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THE RELATIONSHIP BETWEEN WORKING ENVIRONMENT AND DRUG ADMINISTRATION BY NURSES IN THE EMERGENCY UNIT AND INTENSIVE CARE UNIT OF MUHAMMADIYAH HOSPITAL OF LAMONGAN

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ABSTRACT

Background: Medication error may occur if medical worker including nurse does not apply 6-correct principle. Medication error can occur within each treatment process, one of which is in the administration phase. **Objective:** To analyze the relationship between working environment and drug administration accuracy. **Method:** The research design was analytic observational with cross sectional approach involving 62 nurses. Sampling technique used total sampling method. The data were analyzed using Spearman rank test with significant level of 0,05 and assisted by SPSS for windows 16.00 version. **Results:** The results of statistical tests revealed that the relationship between working environment and drug administration accuracy obtained correlation value of 0,269 with a significant level of 0,034 (p <0,005). **Conclusion:** Based on the results, it can be concluded that with working environment which facilitates nursing care will be able to increase the accuracy of drug administration in order to minimize medication error. A good working environment will have an impact on good nursing care for the patient.

KEYWORDS: Working environment, *medication error, drug administration.*

INTRODUCTION

According to *the US National Coordinating Council for Medication Error Reporting and Prevention* (NCC MERP), the definition of *medication error* is "any preventable event, which may cause or lead to inappropriate drug use or harmful to the patient when the drug is in professional service control health, patient, or consumer. Such events may be related to the professional practice, health care products, procedures, and systems, including prescribing; communication of drug administration request by doctor; labeling, packing, and medicinal products nomenclature; compounding; delivery to patients; distribution; administration; education; monitoring; and rug use."[1]

According to Tajudin 2012[2] one measure of achievement in patient safety is the incidence of medication error. Medication error is one matter which can harm the patient whereas it can be prevented. *Medication errors* can be started from the drug prescribing, dispensing and administering phase. If the error is found in one certain phase, then the successive errors will occur in the next phase. The occurrence of *medication error* may include personnel, medications, procedures, facilities and infrastructure or systems associated with prescribing, dispensing, and administering phase. One of the most common causes of error in the emergency unit is medication error.

Working environment is a necessary factor to support the nurse in performing the task. Working environment including working atmosphere, workplace rules, and other conditions can be the cause of nurse alienation. A supportive working environment will prevent errors in providing patient care and treatment. Good workplace condition leads to good patient service. Good workplace condition and atmosphere can increase productivity.[3]

The study on drug administration showed that the medication error in the emergency unit doubled from the incident in the treatment room. His research stated that 3,6 % of clients in the emergency room prescribed the wrong drug.[4] According to Donchin et al[5] patients who were hospitalized in intensive care unit (ICU) may have a medication error of every patient up to 1,7 times per day.

Patient safety comite team of Muhammadiyah Hospital of Lamongan during January 2017 to April 2017 reported that there were 32 events of patient safety incidents and highest case was medication error. The *medication error* incidents were 14 events or 43.7% of the total incidents. Administering wrong drugs was the highest incidence of 8 patients or 61% and the wrong dose of 3 patients or 23% of the total incidence. Concerning the data previously mentioned, researchers argued that it was important to analyze the relationship between working environment and *medication errors* on the application of patient safety.

AIM

The objective of this research was to analyze the relationship between working environment and the accuracy of drug administration by the nurses in the emergency department and intensive care unit of Muhammadiyah Hospital of Lamongan.

METHOD

The researcher used analytic observational research design with cross sectional approach. The research instrument consisted of two types, namely questionnaires and observation. Questionnaires were used to collect working environment data. The observation sheet was used for the accuracy of drug administration. The research was carried out in emergency unit and intensive care unit of Muhammadiyah Hospital of Lamongan. This study was conducted from February 1, 2018 until March 2, 2018. The samples were 21 nurses in the emergency unit and 41 nurses in intensive care unit. This study had passed the ethical test held in Faculty of Medicine of Brawijaya University number 03 / EC / KEPK-S2 / 01/2018.

