (52%) did not attend any of nursing training courses, while (48%) attended nursing training courses. Figure (9) illustrates that (47%) out of the study sample who attended nursing training courses attended critical care nursing courses. Figure (10) illustrates that (85%) of the study sample were working full time staffing pattern. Figure (11) illustrates that (86%) of the study sample were working 12 hours per shift. Figure (12) illustrates that (42%) of the study sample did not take extra (overtime hours) working shifts, while (22%) took more than 4 extra (overtime hours) working shifts in the last three working months. Figure (13) illustrates that (47.9%) of the study sample were working 12 hours fixed long day shifts, while (6.8%) of the study sample were working 12 hours rotating long day shifts. Figure (14) illustrates that (85%) of the study sample had not been absent in their last three working months. Figure (15) illustrates that (33%) of the study sample assigned on four patients per shift, while (3 %) of the study sample assigned on six patients per shift.

**Section (2): Means and Standard Deviations of Reported Nursing Care Dimensions Being Missed by Study Participant (figure 16):** Figure (16) illustrates that the highest mean score ( $\bar{x}$  = 2.4932, SD =  $\pm$  1.577203) of the total dimensions of MNC nursing care elements reported by the study participants is patient education dimension, while the lowest mean score ( $\bar{x}$  = 1.4566, SD =  $\pm$  1.009414) is monitoring of patients' medical devices and equipments safety dimension. And total dimensions mean score was

( $\bar{x}$  = 1.8035, SD =  $\pm$  1.169844).

**Section (3): Differences among Study Participant's Perception of Correlates of Nursing Care Elements Being Missed (tables 1-5):** Tables (1-5) show that there were significant differences among all responses through all dimensions of correlates of MNC in which the majority of responses tended to higher level of disagreement toward the contribution of certain determined factors on the incidence of MNC. And the top ten correlates of missed nursing care as reported by the study participants were; Inadequate number of staff nurses to manage unexpected rise in patient volume and/or acuity on the unit (50.7%), performing non nursing activities like transferring the patient from or to the unit (47.9%), The presence of paid and unpaid patient system at the unit (41.1%), distraction of nurses at visiting time from patient's visitors (41.1%), time of medication administration is matched with time of other care activities (37.0%), protocols or guidelines appeared in the form of oral description and not easily reachable (35.6%), Ineffective delegation of nurses to provide nursing care to the patient (34.2%), limited authority over the assistive nursing personnel (34.2%), frequent paper work (31.5%) and large number of patients' admission and discharge activities (31.5%).

**Section (4): Differences between study participants' socio-demographic, work related data and reported dimensions of elements of MNC:** Results of current study showed that there was significant difference among study participants' years of nursing experience and reported MNC dimensions regarding to patient assessment dimension ( $\chi^2$  = 9.7, sig. = 0.04) with higher mean score ( $\bar{x}$  = 2.18, SD =  $\pm$  1.00) at 16-20 experience years. In addition there was significant difference among study participants' length of their worked shift and reported MNC dimensions regarding to various nursing interventions dimension ( $\chi^2$  = 11.9, sig. = 0.018) with higher mean score ( $\bar{x}$  = 1.66, SD =  $\pm$  0.63) at 12 working hours / shift, there was significant difference among study participants' most often worked schedule and reported MNC dimensions regarding to patient assessment dimension (F = 13, sig. = 0.01) where the majority of studied sample were working 12 hours fixed long day shifts, there was significant difference among study participants' number of absent work days in last three months and reported MNC dimensions regarding to various nursing interventions dimension ( $\chi^2$  = 14.9, sig. = 0.002) with higher mean score ( $\bar{x}$  = 2.42, SD =  $\pm$  0.56) at more than 2 days absent in last three months, there was significant difference among study participants' average number of assigned patients per shift and reported MNC dimensions regarding to medication administration dimension ( $\chi^2$  = 13, sig. = 0.01) with higher mean score ( $\bar{x}$  = 2.06, SD =  $\pm$  0.99) at assigned for four patients per shift.

**Section (5): Relationship between Socio - Demographic, Work Related Data of the Study Participants and Reported Factors associated with Nursing Care Being Missed (table 6):** Table (6) shows that there were significance differences between study participants' age and their reported factors related to non- nursing unit workload activities per shift (F = 1.947, sig. = 0.031), in addition, significance differences between study participants' years of nursing experience and their reported factors related to non-nursing unit workload activities per shift (F = 1.944, sig. = 0.031). Also, significance differences among worked units' hospitals and reported factors related to nursing staff (F = 3.075, sig. = 0.015) was found, moreover significance differences among unit services' payment and reported factors related to hospital system and policies (F = 6.713, sig. = 0.012), reported factors related to nursing staff (F = 7.442, sig. = 0.008) and reported factors related to medical staff communication and relationship (F = 5.192, sig. = 0.026) were found. In addition to the significance differences among types of staffing pattern and reported factors related to patient (F = 4.716, sig. = 0.033).

## 8. Discussion

### **Section (1): Percentage distributions of study participants according to their socio-demographic and work related data:**

Regarding the socio-demographic data of the sample, the result of the current study revealed that the majority of the study sample was females and the rest were males, were between 36-40 years, hold diploma degree in nursing and have nursing experience ranged from 16-20 years. This result may be explained by the fact that nursing is a universal feminine profession as well as the enrollment of the male students in this profession was started in later decades. The first graduated male student from the Faculty of nursing Cairo University was at 2007. So, male nurses' numbers still until now very limited. In addition, in Egypt the number of professional nurses who graduated from faculties of nursing and/ or the nurses who hold associate's degree in nursing is hardly covered the Egyptian hospitals work needs may be due to the salary insufficiency that being offered in the universities hospital like El Kasr El Ainy and the newly professional graduated nurses tend to travel for working in other countries.

Regarding the work related data of the sample, the result of the current study revealed that the majority of the study sample was working at EL Manial specialized hospital, at third unit intensive where patient services were paid. In addition, the result of the current study revealed that majority of the study sample were working for 1-5 years in the current place, over half of the study sample didn't attend any training program as well as, the majority of training program that study sample had attended were critical care training program.

A possible explanation for this might be that the short years of experience that the majority of staff nurses have in their current working unit in El Kasr El Ainy hospital because they did not satisfied with their working in the current units and they all the time decide to shift from one unit to another searching for comfortable work. This finding is in agreement with Li & Lambert (2008) findings which showed that higher levels of satisfaction were linked to working longer in specific unit or hospital.

