AJMHR
Asian Journal of Medical and Health Research
Journal home page: www.ajmhr.com

Nursing Characteristics and Patients' Outcomes: A Retrospective Study

Khin Thandar Aung[1]*, Aini fatimah Ghazali[2], Tin Myo Han[3]
1. Critical Care Nursing Department, Faculty of Nursing, International Islamic University, Malaysia
2.School nurse, USCI International School , Subang Jaya, Selangor, Malaysia
3. Faculty (Kulliyyah) of Dentistry, International Islamic University, Malaysia, Kuantan Campus ,Pahang, Malaysia

ABSTRACT

Improving the quality of health care is an increasingly important goal in the National Health Care system. Quality of care can be determined by patients' outcomes. It is important as an improvement of patients' outcomes that are related to receiving better health care, improving efficiency of care, cutting down the cost of health expenses and lastly decreasing mortality rate. Pressure ulcers have a detrimental effect on patient health and well-being and as well as medication errors that are placed as an important measurement tool for patients' outcomes. It is important to identify patients' outcomes as to differentiate critical thinking and problem solving skills of nurses from different educational and working experience background. The aim of this study was to investigate the nurses' characteristics and patients' outcomes in medical and surgical wards. This is a retrospective, descriptive study involving nurses and patients who had been hospitalized in medical and surgical wards at Hospital Tengku Ampuan Afzan (HTAA) Kuantan, Pahang. Nursing characteristics and data would be extracted from existing database within the institution for 1 year of the period to determine patients' outcomes and nursing characteristics. Descriptive statistic and chi-square test using PASW Statistic Version 19.0 were used as data analysis. The results obtained showed that majority of nurses in medical and surgical wards was having diploma (79.2%) and having working experience less than 5 years (62.5%). Meanwhile the total prevalence of Hospital-acquired Pressure Ulcer (HAPU) among non-ambulatory patients in medical and surgical wards was 19.93% and the total prevalence of medication errors in medical and surgical wards was 25.69%. There was no association between non-ambulatory patients and Hospital-acquired Pressure Ulcer (HAPU) ($p>0.05$). As nurses are important to play central role in providing the best quality of care, the nurse must be provided with an essential knowledge and practice to be able to cure the patients holistically with an ability in planning the correct and appropriate intervention immediately.

Keywords: Nursing characteristics, Patients' Outcomes, Pressure ulcers, Medication errors

*Corresponding Author Email: khin_ta@iium.edu.my
Received 16 June 2016, Accepted 21 June 2016

Please cite this article as: Aung KT., Nursing Characteristics and Patients' Outcomes: A Retrospective Study Asian Journal of Medical and Health Research 2016.

INTRODUCTION

Nurses are like the "heart" of the hospital. Despite whatever the situation is, nurses are always there. The rapid change of health environment required nurses to think critically and have advanced problem solving skills. To become a nurse, a certain level of education is needed. There is no doubt that education is essential for nurses to be able providing the best care for patients. According to Wunderlich, Sloan, & Davis (1996), as cited in Schuelke, Yong & Folkerts (2014)[1] the quality of care in hospitals and the causal agent controlling the quality of patient's outcome are highly affected with nursing. Nowadays, errors in hospital care are more common than previously thought that the health care delivery system should be recognized to improve quality of care. Quality of care can be determined by patient's outcome. Nursing is a fast-paced profession that is constantly changing. Keeping up with these changes through lifelong learning and continued education, is essential to maintain competency in practicing nursing safely and ethically. Hence, this study is important as an improvement of patient's outcome that are related to receiving better health care, improving efficiency of care, cutting down the cost of health expenses and lastly decreasing mortality rate.

MATERIALS AND METHOD

The data were collected from January 2014 to December 2014 from medical and surgical wards Hospital Tengku Ampuan Afzan (HTAA), Kuantan, Pahang. The inclusion criteria for nurses were those who given direct care to the patients and worked in the medical or surgical wards in the year 2014. Nursing characteristic data include nursing education and nursing experience was collected. Patient outcomes data included the prevalence of hospital-acquired pressure ulcers (HAPU) and medication errors was extracted from an existing database (yearly report) within the institution for 1 year of the period (January 2015 to December 2015). Descriptive statistic and chi-square test using PASW Statistic Version 19.0 were used as data analysis. Concerning the ethical approval, this research was approved by the ethics committee of IIUM, the IIUM Research & Ethics Community (IREC), Office of Director Hospital Tengku Ampuan Afzan (HTAA), Kuantan Pahang and National Medical Research Register (NMRR).

