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Patient Reported Hospital Stay and Frequency of Vital Sign Monitoring Practice in Emergency Room and Adult ICU at Jimma University Medical Center, 2018

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Abstract

Background: Forecasting a patient's expected length of stay at an Emergency Department encounter is valuable to anticipate impending operational bottlenecks that may lead to change health care organizations standard operating practice. The mean emergency department length of stay is considered as one factor that can affect patients' satisfaction and service quality. Most of these factors are highly correlated with adequacy of health care facility, proportion of health care professionals, organizational service delivery effectiveness and health care professionals' attitude. Monitoring of vital signs is an essential component of caring for all of patients at emergency department and adult intensive care unit in order to assess treatment effects, detect procedural complications and identify early signs of clinical deterioration.

Objective: The main objective of this study was to assess patient reported Hospital stay and frequency of vital sign monitoring in emergency department and adult intensive care unit at Jimma university medical center, Jimma town southwest Ethiopia 2018.

Methods: Institution based cross- sectional study design was used and 310 study participants were selected by simple random sampling techniques from patients who were admitted in emergency department and intensive care unit at JUMC during the study period. Data was collected by using a structured data-collecting checklist. Descriptive statistics was done to describe the study variables.

Results: Majority of the respondent 107 (34.5%) were stayed 3-4hours.Majority of vital sign frequency113 (36.5%) were recorded among age group of >=35 age group. Lower than half 125(40.5%) of temperature frequency were checked one times. Similarly, Lower than half 111(42.2%) of blood pressure frequency was checked one times. But pulse rate frequency was checked two times 118(38.2%).

Conclusion and Recommendations: Overall patient reported hospital stay in emergency department and adult ICU were longer than the expected standard. Concerning vital sign monitoring, the duration was not in line with the expected standard of assessing and documenting vital signs for patients admitted in the emergency department and adult intensive care units.

Key words: Hospital stay, vital sign monitoring, Jimma University Medical Center.

Introduction

Forecasting a patient's expected length of stay at an Emergency Department encounter is valuable to anticipate impending operational bottlenecks that may lead to change health care organizations standard operating practice(1). The mean emergency department length of stay is considered as one factor that can affect patients' satisfaction and service quality. Most of these factors are highly correlated with adequacy of health care facility, proportion of health care professionals, organizational service delivery effectiveness and health care professionals' attitude(2).

Vital signs are an important components of nursing assessment and can be used as early warning signs of changes in a patient's condition (3).Monitoring of vital signs is an essential component of caring for all of patients at emergency department and adult intensive care unit in order to assess treatment effects, detect procedural complications and identify early signs of clinical deterioration. It also reflect the body's physiologic status and provide information critical to evaluate homeostatic balance. Hence, an appropriate frequency of vital signs reading is critical for triggering a response to patients whose condition is deteriorating, and thereby avoiding unplanned admissions and unexpected hospital deaths. Vital signs include four critical assessment areas: temperature, pulse, respiration and blood pressure (4, 5 and 6). In addition, the degree of derangement of vital signs may help determine patient risk (7-9).The frequency of obtaining vital signs depends on hospital policy, nursing judgment, or written physician order and is commonly based on the patient's acuity and chief complaint (10).

Vitals signs are a mechanism to universally communicate a patient's condition and severity of disease. These parameters, serially measured, help nurses to identify nursing diagnoses, assess interventions, and make decisions concerning the response of patients to treatment (11).Recent review recommended that, every patient have a documented plan for vital sign monitoring (12-14).

In Ethiopia there is no much study in this topic. Therefore, understanding the factors that influence the measurement and incomplete recording of vital signs among individuals is essential due to the vulnerability of this population with potentially severe outcomes. Therefore, this study aimed to analyze the importance the nursing staff attributes to recording vital signs measurements among hospitalized individuals in emergency room and intensive care unit department, and the barriers and benefits they perceive in regard to this procedure (15).

The purpose of assessing a patient's vital signs is to prevent harm and the early identification of events with a potential to affect the quality of healing actions. Additionally, helps to reduce the risk of unnecessary harm associated with healthcare delivery to an acceptable level by achieving quality care and patient safety, which are priorities for all the professionals involved in the care process (15).

Combined with the consistent scales on which vital signs are measured and the well-established normative ranges, vital signs serve as a universal communication tool for patient status and severity of illness (16-17).