Another possible explanation for this is that nurses shortage and budget constraints that present at El Kasr El Ainy hospital makes the staff nurses were not able to attend courses as they devote their effort and time for providing patient care and meeting the assigned unit tasks' requirements. The present findings seem to be consistent with Cortese (2007) which found that nurse managers were constrained by hospital budgets which prevented them providing enough time and opportunities for unit nurses to undertake continuing professional development. Therefore the majority of attended courses were prioritized around nursing procedures and care adapted with the critical settings not more for other trends like career development and occupational safety courses.

Furthermore, the result of the current study revealed that majority of the study sample were working full time staffing pattern, 12 hours per shift which was 12 hours fixed long day shifts, did not take extra (overtime hours) working shifts while near to quarter of the sample took more than 4 extra (overtime hours) working shifts in the last three working months, had not been absent in their

last three working months and assigned on four patients per shift.

It seems to be possible that these results are due to the lack of adequate nursing staff in the critical setting has led to the units management to apply 12 hours fixed long day shifts system to minimize the disturbance of rotating shift circadian rhythm which leads to increased errors rate on performing nursing tasks. In study done by Richardson, Turnock, Harris, Finley & Carson (2007) found that nurses perceive long work days (12 hour shifts) as a benefit by reducing the number of staff hand-offs and increasing continuity of care and prefer fewer days at work therefore less commute time and easier scheduling of home life responsibilities.

Wegman (2011) mentioned that as result of nursing shortage, nurses have to be assigned for more than two patients in nurse patient ratio. Also Carayon & Gurses (2007) asserted that staff nurses should be assigned for no more than two patients in critical care units. In addition, in the condition of higher patient acuity and nurses are expected to perform nonprofessional tasks such as transporting patients and ordering, coordinating, or performing ancillary services might lead them to take extra (overtime hours) working shifts

**Section (2): Means and Standard Deviations of Reported Nursing Care Dimensions Being Missed by Study Participant:**

Results of the current study regarding to total dimensions of reported elements of MNC by study participant revealed that the most frequent missed care elements were regarding to patient education dimension followed by patient assessment dimension and patients' rights and privacy dimension.

As a result of nurses devoting their time to complete physical care tasks, doctor orders, unit activities and other non nursing task activities, nurses had no enough time and prioritized their effort to complete the previous activities despite of performing other psychological activities like teaching the patient about his test results or orient him with the unit staff name. therefore, this result is agreed with (Kalisch, 2006; Lucero, Lake & Aiken, 2009; Kalisch, Landstrom & Hinshaw, 2009 b; Al-Kandari & Thomas, 2009; Kalisch et al., 2011; Ball et al., 2014) in which at this times when nurse found it was impossible to fulfill all nursing care requirements or choose not to complete all aspects of care for a variety of reasons, In these circumstances, nurses may abbreviate the care or delay the care. in addition to talking with patients or the education of patients and their relatives were more often omitted than activities such the documenting and planning of care, patient monitoring and the turning of patients or administering medications on time (Basel University, 2013).

Meanwhile this result is contradicted with the result of Kalisch (2009) who mentioned that MNC for RNs with mean of 1.71 missed events/ shift and NAs reported mean of 1.49 missed events/shift within the frame of significant amount of missed care as 40% assessments and 70% interventions, basic care, and planning. In addition to Schuckart (2010) who reported that interventions for basic care were missed by 45.7% of respondents, while interventions for individual needs were missed by 37.7% of the bedside nursing personnel. Planning, teaching, and education were missed by 42.1% of respondents, while assessments and monitoring were missed by 22.3% of the nursing staff.

**Section (3): Differences among Study Participant's Perception of Correlates of Nursing Care Elements Being Missed:**

The results of the current study regarding to study participant's perception of correlates of MNC revealed that there was a significant difference among all responses through all dimensions. In which there were a lower percentage of agreement among nurses toward the contribution of certain determined factors on the incidence of MNC. A possible explanation for this might be that the nurses didn't confess that they had omitted the care so they hadn't to report that there were many factors led to care omission. In addition, nurses might be afraid from researcher of disclosing their opinion about hospital, system or unit characters and proved through the research study that they missed the care therefore they would face many problems of reporting defects in the system or the nursing staffing. So, most of them reported in a lower degree about factors that could affect their quality of care generally.

In addition, nurses supposed that they will not make any change if they gave their opinion on their working environment and they wouldn't influence in the hospital system which this opinion was supported by (Barclay, 2010) stated that although opinion of the leaders regarding to the nurses as one of the most trusted sources of health information, nurses were reported as having less effect on health care reform than government, insurance, pharmaceutical executives and others. Nurses should have more influence as they are trusted for information about health and health care and play a pivotal role in improving quality and safety of care. But this is not generally understood or recognized.

The nurses explained that as due to lack of help due to nursing shortage, increased patient acuity and limited time, nurses delaying either medication administration or any other care activities like the extraction of a blood sample if they were matched at the same time. Therefore, nurses had to comply with the urgent orders as, for example, nurses had to extract ordered arterial blood gases instead of giving patients' medication because the patient was unstable and doctor need to immediately analyze the patient condition. Another explanation that the policies of other departments like laboratory department forced nurses to hurry in extracting blood sample instead of administering scheduled medications. Kalisch et al. (2009 b) stated that in the midst of multiple demands and inadequate resources, at this time when they found it is impossible to fulfill all nursing care requirements or choose not to complete all aspects of care for a variety of reasons, in these circumstances, nurses may abbreviate the care or may delay the care (e.g. Give a medication due at 09:00–11:30 hours) or may simply omit the care.

Not only the nurses who complain of lack of easily reachable policy or guidelines, but also health care personnel throughout all studied units. Nurses in many conditions relayed only on what head nurses hold from them to do or what the doctor ordered in doctor orders sheet therefore some tasks had been omitted as not been ordered or explained to be done by nurses as for example, many doctors didn't ask the nurse to check the patient's blood glucose level hourly or check the acetone in urine as they relied on nurses' knowledge and information that they had got to measure both glucose in blood hourly and acetone in the urine immediately if their patient's blood glucose level was high. Henriksen, Dayton, Keyes, Crayon and Hughes (2008) stated that many nursing work processes have evolved as a result of local practice or personal preference rather than through a systematic approach of designing a system that leads to fewer errors and greater efficiency so presence unit protocols and standers of care which leads to less confusion, gains in efficiency and fewer errors.

Inadequate staffing, often reflected in heavy workload, unpredictable and inflexible schedules, excessive overtime, and threat

of job loss, influence workforce maintenance by limiting the capacity to recruit new nurses and retain those already employed as well as, high turnover and excessive utilization of temporary staff from external agencies, have been linked with increasing risks to patient safety (Rogers, Hwang & Scott, 2004; Prot et al., 2005; Hayes et al., 2006). When nurses are unable to cope as a result of nursing shortage, the patients suffer about treatments are missed, no interaction with nurses, basic care not provided (Berry, 2012).