Data analysis

The analysis test in this research was univariate analysis of demographic data and respondent characteristic presented in percentage form. Bivariate analysis of correlation test used spearman rank statistical test with SPSS version 16 software application.

RESULTS

General data

The result of the research and discussion about the relationship between working environment and the accuracy of drug administration at Muhammadiyah Hospital of Lamongan in 2017.

Table 1: Distribution of nurses by age in the emergency unit and intensive care unit of Muhammadiyah Hospital of Lamongan.

	Characteristic	Frequency (n)	Precentage (%)
Age	25 - 35 years	42	67,7
	36 - 45 years	19	30,6
	>45 years	1	1,6
	Total	62	100
Gender	Female	35	56,5
	Male	27	43,5
	Total	62	100
Level of education	D-III of Nursing	47	75,8
	Ners	15	24,2
	Total	62	100

Table 1 shows that most nurses are in the range of 25-35 years ie 42 nurses or 67,7% and the rest is in the range > 45 year ie 1 nurse (1,6%). Table 1 shows that most of the nurses are female ie 38 nurses or 56.5% and the rest are male ie 28 nurses (43.5%). Table 1 shows that most education levels are diploma 3 ie 47 nurses (75.8%) and the rests are in ners education level ie 15 nurses or 24.8%.

Specific data

1. Nurse working environment in emergency unit and and intensive care unit.

Table 2: Distribution of working environment in emergency unit and intensive care unit of Muhammadiyah Hospital of Lamongan.

Working environment	Frequency (f)	Precentage (%)
Less support	16	25,8
Support	46	74,2
Total	62	100

Table 2 shows most nurses declared that working environment supported for nursing care of 46 nurses or 74.2% and partially stated working environment was less support for nursing care of 16 nurses (25.8%).

2. Accuracy of drug administration at emergency unit and intensive care unit at Muhammadiyah Hospital of Lamongan.

Table 3: distribution of drug administration accuracy in emergency unit and intensive care unit of Muhammadiyah Hospital of Lamongan.

Drug Administration	Frequency (f)	Precentage (%)
There is mistake	15	24,2
No mistake	47	75,8
Total	62	100
The mistake of 6-correct		
Type of drug	1	6,66
Drug Dose	1	6,66
Time Suitability	3	20
Documentation	5	33,33
Time and Documentation	5	33,33
Total	15	100

Table 3 shows 47 respondents (75.8%) stated that most of the accuracy in drug administration had no mistake. The result of field research showed that the accuracy of drug administration was related to documentation mismatch of 33,33% or 5 patient, incompatibility with time of 20% or 3 patient, and non-compliance with drug and dose of 6,66% or 1 patient. There were 5 patients with 2 stages of medical error related to time and documentation mismatch and 1 patient about drug dose and time of drug administration.

3. The relationship between working environment and the accuracy of drug administration

Table 4: Analysis of the relationship between working environment and drug administration accuracy.

	N	r	P
Working environment	62	0,269	0,034*

P * significant to the stage of drug administration

In Table 4 shows that there was strong possitive relationship between working environment which facilitate the provision of nursing care and the accuracy of drug administration. This means the increase of supportive working environment which facilitated the provision of nursing care caused the increase of the accuracy of drug administration. Relationship value was r = 0,269. The value p was 0,034 or p value α (0,05) so that H0 was rejected which meant there was a significant relationship between the working environment which facilitated the provision of nursing care and the accuracy of drug administration.

DISCUSSION

The result of univariate analysis showed that most of the respondents stated that their working environment supported them in providing nursing care. The result of the field research was found that the need of equipment which facilitated the provision of nursing care were still 32% less support. That case was related to less supportive workspace of 34% which pertaining to temperature, lighting, and noise.

The result of bivariate analysis indicated that the relationship between working environment and the accuracy of drug showed strong and positive relationship which meant the better the working environment the higher the accuracy of drug administration. Relationship value of r was 0,269. The value of p was 0,034 or p <α (0.05) which meant there was a significant relationship between working environment and the accuracy of drug admistration.