Intensive care unit (ICU) is an area of a hospital that provides aggressive therapy, using state of the art technology and both invasive and noninvasive monitoring for critically ill and high risk patients (15-16). Study conducted in wake forest Baptist medical center results showed vital signs was not recorded for 33% of patients, and omissions in blood pressure, pulse, respiratory rate, and temperature recordings were present among14.5%, 14.4%, 15.1%, and 16.8% (18, 19).

A study conducted showed that, fifty-six 39% of the patients had vital signs recorded less often than every 6 hours while 87 (60.8%) had vital signs more often than every 6 hours (18-20). The General Objective of this study was to assess frequency of vital sign monitoring in emergency room and adult intensive care unit among Jimma university medical center.

Methods and Materials

Study Area and Period

The study was conducted at Jimma University Medical Center which is found around 352km to south west from the capital Addis Ababa. It has a woina dega type of climate with an annual rainfall of 2700 mm and altitude of 1500-2700m above sea level. Jimma university medical center in one of the few teaching hospitals in the country, and the only referral hospital in southwest part of Ethiopia. It has internal medicine, surgery, pediatrics gynecology, obstetrics Psychiatry, Ophthalmology, Dermatology and Dentistry along with other follow up and special clinics for specific diseases. The study was conducted from March 1to 14/2018.

Study Design

Institutional based cross sectional study design was conducted.

Sample size determination

The sample size for the study was computed by using the formula and a total of 310 patients were selected by using systematic random sampling techniques by taking the list of all patients who were admitted in emergency department and Intensive Care Unit. Finally, to get the required number of patients from each unit proportional allocation was considered.

Data collection procedures

Face to face interview using structured questionnaires was used to collect data. Two days training was given for data collectors to ensure completeness and consistency of information during data collection.

Data Processing and Analysis

The collected data was checked for incompleteness and other errors. Data was analyzed by using SPSS version 20. Descriptive statistics was used to determine duration of hospital stay and frequency of vital sign monitoring.

Data Quality Assurance

To ensure data quality, data were collected by trained data collectors and pre-test was d done out of the study site before the actual data collection. Every day, questionnaires was reviewed and checked for its completeness by the selected and trained supervisors and principal investigator then the necessary feedback was offered to data collectors in the next morning before data collection. The data were thoroughly cleaned and carefully entered in to computer for analysis.

Ethical Consideration

Ethical clearance and approval to conduct the study was obtained from Jimma University Ethical Review Board (JU IRB) and permission letter was secured in order to get support for the study from administrative body. The purpose of study was explained to the participants and they are told as participation was voluntarily, confidential and anonymity will be ensured throughout the execution. Finally, verbal and written consent was assured from the study subjects.

Results

A total of 251 nurses work at Jimma University Medical Centre was responded for the self-administered questionnaire.Among those 249 of them were returned fully answered questionnaire, which provide 99.2% response rate. 189 (61%) of the study participants are male whereas the rest 121 (49%) of them were female. Majority 171 (68.7) of the study participants found in the age group of 20-29 years. Half of the study subjects 156 (50.3%) came from different rural areas of Jimma Zone where as the rest 154 (49.7%) were from Jimma town and nearby. 128 (51.4%) are degree holders 152 (60.6%) single, 219 (87.2%) have work experience of less than 10 years. Almost half 115 (45.9%) of the study participants get 3579-4446 Ethiopian birr monthly salary (Table 1).

Table 1: Sociodemographic characteristics of study participants in emergency room and adult intensive care unit among Jimma university medical center, Jimma town southwest Ethiopia 2018

Variable	n	%
Sex		
Male	189	61
Female	121	39
Age		
<15	48	15.5
15-24	94	30.3
25-34	55	17.7
>=35	113	36.5
Address		
Urban	154	49.7
Rural	156	50.3
Working unit		
Intensive care unit	163	52.3
Medical emergency	16	5.2
Surgical emergency	10	3.2
Ophthalmologic emergency	31	10
Pediatrics emergency	30	9.7
Gynecologic emergency	29	9.6
Psychiatric emergency	31	10

Lower than half 125(40.5%) of temperature frequency were checked one times followed by two times120 (38.6%) per hour. Respiratory rate frequency was checked one times 122(39.6%) followed by two times times120 (39%) per hour. Similarly, blood pressure frequency was checked one times 111(42.2%) followed by two times 101(38.4%) per hour. But, pulse rate frequency was checked two times 118(38.2%) followed by one times 117(37.9%) per hour.