These results were in agreement with Kalisch et al. (2011) who stated that inadequate labor resource was the most often cited reason for missed care (93.1% across 10 hospitals). Kalisch et al. (2009 b) mentioned that 85% of the participants in their study stated that the shortage of nurse is reason for MNC, The most common reason of MNC reported by nurses was staffing shortages (Winters et al., 2012). Task compilations were more with an increased number of nurses in the unit (Al-Kandari & Thomas, 2009).

As a result of the nursing shortage and lack qualified managerial supervision, most of the units have to hire less qualified nurses to overcome shortage and head nurses have to assign them to the critically ill patient with a higher nurse patient ratio without giving them the appropriate help and guidance as the nurse managers were not always sympathetic towards their workload demands (Winters, Rosie, Neville & Stephen, 2012). Lack of qualified nursing personnel was linked on a short term basis with the omission of necessary nursing therapies and discussions with patients and increases in error rates (Whitby, McLaws & Slater, 2008).

Also during a social break time of nurses they had to assign their patient to another nurse to take care about him/her meanwhile the other nurses failed to keep both patients in their monitoring therefore certain aspects of care were omitted. Gravlin and Bittner (2010) mentioned in their study about the delegation of the NAs by staff nurses during periods of work overload that ineffective delegation was contributing to MNC. Kalisch et al. (2009 b) stated that ineffective delegation can lead to MNC in which the 39% of their study participants reported that the presence of a high number of inexperienced staff on the shift to carry out patient activities. In addition, ineffective delegation was cited by nursing staff as one reason for MNC (Ruff, 2011).

Nurses reported that they were unable to be authorized and influenced over the NAs and expressed a reluctance to confront NAs who did not do their job. This was due to lack of conflict management within the unit, failure of the unit head nurses to clarify what exactly the job duties and responsibilities of the NAs and lack of punitive responses for the reluctant NAs (Kalisch, 2006). Potter, Deshields and Kuhrik (2010) found that participants described the conflict as a central theme during the delegation. Pearson et al. (2009) revealed that organizations should augment the delegation process and safeguard the authority of the RN over assistive nursing personnel by continuously educating the entire staff.

Half of the six studied medical intensive care units were providing paid patient services and others providing non paid services. In which higher number of nursing staff, conservative nurse patient ratio, professional managerial supervision, average staff development & training, adequate supplies & equipment, presences of average established unit policies & procedures & staff discipline regulations, receiving higher salary and working at better working environment are quietly present in the paid units than non paid ones. So, nurses became well controlled and providing proper nursing care than nurses who worked in non paid units.

Results of study by Irfan and Liaz (2011) showed that private hospitals are delivering better quality of services to their patients as compared to public hospitals. There are significant differences between public and private hospitals in overall services quality as the private hospitals are satisfied regarding to the patient's perceptions than public hospitals that is expected in Egyptian context as the private hospitals earn from income patients and aggressive marketing. For this reason the private hospital more inclined than public hospital to provide quality services to meet patient needs better (Mustafa, 2005). Magnet hospitals have significantly less missed care. Magnet hospital staff report less staffing and communication problems (Kalisch & Lee, 2012). Patient satisfaction in Indian with nursing was significantly in private hospitals as compared to public hospitals However, communication and offering emotional support dimensions of nursing care had lowest score in both private and public hospitals (Sharma & Kamra, 2013).

Furthermore, nurses reported that presence of patient relatives most of time disrupts nurses while their performing the patient care either by frequent asking them too many questions or let them to postpone some of critical tasks as for example, nurse can't suction the patient in front of his relatives because suctioning will change the patient heart rate or lead to facial flushing that may cause panic to the relatives and sometimes let the relatives talk to nurses in impolite ways in case of lack of knowledge. This explanation agrees with (Ghiyasvandian, Abbaszadeh, Ghojzadeh & Sheikhalipour, 2009) study in which nurses reported that visiting interferes with nursing care and that the emotional involvement with relatives produced nurse emotional stress and strain. Moreover, Marco et al. (2006) stated that nurses had believed that family presence interrupt or postpones some treatment and cares which is unpleasant or causes pain to the patient and they do not help much in carrying out basic care.

Due to nursing shortage, lack of assistive personnel like NAs or unit workers and secretaries at the studied units as well as lack of clear job description, nurses had to perform other non nursing activities that take much time from nurses and affect their time devoted to care for their patients. Kiekkas et al. (2005) found that nurses spent only 35.2% of their time on direct clinical care while, 8.6% of their time was spent on clerical nursing duties and 2.3% on non-nursing duties. In addition, non-nursing tasks contributed to 21% of nurses' total workload and could be a reason that the nurses were unable to complete some of the nursing activities (Al-Kandari & Thomas, 2009).

Lower proportions of nurses carrying out non nursing tasks frequently, fewer nurses reported leaving nursing care undone (Ausserhofer et al., 2013). More than one-third of RNs' time was spent on non value added tasks, representing an average of 28% of RN wages (Whitby et al., 2008). Nurses spending greater than 9 % of their time performing activities of other staff (non nursing activities) like the clean / setup of unit equipments or transferring the patient from or to the units as a result of limited availability of assisting staff (Peter, 2008). According to Gran-Moravec and Hughes (2005), RNs spend only 39% of their time on performing tasks that NAs only can perform, and the rest of the time is spent on performing activities that certified NAs could perform alone or on shared tasks.

RNs identified an unexpected rise in patient volume, urgent patient situations and admissions & discharges more frequently lead to care unfinished (Kalisch, 2009). Correlates that influence on task incompleteness were increased number of patient transfers, increased number of discharges made during the shift (Al-Kandari & Thomas, 2009). Heavy admission or discharge activity was one of the top 6 reasons cited by RNs and NAs for missed nursing care (Gravlin & Bittner, 2010).

***Section (4): Differences between study participants' socio-demographic, work related data and reported dimensions of elements of MNC:***

Results of the current study revealed that there was a significant difference between having 16-20 experience years and reported missed patient assessment dimension. However, the nurses said that being more experienced means that they handled the most complicated role beside providing direct patient care as they had to receive the unit in case of head nurse absences, therefore they became easily exhausted and felt fatigue during working. Experienced nurses mostly had a good relationship with other health care team as they referred the reassessment of patient condition and the effectiveness of patient medication to the intern doctors as a kind of teaching as well as their friendly delegated some physical tasks like bed bath to the NAs without being exist beside them to check the skin integrity or the wound condition.

