

The Nursing Work Environment and Triage Decision Making Among Nurses in General Hospitals

Kuswanto Rusca Putra¹, Baiq Fitrihan Rukmana², Ahsan³

{torro.fk@ub.ac.id¹, anafitribaiq@gmail.com², ahsanpsik.fk@ub.ac.id³}

Nursing School, Faculty of Health Science, Universitas Brawijaya, Indonesia¹
Nursing School, Faculty of Health Science, Universitas Qamarul Hudha Badaruddin, Indonesia²
Nursing School, Faculty of Health Science, Universitas Brawijaya, Indonesia³

Abstract. Triage nurses have clinical skills to make decisions which can affect the quality of patient care and the nursing work environment are factors that influence nurses in triage decisions making for patients. This research aims to identify correlation the nursing work environment on triage decision-making in the emergency unit. A survey with a self-report questionnaire was administered to 135 emergency nurses. Data were analysed used pearson test. It is known that There is a relationship between the nurse's work environment and triage decision making ($p < 0.05$). The nursing work environment needs to be managed properly by hospital management by prioritizing leader support for nurses, nurse-doctor relationships, availability of nurse resources, implementation of nursing care, involvement of nurses in managing emergency units so as to improve nurse skills in triage decision making.

Keywords: Decision making; Triage; Nursing Work Environment

1 Introduction

Triage assessment in patients serves as the most important step in providing care and an indicator of the actions that will be given to patients.[1] The nurse is one of the health workers who perform the triage process.[2] Nurses start the triage process when the patient enters the emergency room. Triage nurses perform treatments according to the level of the patient's emergency.[3] The inaccuracy of nurses assessing the condition of the patient has an impact on increasing the duration of hospital stay of patients and the accumulation of patients in the emergency room.[4] This condition occurs due to the nurses' lack of knowledge which results in inaccurate triage decisions due to incomplete patient assessment.[5] Inaccurate triage decision making by nurses can reduce the quality of care and harm the patient's condition.[1]

Nurses' knowledge and experience in triage decision making are related to nursing education and competence.[6] A high level of education and competence of nurses, including basic life support and advanced life support capabilities can affect the level of knowledge of the triage process.[7] Patient care in the emergency department can be influenced informally by nurses as decision makers who are part by organizational decision-making factors. Infrastructure and the work environment in the emergency room also influence the triage process. The availability of resources in the triage process can assist nurses in doing the triage process quickly so that they can categorize patients appropriately. A conducive work

environment as well as good collaboration between health professionals, doctors, nurses, etc. influence triage decision making.[8]

The results of a preliminary study conducted on October 31st, 2018 by direct observations on thirty nurses, it was found that twenty emergency room nurses did not do the correct triage, for example, the green category patients were placed in the yellow category. There is incomplete triage documentation in marking the patient's triage position in the medical record and an incomplete physical examination. This condition can negatively affect the services provided in the emergency room. Based on the aforementioned problem, this study designed to identify the correlation of the nursing work environment on decision making of triage nurses in government hospitals on the island of Lombok.

2 Methods

An observational analytic study with a cross-sectional approach was used in this study. As many as 135 nurses working at five hospitals in Lombok, West Nusa Tenggara Province, Indonesia were involved in this study, with total sampling. To measure triage decision making and nursing work environment, a questionnaire adopted from Melbourne Decision Making Questionnaire (MDMQ)[9] and Practice environment scale of the nursing work index (PES-NWI) was used.[10]