The results of field research showed that most respondents stated that working environment supported in providing good care nursning. Working equipment associated with the provision of nursing care was less supportive of 32%. According to respondents, in certain conditions the existing equipment was not comparable with the number of patients. The error in dose accuracy of drug administration amounted to 6.25% or 1 case due to the speed error of the drug on the sharing pump which should be 2 cc / hour but the equipment showed 1 cc / hour.

Working environment, especially the workplace indeed should be comfortable in order to work optimally. According to the respondents, the air conditioner in the workplace was not functioned properly as well as the facilities and infrastructure in providing nursing care to the patient. This was supported by the Suratmi[6] who stated that a good working environment could increase efforts to prevent errors in drug administration so as to minimize the risks which endangered the patient.

Henrikson et al.,[7] state that one of the causes of the Patient Safety Incident (IKP) is the basic nature of work including workload, workflow or work process, interruption during work, and the nature of the work itself. A supportive work environment will prevent errors in providing patient care and treatment. According to Anoraga[8] if nursing workplace condition is good, the patient's service is also good. Good workplace conditions and atmosphere could improve work productivity.

According to Nitisemito[9] the work environment is everything surrounding the workers which can affect them in carrying out the tasks. Henriksen et al[7] states that the patient's safety defense system is an environmental condition which supports patient’s safety (teamwork, equipment, communication, and a safe and comfortable environment).

According to Handayani[10] the cause of *administration error* of medical workers is in working culture; working environment factors ie work busyness; patient factor such as the uncooperative patient’s family and misunderstanding of the drug taking procedure. Factors

causing *medication error* are less supportive working environment, nurse position, overage patients, hospital admission reconciliation, lack of knowledge about drugs (dose, detecting drug interactions), poor assessment of patient's allergies and lack of clinical monitoring of patients.

According to Hartati's research results[11] factor influencing the occurrence of medication error was a system problem (minimal completeness of facilities in the hospital), professional (human resources, including doctors, pharmacists, and nurses), and documentation.

Based on the description above, it shows that a good working environment will be able to help nurses in doing good nursing care. Good working environment can be seen through the facilities and infrastructure in providng patient care and in treatment room environment.

CONCLUSION

It can be concluded that there is a significant relationship between the working environment which facilitates the provision of nursing care and the accuracy drug administratiion stage in the emergency unit and intensive care unit of Muhammadiyah Hospital of Lamongan.

CONFLICT OF INTEREST

There is no conflict of interest.

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REFERENCES

1. NCCMERP. Medication errors. Diunduh 08 mei 2016. Tersedia dari:http://www.nccmerp.org/about-medication-errors., 2016.
2. Tajuddin RS., Sudirman I., Maidin A., Faktor penyebab medication error di instalasi rawat darurat. Jurnal manajemen pelayanan kesehatan, 2012; 15.
3. Schultz. *Working Condition and Work Today*. New York: Macmilan, 2010.
4. Fairbanks, RJ. The Emergency Pharmacist : Safety Measure in Emergency Medicine Justification Summary Document, 2007; 1–5.
5. Donchin y, Gopher D, Olin M, Bodihi Y, biesky M, Sprung CL. *et al*. look into the nature and causes of human errors in the intensive care unit .*Qual Saf Health Care*, 2003; 12: 143-147 doi: 10.1136/qhc.12.2.143.
6. Suratmi. Hubungan lingkungan kerja dengan upaya pencegahan kesalahan pemberian obat di ruang teratai RSUD DR Soegiri Lamongan. Surya, April 2016; 08(01).
7. Henriksen K, Dayton E, Carayon D, Hughes RG, Keyer MA. Understanding Adverse Event: A Human Factors framework, 2008.
8. Anoraga. Psikologi Kerja.Jakarta : Rineka Cipta, 2009.
9. Nitisemito. *Pengelolaan Tentang Kondisi Kerja.* Jakarta: Erlangga, 2010.
10. Handayani M., Anggraeni R., Maidin M.A., Determinan Kepatuhan Perawat Di Ruang Rawat Inap Rumah Sakit Stella Maris Makassar, 2014.
11. Hartati, Lolok, NH, Fudholi A, Satibi. Analisis kejadian medication error pada pasien ICU. Jurnal Manajemen dan Pelayanan farmasi, June 2014; 4(2).