Kalisch and Lee (2012) stated that more nurses' experience was positively associated with MNC. Kalisch et al. (2013) stated that nurses who had 2 or more years of experience in their role reported more MNC than those who had 6 or less months of experience. As well as staff with 10 years' experience reported more MNC (Kalisch et al., 2013). Conversely, the data of Al-Kandari and Thomas (2009) showed that more nurses with 5 years or more experience nurses completed all tasks during the shift. However, it was also found that the younger nurses were more unable to complete nursing tasks. In addition, Hospital with the least amount of MNC had participants with most years of experiences (Castner, 2012).

Working 12 hours / shift either long day or night shift generally affects the nurses' performance and providing of adequate nursing care. When the nurses had been near to end their shift they found themselves restlessness and felt fatigue that they could not complete even the routine or critical care activities specially tasks that require physical power like bathing and manual changing position of the patient leaving part of them undone. In addition increased error regardless of the length of scheduled shift (Ellis, 2008). Dorrian et al. (2006) found that nurses struggled to remain awake during 36% of their shifts and they reported twenty errors like (medication errors but errors occurred in documentation, procedures, and transcribing orders), 13 near errors, and 22 errors during the study time.

Both working during the night and working long hours are associated with more errors. In an early study, nurses on rotating shifts have reported more errors than those on the day shift (Rogers et al., 2004). A study of critical care nurses and errors recommended that the use of 12 hour shifts should be minimized and no more than 12 hours should be worked in a 24 hour period (Scott et al., 2006). More errors occurred over the duration of the shift (from zero to 6 errors in 12 hours. The staff working 8-hour shifts had better scores on nursing tests of performance than those working 12-hour shifts (Lundstrom, Pugliese, Bartley, Cox & Guither, 2002). Subsequently, nurses who worked in fixed long days shifts stated that they received of the same critical patients in long extended days leaving no need to assess the patient and re assess his condition as they already received him many time and know his condition. In addition in day shifts nurses handle more duties and unit activities beside providing direct patient care and face a lot of orders due to medical round that present in the morning than at night shift therefore they were unable to frequently assess the patient condition. Higher rates of missed care reported by day-shift workers may suggest an imbalance in responsibilities for nursing personnel in a 24-hour period (Kalisch et al., 2011).

Higher rates of MNC reported by day-shift workers may suggest an imbalance in responsibilities for nursing personnel in a 24-hour period (Kalisch et al., 2011). Ball et al. (2014) mentioned that more care was left undone on the day and afternoon shifts than night shifts. Furthermore, RNs who worked the night shift reported less MNC (Kalisch et al., 2013). Conversely, Al-Kandari and Thomas (2009) argued that more elements of nursing care were incomplete during the night shift because fewer nurses are available leading to an increase in patient load.

Nurses who were many times absent due to frequent overload and staff shortage or other physical problems reported that they missed certain physical nursing intervention like bed bath and changing patient position, suggesting that these individuals may not have a strong connection to the nursing unit and the goals of care (Kalisch et al., 2011). Therefore, they didn't be keen to complete various tasks of the patient care.

On the other hand, frequent staff absenteeism can lead to work overload and conflict arising from polling out nurses to areas out of their concern with the lacked staff area that may cause leaving certain tasks unfinished. These results are in agreement with Kalisch et al. (2011) who stated at the absenteeism was predicted of MNC in which nursing staff who missed 2 or more shifts in the past 3 months reported missed care more often than those who did not miss any shifts. In addition, Kalisch et al. (2013) stated that nurses who missed any work days in the last 3 months also reported significantly more MNC than did those who did not miss any work days.

Nurses who were responsible for four patients per shift reported, when they started to give the patient medication they got themselves unable to provide all of the ordered medication, particularly medication of local use (e.g. bed sore ointment) as if they would administer all the ordered medication for each, they would delay other tasks like suctioning the patient, they frequently delayed to use it until the time of patient bed bath. These results were in agreement with Ball et al. (2014) who mentioned that the odds of missed any care were significantly lower when RNs were caring for the littlest patients. The nurses who cared for more patients in the previous shift reported significantly more missed care (Al-Kandari & Thomas, 2009; Kalisch et al., 2011; Friese, Kalisch & Lee, 2013).

***Section (5): Relationship between Socio - Demographic, Work Related Data of the Study Participants and Reported Factors associated with Nursing Care Being Missed:***

The results of the current study revealed that there were significant differences among study participants' age, participants' years of nursing experience and their reported presence of non- nursing unit workload activities per shift as factors related to MNC. This result may be explained by the fact that the older nurses were assigned to managerial activities such as being in charge of their units or assigned for the supplies and equipment inventory rather than providing direct patient care. In addition, older nurse also might delegate their own tasks to other younger nurses which could not do them, where younger nurses had little authority over other assistive personnel to perform non nursing activities like transferring patient from or to the unit than the older one.

Moreover, a significant difference between study participants' unit services' payment and their reported factors related to hospital system & policies, nursing staff and medical staff communication & relationship as factors related to MNC were found. It seems possible that these results are due to the culture of working unit and subsequently the presence of paid and unpaid services through the different units differs in the availability of the healthcare personnel, for example (percentage of nursing shortage and higher nurse patient ratio were more in unpaid units). Availability of professional leadership and supervision where (the professional bachelor head nurses were working in paid units and diploma head nurses were working in the unpaid units). Availability of acceptable unit policies, procedures and guidelines that maintain the professional communication manner within the healthcare personnel where (lacking of those policies was considered in unpaid units) and the availability of an acceptable unit documentation system that maintains legal protection of the healthcare personnel in which (was lacked in unpaid units).

Finally the significant difference between types of staffing pattern and their reported factors related to patient as factors related to MNC was found. A possible explanation for these results may be the nurses who working full time shift committed to the work in the studied units by attending more than 17 days work per month, where most of time nurses had to take extra hours or overtime shift that extending their scheduled working days. In addition, they complained many times from heavy patient workload as they were more involved in unit activities and received all the time the critical cases with minimal chance to provide care for other light patients than the part time nurses. (Agency for Healthcare Research and Quality (AHRQ), 2008) stated that full-time nurses experienced higher role overload, heavier workloads, higher levels of stress and poorer physical wellbeing. Full-time nurses were statistically more involved in their job. Nurses who select to work part time shift almost had lower levels of job involvement and affective commitment and work engagement than full time nurses (Ronald, Simon & Lisa, 2013).

## 9. Conclusion

The result of the current study concluded that the highest reported mean nursing care dimensions being missed scores were regarding to patient education, followed by patient assessment and patients' rights and privacy dimensions

The most reported correlates of missed nursing care were related to patient and hospital system and polices followed by factors related to nursing staff.