RESULTS AND DISCUSSION

A total of 96 nurses had enrolled in this study as required for the estimated total size sample calculation. All respondents were categorized into four categories which are age, gender, educational backgrounds and working experiences. Respectively, more than half of the respondents with the total number of 93 with the percentage of 96.9% are females and male gender only representing with 3 with a frequency of 3.1%. Based on the age, out of 96 of

respondents, 61 are from the age from 20 to 30 years old with the frequency 63.5%, 21 of respondents with a frequency of 21.9% are from 31 to 40 years old and respondents with 41 years old and above are 14 respondents with a frequency of 14.6%.

In terms of educational level, 79.2% of respondents were having a diploma, and 15.6% having diploma with a post basic or any other specialized units while remaining 5.2% having a degree. Meanwhile, in term of period of working experience among the respondents, 60 of them were having less than 5 years of working experience (62.5%) and the other 36 were more than 5 years of working experience (37.5%). Table 1 presented the detail distribution of socio-demographic data among the respondents.

Yearly data from the respective hospital were taken for this study. Table 2 showed monthly non ambulatory patients from medical and surgical wards. In terms of hospital-acquired pressure ulcer, November and December showed the highest occurrence in both medical and surgical wards with a frequency of 15 respectively. In February and May, there is no hospital-acquired pressure ulcer recorded in surgical wards. Moreover, the highest frequency in medical wards was recorded in July and December with frequency of 10. Table 3 presented the details of monthly hospital-acquired pressure ulcers.

The highest prevalence is recorded from medical wards was in July which was 9.62%, followed by October (9.00%), December (8.80%), January (8.08%), and February (7.92%). Meanwhile, highest frequency on surgical wards recorded was in September which was 3.39%, followed by November (3.35%), June (3.07&), December (2.84%) and April (2.46%). Table 4 presented the details of prevalence of hospital-acquired pressure ulcer among non-ambulatory patients in medical and surgical wards.

Table 1: Socio-demographic data of respondents (n=96)

Variable	frequency	Percentage%
Age		
20 to 30 years old	61	63.5
31 to 40 years old	21	21.9
41 years old and above	14	14.6
Gender		
Male	3	3.1
Female	93	96.9
Educational level		
Diploma	76	79.2
Diploma with post basic or any other specialize unit	15	15.6
Degree	5	5.2
Working Experience		
Less than 5 years	60	62.5
More than 5 years	36	37.5

Table 2: Monthly Non Ambulatory Patient from Medical and Surgical Wards

Variables	Medical Wards(n)	Surgical Wards(n)	Total (n)
January	99	151	250
February	101	156	257

March	105	157	262
April	104	122	226
May	92	136	228
June	104	163	167
July	101	152	253
August	104	175	279
September	95	177	272
October	89	189	278
November	393	179	572
December	114	176	290

Table 3: Monthly Hospital-acquired Pressure Ulcers (HAPU) from Medical and Surgical Wards

Variables	Medical Wards(n)	Surgical Wards(n)	Total (n)
January	8	1	9
February	8	0	8
March	6	3	9
April	8	3	11
May	7	0	7
June	5	5	10
July	10	1	11
August	6	6	12
September	6	6	12
October	8	3	11
November	9	6	15
December	10	5	15

Table 4 Prevalence of Hospital-acquired Pressure Ulcer (HAPU) among Non-Ambulatory Patients in Medical and Surgical Wards

Medical Wards				Surgical Ward		
Variables	**HAPU(n)**	**Non-Ambulatory Patients (n)**	**Prevalence (%)**	**HAPU(n)**	**Non-Ambulatory Patients (n)**	**Prevalence (%)**
January	8	99	8.08	1	151	0.66
February	8	101	7.92	0	156	0
March	6	105	5.71	3	157	1.91
April	8	104	7.70	3	122	2.46
May	7	92	7.61	0	136	0
June	5	104	4.81	5	163	3.07
July	10	101	9.62	1	152	0.66
August	6	104	5.80	0	175	0
September	6	95	6.32	6	177	3.39
October	8	89	9.00	3	189	1.59
November	9	393	2.30	6	179	3.35
December	10	114	8.80	5	176	2.84

Based on the data analysis by using the Chi Square test, the results shown that there was no significant association between non-ambulatory patient and hospital-acquired pressure ulcer, X^2 (66, N=3434) = 72.00, p=0.286 (refer to Table 5).

Medication error can be classified into two categories which are actuals and nearly miss. The highest frequency of actual medication error was recorded in February, June, August and December with the frequency of 3 respectively. Meanwhile, nearly miss medication error was

highest in December with the frequency of 322, followed by May (189), April and June (145) and November (135). Here, we can see that May had the lowest percentage of medication error which was 0.53, followed by April (0.69), November (0.74) and December (0.93). Table 6 showed the details of prevalence of medication error in medical and surgical wards.