The validity test of the questionnaire in this study was conducted by 30 nurses with r table of 0.351. The number of valid question items on a valid PES-NWI questionnaire ($r > 0.351$) was 26 of 31 questions with a Cronbach Alpha (0.943) with the parameters of nurse participation (9 items), leadership (2 items), resources (4 items), nurse-physician relationship (2 items), quality nursing service foundation (9 items). The response choices were as follows: strongly agree = 4 to strongly disagree = 1. The number of valid question items on a valid MDMQ questionnaire was 15 of 22 questions with a Cronbach Alpha (0.869). The response choices were as follows: never = 0 to every day = 6. The researcher explained the purpose of the study to emergency nurses at five hospitals and asked the nurses for approval to be the respondents of the study and to distribute questionnaires. The entire survey process uses anonymity and all personal information is kept confidential. The bivariate analysis used the Pearson test. This research was conducted after obtaining ethical clearance from the ethical committee of the University of Mataram No. 13/UN18.F7/ETIK/2019. Prior to participating in this research, respondents who have fully understood this research, signed an informed consent and agreed to respond to the questionnaires.

3 Results and Discussion

The data on the characteristics of nurses in the emergency department are mostly male (54.1%), aged 20-30 years (55.6%), work experience 6-10 years (63.7%) and diploma education (53.3%) are shown in Table 1. Based on Table 2, it can be predicted using a 95% level of confidence that nurses' work environment scores perceived by nurses include nurse participation in hospital affairs a the score ranges from 29.54 – 30.73; nursing foundation for quality of care scores ranged from 29.89–31.31; nurse manager ability, leadership, and support of nurses scores ranged from 6.55– 6.90; staffing and resource adequacy scores ranged from

12.86–13.52; and collegial nurse-physician relations scores ranged from 6.54-6.91. Meanwhile, nurses' decision-making scores ranged from 69.45 to 73.01.

Table 1 The characteristic respondent (n=135)

Variables	Frequency	Percent
Gender		
• Female	62	45.9
• Male	73	54.1
Age (years)		
• 20-30	75	55.6
• 31-40	54	40.0
• >40	6	4.4
Experience (years)		
• 1 – 5	31	23
• 6 – 10	86	63.7
• > 10	18	13.3
Level of education		
• Bachelor Nurse	72	53.3
• Diploma	63	46.7

Table 2. The distribution statistics nursing work environment and nurses triage decision making (n=135)

Variables	Mean	Standard Deviation	CI 95%
Nursing work environment (total)	87.24	±9.31	85.65-88.82
Nurse participation in hospital affairs	30.13	±3.48	29.54-30.73
Nursing foundation for quality of care	30.60	±4.15	29.89-31.31
Nurse manager ability, leadership, and support of nurses	6.73	±1.01	6.55-6.90
Staffing and resource adequacy	13.19	±1.91	12.86-13.52
Collegial nurse-physician relations	6.73	±1.10	6.54-6.91
Triage decision making	71.23	±10.46	69.45-73.01

Table 3. Analysis of nursing work environment with triage decision making.

Variables	Triage Decision Making	
	r	p-value
Nursing work environment (total)	0.408	0.000
Nurse participation in hospital affairs	0.367	0.000
Nursing foundation for quality of care	0.404	0.000
Nurse manager ability, leadership, and support of nurses	0.285	0.000
Staffing and resource adequacy	0.349	0.000
Collegial nurse-physician relations	0.390	0.000

The correlation between nursing work environment includes nurse participation in hospital affairs; nursing basis for quality of care; nurse manager and leadership skills for nurse support; adequacy of staff and resources; collegial nurse-doctor relationship) with triage decision-making data are shown in Table 3.

Based on Table 3 above, it is known that the nurse's work environment and all its sub-variables have a relationship with nurses' triage decision making ($p < 0.05$). The level of relationship between the nurse's work environment and the nursing foundation on the quality of care and nurse decision making is classified as moderate. The degree of relationship between nurses' participation in hospital affairs; nurse manager and leadership skills and support for nurses; adequacy of staff and resources; and the nurse-doctor collegial relationship with nurse decision making is low. The pattern of the relationship in this study is positive, meaning that the better the nurse's work environment, the better the nurse's triage decision making.