Also, there were significant relationship between study participants' socio-demographic, work related data and reported MNC and perceived factors related to MNC.

## 10. Recommendations

- More attention should be given to monitoring missed nursing care on a daily basis, the knowledge which gained from this study should be used by nursing staff and other healthcare providers to develop preventive actions of care interventions that are at risk for being missed .
- Addressing staff nurses educational needs to realize the importance of reporting the factors that produce obstacles in providing adequate nursing care in addition, the importance to report the elements of nursing care being missed to avoid aggravation of its incidences and how to manage missed nursing care when it does occur. Newcomers' nurses should be exposed to the concept of missed nursing care
- It is an administrative responsibility to ensure that each staff nurse is assigned a manageable patient load to render all the needed care. Careful attention to minimize the non-nursing workload of the nurses to maximize the time spent on nursing care activities is needed.
- Establish protocols of nursing care activities to minimize incidence of missed nursing care. The utilization of proper standardized nursing care plans will enable nurses to organize nursing care activities and utilize time effectively. Maintaining adequate supplies and well working equipments enable nurses to provide higher quality of nursing care.
- Initiation of activities such as regular formal clinical debriefing after critical incidents, a formal mechanism for reporting incidents of missed nursing care, and a review of current nursing care delivery models could help to support staff nurses in reducing the impact of work related stress.
- Nurse Managers need to recognize the importance of their role in supporting and acknowledging the work of the staff nurses in clinical practice, and in maintaining a visible presence in clinical practice areas. A consistent feedback loop between staff nurses and nurse managers should include a formal procedure for reporting back to registered nurses following the investigation of reportable events.
- Nurses must realize that documentation of nursing care is of most importance and it should be completed even if time pressure exists.
- Mutual cooperation between ministry of health and civil society organizations is needed to develop and implement plan of action for improving quality of critical nursing care.
- For Further research, more work will need to be done in a variety of hospital settings with large sample size to be easily to be generalized. Also, it would be interesting to compare experiences of staff nurses and patients' experiences regarding nursing care being missed in a variety of hospital settings. In addition, Future research should concentrate on the investigation of the point at which missed care affects patient outcomes.

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**Figures:**

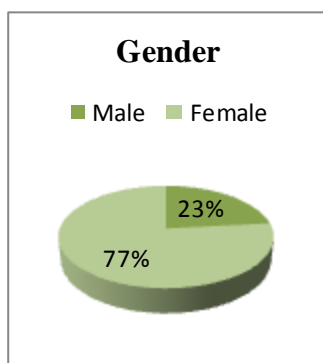


Figure (1): Percentage distribution of study participants according to gender (n= 73)

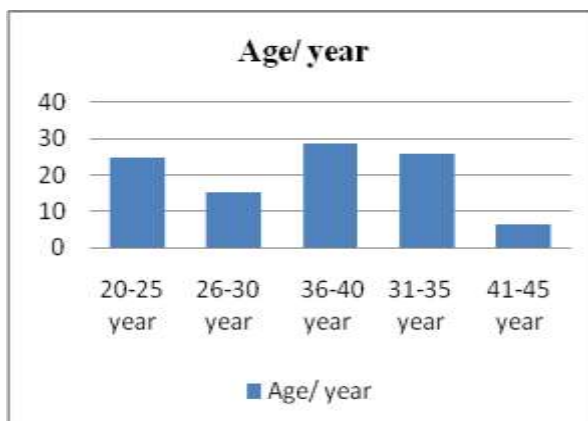


Figure (2): Percentage distribution of study participants according to age (n= 73)

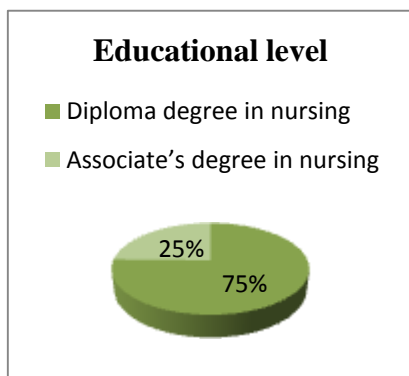


Figure (3): Percentage distribution participants according to educational (n= 73)

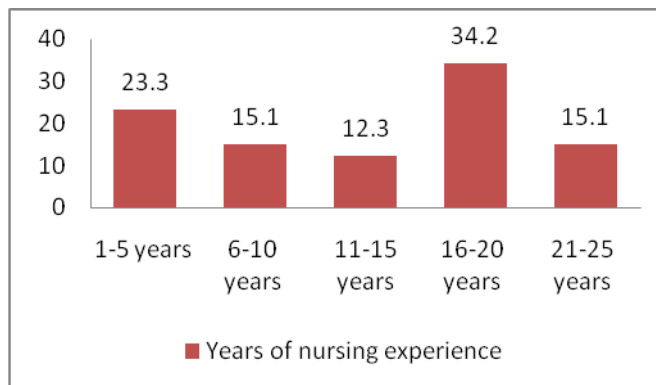


Figure (4): Percentage distribution of study participants according to their years of nursing experience level (n= 73)

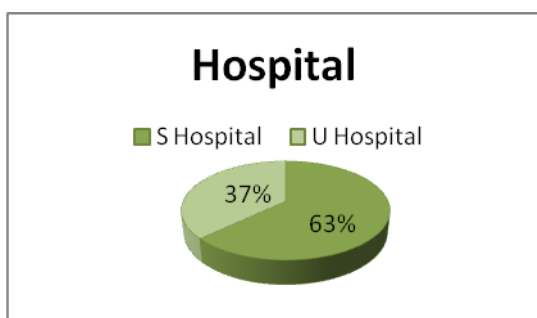


Figure (5): Percentage distribution of study participants according to worked units' hospitals (n= 73)

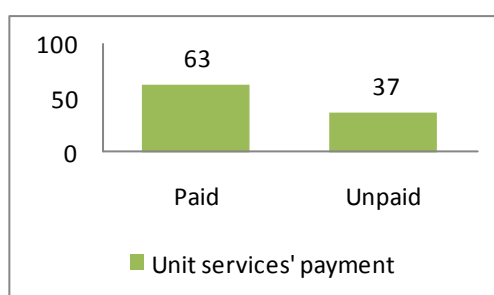


Figure (6): Percentage distribution of study participants according to type of unit services' payment (n= 73)

**Note: (S) donated to EL Manial specialized hospital, (U) donated to EL Manial university hospital**



Figure (7): Percentage distribution of study participants study according to years of experience nursing in current unit (n= 73)