Table 5: Association between Non Ambulatory Patient and Hospital-acquired Pressure Ulcer (HAPU)

Variables	Total Non-Ambulatory Patientsn(%)	Total HAPU n(%)	χ^2	*p-value
Medical Wards	1501(43.71)	91(69.23)	72.000 (66)	0.286
Surgical Wards	1933 (56.29)	39 (30.00)		

*Chi-square test

Table 6: Prevalence of Medication Errors in Medical and Surgical Wards

Variables	Actual(n)	Nearly Miss (n)	Ratio	Percentage (%)
January	2	116	1:58	1.72
February	3	37	3:37	8.12
March	2	74	1:37	2.70
April	1	145	1:145	0.69
May	1	189	1:189	0.53
June	3	145	3:145	2.07
July	2	116	1:58	1.72
August	3	117	1:39	2.56
September	2	68	1:34	2.94
October	1	103	1:103	0.97
November	1	136	1:136	0.74
December	3	322	3:322	0.93

Nursing Characteristics

This study had comprised a population of nurses with the age ranging from 20 to 40 years old from medical and surgical wards in Hospital Tengku Ampuan Afzan (HTAA), Kuantan, Pahang. More than half of the sample size (63.5%) was nurses who are 20 to 30 years old and nurses who are 31 to 40 years old are 21.9% and lastly nurses who are 41 years old and above are small in the population with the frequency of 14.9%. It can be seen that most of nurses who work in medical and surgical wards are young and newly graduated nurse from their respective nursing schools. Based on gender, male and female were relatively unequal in number since the female respondents dominate in this study by 96.9% of the total sample size. This is due to the fact that female nurses were greater in number compared to male nurses in every hospital. The majority of the respondents in this study was having diploma (79.2%), whereas small participants from nurses who have a degree (5.2%). Meanwhile, nurses who have a diploma with a post basic or any other specialize unit were 15.6%. Most of the nurses are having diploma as their educational background as the diploma is the dominant educational background for nurses in local hospitals. Moreover, the number of nurses who enrolled is very limited, especially in local hospital since degree nurse are limited in number

compared to diploma nurse and most of them are working in the private sector and not in the clinical area.

Furthermore, more than half of the sample size (62.5%) was having working experience less than 5 years and only 37.5% had working experiences more than 5 years. It has a connection with the age of the nurses. Since most of the nurses are newly employed, and there is the population of nurses who works more than 5 years are small in percentage. Moreover, this study was conducted at medical and surgical wards. Medical and surgical wards are like a base for nurses before they have any specialty and works at the specific distinctive wards.

In this modern era, professional consequences and effects raised because of the composite health care system and socioeconomic factors (McLeod-Sordjan, 2013)[2]. Social and economic plays essential functions in the health of society. It includes income level and educational backgrounds determine people's perception and expectation in things. Day by day, nurses are demanding to give an effective care. Hence, professional behaviour can only carry out and engaged by adhering to ethical and moral principles as well as qualified, skilled (Cannaerts, Gastmans, & Dierckx de Casterlé, 2014)[3].

From novice to expert, nurses acquire and grow their clinical competency and skills together with their working periods. Thus, experienced nurses will eventually retire. Therefore, there is necessity to hold back within the clinical settings experience as well as well qualified physically and intellectually (O'Leary, 2012)[4]. This is to ensure that reduced mortality, length of hospital stay, increased patient education and satisfaction can be accomplished by having nurses with high level of knowledge and competency (Gillespie et al., 2011)[5]. This shows that education and skill competency are importance for nurses. In one study conducted about education and experience in predicting patient outcomes in preoperative, it shows that it is empirically affirmed that potential dissemble upon patient outcomes is experience and education of nurses (Gillespie et al., 2011).[5] Nurses are nothing without the knowledge and nurse having no value without requisite qualities of skills.

Patient Outcomes

Every nurse should be provided with comprehensive and extensive assessment tools of safety of giving care, a degree of excellence basic measure as well as good value of thought such as unity and wholeness during nursing education (McLeod-Sordjan, 2013)[2]. Preparedness and readiness of nurses to serve for a better health of society is very crucial as nurses are the front line of health care provider. Thus, readiness of nurses is highly sensitive towards patient outcomes. These patient outcomes include reduced ratio of death in an area of populations, increase gratification, increase connection between nurses and patients, early diagnosis and intervention as well as approach of care (Ingram, 2014)[6].