Table 2: Patient reported Hospital stay in Emergency room and adult Intensive care unit at Jimma University Medical Center, South West Ethiopia 2018

Variable	n	%
Hospital stay		
1-2hrs	87	28.1
3-4hrs	107	34.5
5-6hrs	37	11.9
7-12hrs	18	5.8
24-72hrs	9	2.9
3 days	19	6.1
4 days	4	1.3
5 days	25	8.1
>5days	4	1.3

Table 3: Frequency of vital sign monitoring per hour in emergency room and adult intensive care unit among Jimma university medical center, South West Ethiopia 2018

Variables	n	%
Temperature		
1time	125	40.5
2 times	119	38.6
3 times	20	6.5
4 times	15	4.9
5 times	5	1.6
6 times	10	3.2
7 times and above	13	4.2
Respiratory Rate		
1time	122	39.6
2 times	120	39
3 times	22	7.1
4 times	13	4.2
5 times	8	2.6
6 times	11	3.6
7 times and above	12	2.8
Blood pressure		
1time	111	42.2
2 times	101	38.4
3 times	13	4.9
4 times	12	4.6
5 times	3	1.1
6 times	11	4.2
7 times and above	12	4.6
Pulse rate		
1time	117	37.9
2 times	118	38.2
3 times	27	8.7
4 times	16	5.2
5 times	4	1.3
6 times	10	3.2
7 times and above	17	5.5

Discussion

Vital signs reflect the body's physiologic status and provide information critical to evaluate homeostatic balance. Results from this study indicate that majority of temperature frequency were checked one times 125(40.5%) followed by two times120 (38.6%) per hour. Majority of respiratory rate frequency were checked one times 122(39.6%) followed by two times times120 (39%) per hour. Similarly, majority of blood pressure frequency were checked one times 111(42.2%) followed by two times

101(38.4%) per hour. But, majority of pulse rate frequency were checked two times 118(38.2%) followed by one times 117(37.9%) per hour. Level of consciousness for majority of the patients 84(80.0%) were 15/15. This is higher than study finding at wake forest Baptist medical center respiratory rates 14%; temperature 69%; oxygen saturation 80%; urinary output in 40%, and level of consciousness 48%. The findings of this study this study concluded that a there is problem related to poor vital sign monitoring and documentation practice. This study result is also higher than study in veterans administration emergency rooms which stated collected concerning blood pressure, pulse, respiratory rate, temperature and oxygen saturation over twelve randomly selected days in 2011, showed oxygen saturation was not recorded by emergency department nursing staff in 33 percent of patients, and omissions in blood pressure, pulse, respiratory rate, and temperature recordings were present in 14.5%, 14.4%, 15.1%, and 16.8% respectively.

This study stated regarding hospital stay majority of the respondent 107 (34.5%) were stayed 3-4hours and didn't get expected frequency of vital sign. This is congruent with study in Kenyan Hospital which outlined Patient stays ≥48 hours were expected to have a vital signs count of 18, but most did not achieve this benchmark and sometimes missing especially for pulse and respiratory rates (26).

This study showed temperature, respiratory rate and blood pressure frequency were checked one times 40.5%, 42.2%, 38.4% respectively which is incongruent with study showed it was more common to have a single temperature observation (10.4% of admissions) or a combination of temperature and respiratory rate observations 16.8% of admissions where a full set of vital signs was not recorded (27). The result of this study outlined 15.8% oxygen saturation was 96%. The mean for oxygen saturation was 93%. This is higher than the study in Australia which stated more than half of the 3160 admissions to five acute hospitals had at least one recording of an early sign of critical illness (e.g. spo2 < 95%).

Conclusion and Recommendations

Overall patient reported hospital stay in emergency department and adult ICU were longer than the expected standard. This will need further interventions to shorten length of stay and increase patient satisfaction with emergency service provided. Concerning vital sign monitoring, the duration was not in line with the expected standard of assessing and documenting vital signs for patients admitted in the emergency department and adult intensive care units. This is also other critical points which needs further improvement to decrease case complications and decrease death rate in the respected working units. Finally researchers should work in the future on this issue by considering longitudinal and observational study design.

Authors' Contribution

Yeshitila Belay contributed to the study conception and design, supervised the study, conducted data analysis and wrote the manuscript.

Muluken Yidnekachew planned the study, involved in data collection, prepared the first draft proposal and paper.

Admasu Belay contributed on data analysis, supervised the study and critically revised the manuscript.

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