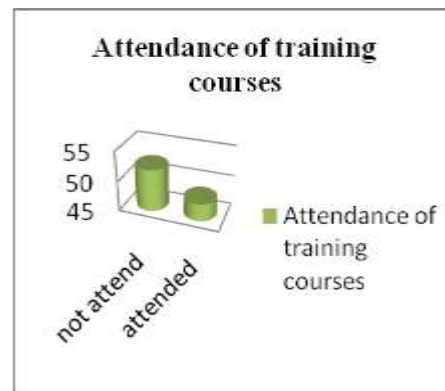


Figure (8): Percentage distribution of participants according to attendance of the courses (n= 73)

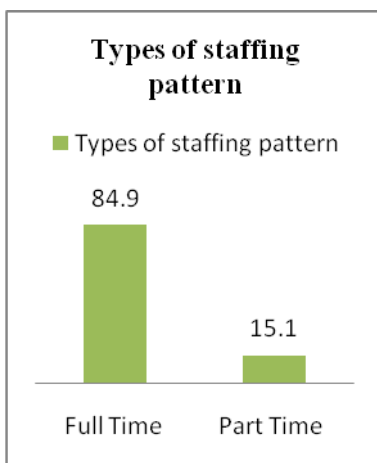


Figure (9): Percentage distribution of study participants according to type of attended courses (n= 35)



Figure (10): Percentage distribution of study participants according to type of staffing pattern (n= 73)

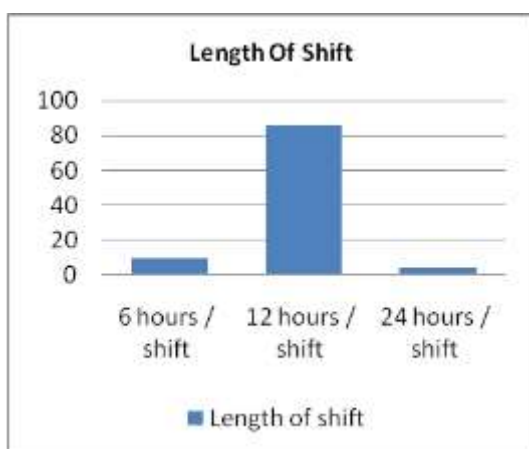


Figure (11): Percentage distribution of study participants according to length of shift (n= 73)

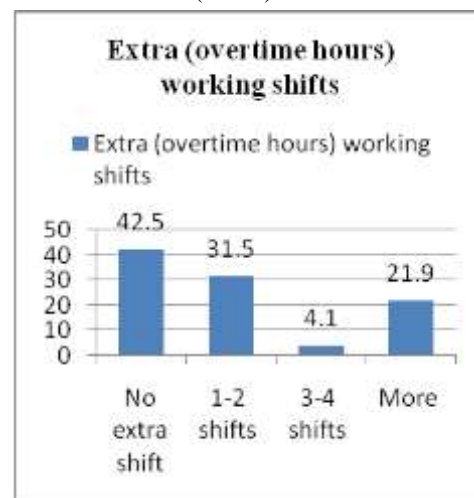


Figure (12): Percentage distribution of study participants according to extra (overtime hours) working shifts (n= 73)

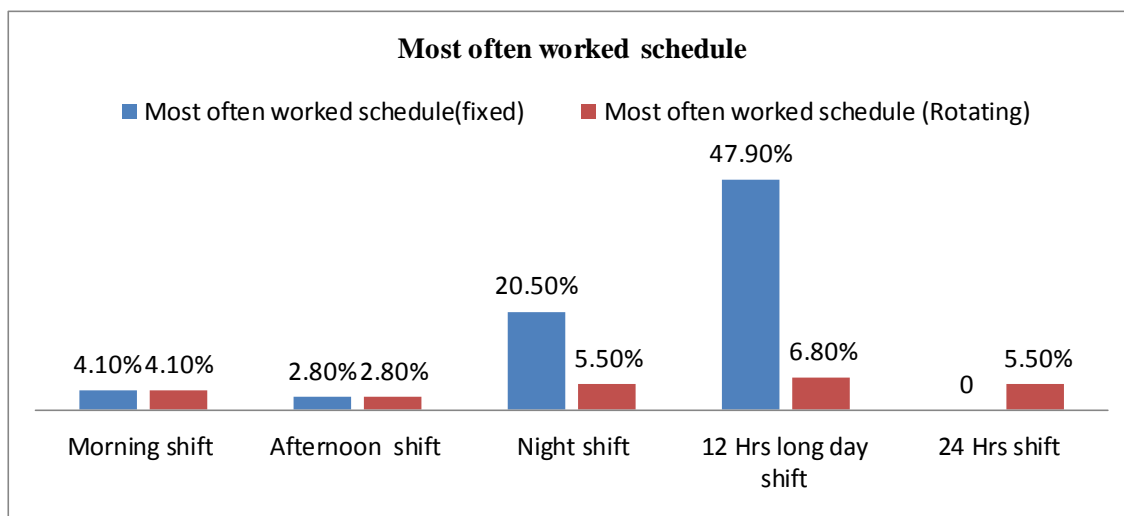


Figure (13): Percentage distribution of study participants according to most often worked schedule (n= 73)



Figure (14): Percentage distribution of study participants according to number of absent working days (n= 73)

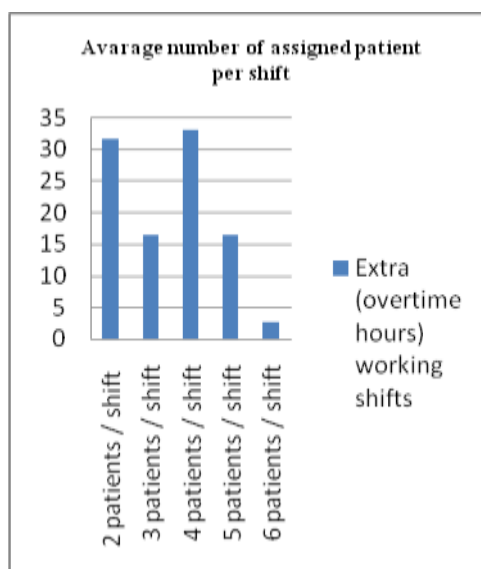


Figure (15): Percentage distribution of study participants according to average number of assigned patient per shift (n= 73)