Pressure sore is a worldwide health problem. Dealey (1994) as cited in Ousey (2005)[7]

suggested that incident of pressure ulcer has been reported since the period of Prophet Isiah which was happening in the eight century. Providing an excellent nursing quality of care are authenticated by highest quality of skin care(Wurster, 2007)[8]. From the study conducted a total prevalence of HAPU among non-ambulatory patients in medical and surgical wards was 13.74%. This is quite a large number.

However, the finding of the study showed that there was no significant association between non ambulatory patient and HAPU. It can be seen that the incident of a pressure ulcer is not mainly because of impaired mobility. This is caused by many factors. One of them is the quality of care provided by nurses in medical and surgical wards. One research had been proposed that nursing intervention which is comprised of nurse's knowledge and evaluation of pressure sore can prevent the occurrence of pressure ulcer. In addition Berlowitz (1989) as cited in Ousey (2005)[7] with their finding that lack of positioning and turning of patients are associated damaging of full thickness tissue.

Medication errors are complex issues. This complexity can cause a major harm to human beings. Patients are admitted to the wards with the aim to treat their disease. A comply with this situation, drug therapy is given to promote the mechanism of the healing process.

From the study, the total prevalence of medication errors in medical and surgical wards was 25.69%. It is a very big number considering that only two disciplines of wards under this study. Medication errors can be caused by many reasons. It can be results from the doctor's side includes misunderstood hand writing and complicated orders, from nurse factors such as unfamiliarity with medication and patients, personal negligence and new employment, patient factors such as refined condition and as well as taxonomical factors includes inadequate training and heavy workload (Unver, Tastan, & Akbayrak, 2012)[9]. Nurses are the one who responsible to administer the medication. Hence, the medication errors always put on the nurse's shoulder. Medication is first prescribed the medication in medication record during ward rounds. Sometimes, the doctor's handwriting is very hard to understand. Then, the medication is then dispensed by pharmacists. The stock of patient medications is then administered to the patients by nurses. We can see here that, medication error can happen at any of this stage. Thus, medication errors are suggested to be happening because of the deficient organization scheme which are independent but interrelated elements comprising a unified as a whole (White, 2011)[10].

CONCLUSION

Nurses are carrying an important role in achieving maximum quality of care. The incidents of hospital-acquired pressure ulcers and medication errors cannot be put on the nurse's shoulder

only. There are so many factors that can contribute to this unwanted incidence. As health care is rushed, no subjective, and often stress provoking, rapidly changes and updated nowadays, nurses must keep the knowledge base updated and ensure that the delivered nursing care is best upon the best available evidence.

REFERENCES

1. Schuelke, Sue, Young, Shereen., Folkerts, Joni., Hawkins, P. (2014). Nursing Characteristics and Patient Outcomes. *Nursing Economic*, *32*(1), 26–32.
2. McLeod-Sordjan, R. (2013). Evaluating moral reasoning in nursing education. *Nursing Ethics*, *21*(4), 473–483. doi:10.1177/0969733013505309
3. Cannaerts, N., Gastmans, C., & Dierckx de Casterlé, B. (2014). Contribution of ethics education to the ethical competence of nursing students: educators' and students' perceptions. *Nursing Ethics*, *21*(8), 861–78. doi:10.1177/0969733014523166
4. O'Leary, J. (2012). Comparison of self-assessed competence and experience among critical care nurses. *Journal of Nursing Management*, *20*(5), 607–14. doi:10.1111/j.1365-2834.2012.01394.x
5. Gillespie, B. M., Chaboyer, W., Wallis, M., & Werder, H. (2011). Education and experience make a difference: results of a predictor study. *AORN Journal*, *94*(1), 78–90. doi:10.1016/j.aorn.2010.11.037
6. Ingram, S. (2014). Advanced nurse practitioner registration in Ireland: An RANP cardiology's experience. *British Journal of Cardiac Nursing*, *9*(4), 177–185. doi:10.12968/bjca.2014.9.4.177
7. Ousey, Karen. (2005). *Essential Clinical Skills for Nurses. Pressure Area Care*. Oxford: Blackwell Publishing Ltd.
8. Wurster, J. (2007). Play in Reducing the Incidence Of Pressure Sores ?, *25*(5), 267–270.
9. Unver, V., Tastan, S., & Akbayrak, N. (2012). Medication errors: perspectives of newly graduated and experienced nurses. *International Journal of Nursing Practice*, *18*(4), 317–24. doi:10.1111/j.1440-172X.2012.02052.x
10. White, C. S. (2011). Advanced Practice Prescribing: Issues and Strategies in Preventing Medication Error, *14*(February 2000), 120–128.