Decision-making triage in emergency unit for nursing practice is a complex process. This study reported that there is a relationship between all sub-variables of the nursing work environment on triage decision making with a positive correlation. This means the higher the nursingwork environment score owned by nurses, the higher the triage decision making the score. A good nursing work environment can improve the accuracy of nurses in making triage decisions in the emergency room. A good nursing work environment can be assessed from the support of a good nurse staff and the complete facilities used by nurses to conduct an appropriate triage category assessment by the conditions of patients experienced, to improve nurse performance and better outcomes. A good work environment increases the efficiency and performance of nurses so that the quality of services provided becomes maximal.[11]

The nursing work environment comprises of five dimensions, including the participation of nurses in hospital affairs; leadership, and support to nurses; adequate resources and nurses; nurse-doctor relationship, and quality nursing services.[10] In this study, The contribution of nurses in the hospital was known to influence the decision making of nurses' triage. The active participation of nurses can enhance good collaboration between medical personnel so that they can support good nurse performance. A good nurse performance can be influenced by the ability to make triage decisions.[12]

This study found that leadership and support from nurses can influence nurses in triage decisions making. Previous research also explained that leadership, nurse support, management, and culture could influence the conditions of the nursing work environment that affects the quality of nursing services performed by nurses to patients.[13] Adequate resources and personnel can influence nurses in triage decisions making. Working conditions with an increasing workload can increase nurses' mistakes in doing their work so that it has an impact on decreasing the quality of nursing services to patients.[14] In the context of triage, the workload in the emergency room can affect the conditions of the nurses who work so that it has an impact on making triage decisions appropriately.[15]

The nurse-physician relationship can influence nurses in triage decisions making. Working with colleagues who have experience influenced nurse decision-making in emergency unit settings. Good teamwork can improve nurses' ability to do triage.[16] Control over nurse practice relates to nursing autonomy in decisions making independently and personally responsible for the implementation of actions given to patients.[17] The autonomy of nurses in conducting triage can be applied in the emergency room with the right triage protocol.[18] Previous research explains that there is a relationship between the level of nurse autonomy in triage decision making where the existence of nurse autonomy can make it easier to make triage decisions quickly and accurately.[19]

The results of this research indicate that nurses who have long work experience are the largest proportion that can influence triage decision making. The high experience of nurses became a learning medium for nurses to be able to make triage decisions that were appropriate to the patient's condition to improve nurse performance and better outcomes.[20]The triage

nurse must be competent and able to make the planning needed for a current situation. Competent nurses can show responsibilities more related to the patient's condition, more focused and able to show their ability to think critically[3], [20], [21]. The results of this study note that high level education is the largest proportion which is a factor that can be influenced triage decision-making. The findings of this study are in line with Kerie et al (2018) stating that Nurses with higher education and have competence related to triage can improve nurses' ability to triage decision making in emergency room.[12] The level of education and competence of nurses were the main basis for nurses to be able to conduct an appropriate triage category assessment in accordance with the patient's condition to improve nurse performance and better outcomes. This condition shows that hospital policy is needed to hold a continuing nursing education program so that nurses can increase participation in the hospital and nursing competencies in improving the service quality. The limitation of this research is that the competencies that must be possessed by triage nurses in the hospital are not yet standardized and triage decision making in this study mainly focuses on respondents' perceptions. Therefore, research needs to be done on the accuracy in triage decision making.

4 Conclusion

Due to the impact of various factors in the dimensions of the nursing work environment in the implementation of triage decision-making processes, it is necessary to pay more attention to the health authorities in hospitals in implementing the standard triage system through modification of the management and work environment of the emergency department based on leadership support, nurse-doctor collaboration relationships, the use of the basic profession in services and the allocation of resources and facilities to improve triage activities is emphasized in order to improve the quality of triage activities, the quality of decision making and patient priorities in the emergency department with better organization as a result of improving the quality of care.

Acknowledgements

Thank you to the nurses at the emergency room of the general hospital of Lombok Island who participated in this study.