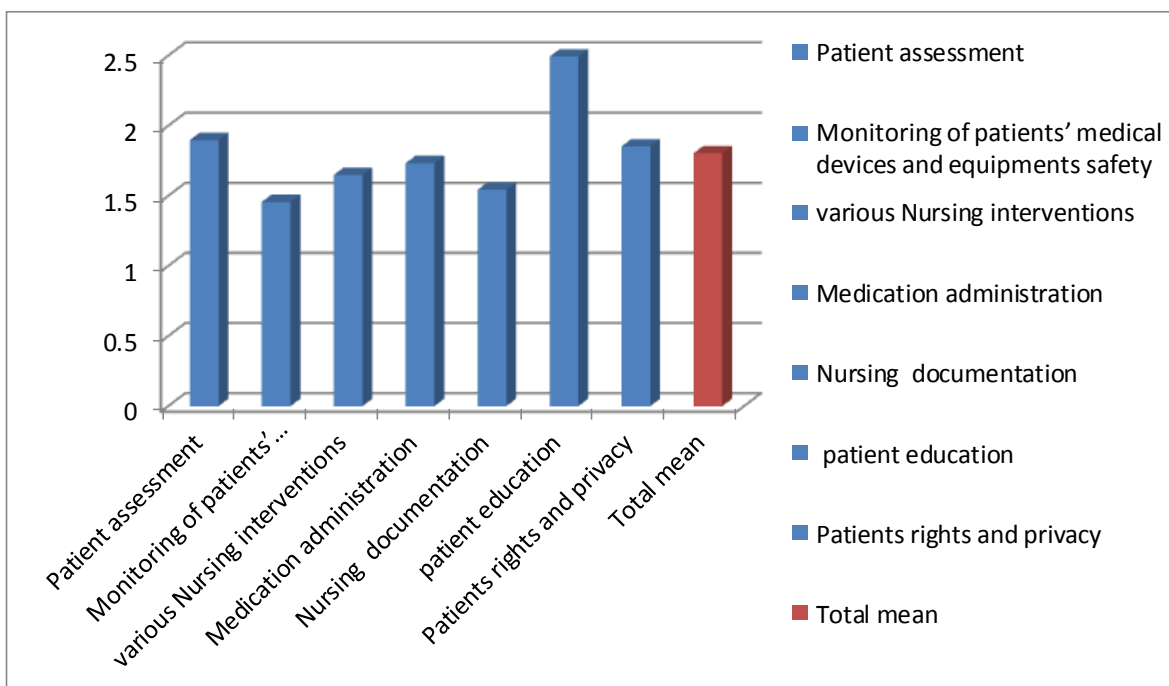


Figure (16): Means and standard deviations of reported nursing care dimensions being missed by study participant (n= 73).

**Tables:**

**Table (1): Differences among study participant's perception of factors related to hospital system and polices (n= 73):**

Factors	Scale	Factors Related To Hospital System And Polices					Percent of agreement	$\chi^2$	P- value
		Strongly disagree	disagree	I don't know	Agree	Strongly agree			
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)			
Lack of clear protocol or guidelines to guide the staff nurses in their patient care		23 (31.5)	17 (23.3)	11 (15.1)	9 (12.3)	13 (17.8)	22 (30.1)	8.44	0.077
Protocols or guidelines appeared in the form of oral description and not easily reachable		21 (28.8)	12 (16.4)	14 (19.2)	17 (23.3)	9 (12.3)	26 (35.6)	5.84	0.212
Lack of a policies that guide the admission, referral and discharge of patients		27 (37.0)	24 (32.9)	9 (12.3)	7 (9.6)	6 (8.2)	13 (17.8)	27.75	<0.0001*
Lack of punctual policies for nurses who missed the care		32 (43.8)	16 (21.9)	10 (13.7)	5 (6.8)	10 (13.7)	15 (20.5)	30.08	<0.0001*
Lack of policies that allow nurses to take independent clinical and administration decisions		29 (39.7)	18 (24.7)	19 (26.0)	1 (1.4)	6 (8.2)	7 (9.6)	34.05	<0.0001*
Lack of clear job description that clarify nurses job roles and responsibilities		27 (37.0)	18 (24.7)	14 (19.2)	7 (9.6)	7 (9.6)	14 (19.2)	19.26	0.001*
Supplies and equipment not available when needed		33 (45.2)	17 (23.3)	3 (4.1)	16 (21.9)	4 (5.5)	20 (27.4)	40.63	<0.0001*
Supplies and equipment not functioning properly when needed		33 (45.2)	17 (23.3)	6 (8.2)	11 (15.1)	6 (8.2)	17 (23.3)	34.60	<0.0001*
Medications were not available when needed		37 (50.7)	13 (17.8)	5 (6.8)	13 (17.8)	5 (6.8)	18 (24.7)	47.34	<0.0001*
Late dispensing of medications from pharmacy		35 (47.9)	13 (17.8)	7 (9.6)	13 (17.8)	5 (6.8)	18 (24.7)	39.12	<0.0001*
Time of medication administration is matched with time of other care activities		22 (30.1)	21 (28.8)	3 (4.1)	18 (24.7)	9 (12.3)	27 (37.0)	18.71	0.001*

\*denoted to statistically significant at  $p < 0.05$

**Table (2): Differences among study participant's perception according to factors related to Nursing Staff (n= 73):**

Factors	Scale	Factors Related To Nursing Staff					Percent of agreement	$\chi^2$	P- value
		Strongly disagree	disagree	I don't know	Agree	Strongly agree			
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)			
Unsuitable leadership style of unit head nurse with different working situations		25 (34.2)	17 (23.3)	7 (9.6)	17 (23.3)	7 (9.6)	24 (32.9)	16.11	<b>0.003*</b>
Inadequate number of staff nurses to manage unexpected rise in patient volume and/or acuity on the unit		28 (38.4)	7 (9.6)	1 (1.4)	11 (15.1)	26 (35.6)	37 (50.7)	38.71	<b>&lt;0.0001*</b>
Ineffective delegation of nurses to provide nursing care to the patient		20 (27.4)	21 (28.8)	7 (9.6)	14 (19.2)	11 (15.1)	25 (34.2)	9.67	<b>0.046*</b>
Limited authority over the assistive nursing personnel		20 (27.4)	21 (28.8)	7 (9.6)	14 (19.2)	11 (15.1)	25 (34.2)	9.67	<b>0.046*</b>
Lack of team spirit among nursing staff at the unit		38 (52.1)	23 (31.5)	1 (1.4)	7 (9.6)	4 (5.5)	11 (15.1)	66.66	<b>&lt;0.0001*</b>
Frequent staff absenteeism		30 (41.1)	23 (31.5)	2 (2.7)	12 (16.4)	6 (8.2)	18 (24.7)	37.48	<b>&lt;0.0001*</b>
Inadequate number of assistive and/or clerical personnel (e.g., nursing assistants, techs, unit secretaries, etc.)		36 (49.3)	25 (34.2)	2 (2.7)	6 (8.2)	4 (5.5)	10 (13.7)	62.41	<b>&lt;0.0001*</b>
Unbalanced patient assignment		24 (32.9)	31 (42.5)	0 (0.0)	15 (20.5)	3 (4.1)	18 (24.7)	24.04	<b>&lt;0.0001*</b>
Inability of the nurses to prioritize aspects of the patient care		36 (49.3)	26 (35.6)	1 (1.4)	7 (9.6)	3 (4.1)	10 (13.7)	66.11	<b>&lt;0.0001*</b>
Inability of nurse to use critical thinking skills as well as the dependency on routine work		29 (39.7)	23 (31.5)	9 (12.3)	8 (11.0)	4 (5.5)	12 (16.4)	31.86	<b>&lt;0.0001*</b>
Reduction of nurse's satisfaction level about their job		21 (28.8)	23 (31.5)	11 (15.1)	11 (15.1)	7 (9.6)	18 (24.7)	13.37	<b>0.01*</b>
Reduction of unit nursing team working level		33 (45.2)	21 (28.8)	3 (4.1)	9 (12.3)	7 (9.6)	16 (21.9)	41.32	<b>&lt;0.0001*</b>
Unfair distribution of working shifts at the nurse's monthly schedule		31 (42.5)	18 (24.7)	4 (5.5)	12 (16.4)	8 (11.0)	20 (27.4)	30.36	<b>&lt;0.0001*</b>

**\*donated to statistically significant at p<0.05**



**Table (3): Differences among study participant's perception according to factors related to patient (n= 73):**

Factors	Scale	Factors related to patient						$\chi^2$	P- value
		Strongly disagree	disagree	I don't know	Agree	Strongly agree	Percent of agreement		
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)		
Presence of paid and unpaid patient system at the unit		15 (20.5)	16 (21.9)	12 (16.4)	21 (28.8)	9 (12.3)	30 (41.1)	5.56	0.234
Long distances between nurses and their assigned patient		21 (28.8)	23 (31.5)	8 (11.0)	18 (24.7)	3 (4.1)	21 (28.8)	20.63	<0.0001*
Urgent patient situations (e.g. worsening patient's condition)		17 (23.3)	22 (30.1)	7 (9.6)	21 (28.8)	6 (8.2)	27 (37.0)	15.97	0.003*
High patient workload		25 (34.2)	18 (24.7)	3 (4.1)	19 (26.0)	8 (11.0)	27 (37.0)	21.73	<0.0001*
Distraction of nurses at visiting time from patient's visitors		22 (30.1)	14 (19.2)	7 (9.6)	18 (24.7)	12 (16.4)	30 (41.1)	8.99	0.061

\*donated to statistically significant at  $p < 0.05$

**Table (4): Differences among study participant's perception according to factors related to medical staff communication and relationship (n= 73):**

Factors	Scale	Factors related to Medical Staff Communication And Relationship						$\chi^2$	P- value
		Strongly disagree	disagree	I don't know	Agree	Strongly agree	Percent of agreement		
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)		
Inadequate hand off communication from previous shift or sending shift		31 (42.5)	19 (26.0)	5 (6.8)	14 (19.2)	4 (5.5)	18 (24.7)	33.78	<0.0001*
Communication break down between nursing staff and physicians		35 (47.9)	21 (28.8)	3 (4.1)	5 (6.8)	9 (12.3)	14 (19.2)	48.99	<0.0001*
Tension or communication breakdown within the nursing team		37 (50.7)	17 (23.3)	2 (2.7)	10 (13.7)	7 (9.6)	17 (23.3)	51.04	<0.0001*
Tension or communication breakdown with the medical staff		36 (49.3)	17 (23.3)	3 (4.1)	11 (15.1)	6 (8.2)	17 (23.3)	46.93	<0.0001*

\*donated to statistically significant at  $p < 0.05$

**Table (5): Differences among study participant's perception according to factors related to Non- nursing unit workload activities per shift (n= 73):**

Factors	Scale	Factors related to non- nursing unit workload activities per shift						$\chi^2$	P- value
		Strongly disagree	disagree	I don't know	Agree	Strongly agree	Percent of agreement		
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)		
Frequent paper work	22 (30.1)	24 (32.9)	4 (5.5)	12 (16.4)	11 (15.1)	23 (31.5)	18.85	<b>0.001*</b>	
large number of patients 'admission and discharge activities	30 (41.1)	18 (24.7)	2 (2.7)	17 (23.3)	6 (8.2)	23 (31.5)	33.37	<b>&lt;0.0001*</b>	
Transferring the patient from or to the unit	22 (30.1)	14 (19.2)	2 (2.7)	30 (41.1)	5 (6.8)	35 (47.9)	37.21	<b>&lt;0.0001*</b>	
Follow-up of maintenance work in the workplace	34 (46.6)	24 (32.9)	4 (5.5)	4 (5.5)	7 (9.6)	11 (15.1)	51.18	<b>&lt;0.0001*</b>	
Receiving and distributing patient food trays	36 (49.3)	27 (37.0)	1 (1.4)	6 (8.2)	3 (4.1)	9 (12.3)	68.84	<b>&lt;0.0001*</b>	
Carrying the samples to the lab and receiving the results	31 (42.5)	23 (31.5)	1 (1.4)	13 (17.8)	5 (6.8)	18 (24.7)	42.41	<b>&lt;0.0001*</b>	

\*donated to statistically significant at  $p < 0.05$

**Table (6): Relationship between Socio - Demographic, Work Related Data of the Study Participants and Reported Factors associated with Nursing Care Being Missed (n= 73):**

Factors	Factors related to hospital system and polices		Factors related to nursing staff		Factors related to patient		Factors related to medical staff communication and relationship		Factors related to non- nursing unit workload activities per shift	
	F	Sig.	F	Sig.	F	Sig.	F	Sig.	F	Sig.
<b>Socio- demographic, work related variables</b>										
Age	1.132	0.349	1.517	0.106	0.676	0.825	0.792	0.674	1.947	<b>0.031*</b>
Years of nursing experience	1.219	0.273	1.302	0.212	0.518	0.942	0.761	0.705	1.944	<b>0.031*</b>
Target worked units	1.898	0.106	3.075	<b>0.015*</b>	1.919	0.103	2.173	0.067	2.048	0.083
Unit services' payment	6.713	<b>0.012*</b>	7.442	<b>0.008*</b>	0.708	0.403	5.192	<b>0.026*</b>	1.478	0.228
Types of staffing pattern	0.006	0.941	1.194	0.278	4.716	<b>0.033*</b>	0.003	0.959	0.002	0.962

\*donated to statistically significant at  $p < 0.05$