References

- [1] K. D. Johnson & A. Alhaj-Ali: "Using Simulation to Assess the Impact of Triage Interruptions," *J. Emerg. Nurs.*, vol. 43, no. 5, pp. 435–443, (2017).
- [2] M. Ebrahimi, A. Mirhaghi, R. Mazlom, A. Heydari, A. Nassehi, and M. Jafari, "The Role Descriptions of Triage Nurse in Emergency Department: A Delphi Study," *Scientifica (Cairo)*, vol. (2016).
- [3] L. A. Wolf, A. M. Delao, C. Perhats, M. D. Moon, and K. E. Zavotsky: "Triageing the Emergency Department, Not the Patient: United States Emergency Nurses' Experience of the Triage Process," *J. Emerg. Nurs.*, vol. 44, no. 3, pp. 258–266, May (2018).
- [4] R. Forero, S. McCarthy, and K. Hillman, "Access block and emergency department overcrowding," *Crit. Care*, vol. 15, no. 2, (2011).
- [5] A. Kimberly D. Johnson, Gordon L. Gillespie, Kimberly Vance: "Effects of Interruptions on Triage Process in Emergency Department:," *J Nurs Care Qual.*, vol. 33, no. 4, pp. 375–381, (2018).

- [6] E. Martínez-Segura: "Competence of triage nurses in hospital emergency departments," *Emergencias*, vol. 29, no. 3, pp. 173–177, (2017).
- [7] H. Hassankhani, F. Hasanzadeh, K. A. Powers, A. Dadash Zadeh, and R. Rajaie: "Clinical Skills Performed By Iranian Emergency Nurses: Perceived Competency Levels and Attitudes Toward Expanding Professional Roles," *J. Emerg. Nurs.*, vol. 44, no. 2, pp. 156–163, (2018).
- [8] R. Aloyce, S. Leshabari, & P. Brysiewicz: "Assessment of knowledge and skills of triage amongst nurses working in the emergency centres in Dar es Salaam, Tanzania," *African J. Emerg. Med.*, vol. 4, no. 1, pp. 14–18, (2014).
- [9] U. Isaksson, S. Hajdarević, L. Jutterström, & Å. Hörnsten: "Validity and reliability testing of the Swedish version of Melbourne Decision Making Questionnaire," *Scand. J. Caring Sci.*, vol. 28, no. 2, pp. 405–412, (2014).
- [10] N. E. Warshawsky & D. S. Havens, "Global use of the practice environment Scale of the Nursing Work Index," *Nurs. Res.*, vol. 60, no. 1, pp. 17–31, (2011).
- [11] M. Dadashzadeh, Abbas; Abdolazadeh, farahnaz; Rahmani, azad; Ghojzadeh: "Factors affecting triage decision-making from the viewpoints of emergency department staff in Tabriz hospitals," *Iran J Crit Care Nurs*, vol. 6, no. 4, pp. 269–276, (2013).
- [12] S. Kerie, A. Tilahun, and A. Mandesh: "Triage skill and associated factors among emergency nurses in Addis Ababa, Ethiopia 2017: A cross-sectional study," *BMC Res. Notes*, vol. 11, no. 1, pp. 4–9, (2018).
- [13] C. Ma, D. M. Olds, and N. E. Dunton: "Nurse work environment and quality of care by unit types: A cross-sectional study," *Int. J. Nurs. Stud.*, vol. 52, no. 10, pp. 1565–1572, (2015).
- [14] J. H. Kang, C. W. Kim, and S. Y. Lee: "Nurse-Perceived Patient Adverse Events depend on Nursing Workload," *Osong Public Heal. Res. Perspect.*, vol. 7, no. 1, pp. 56–62, (2016).
- [15] L. Wolf: "Acuity assignment: An Ethnographic Exploration of Clinical Decision Making by emergency Nurses at Initial Patient Presentation," *Adv. Emerg. Nurs. J.*, vol. 32, no. 3, pp. 234–246, (2010).
- [16] L. Wolf: "An integrated, Ethically Driven Environmental Model of Clinical Decision Making in Emergency Settings," *Int. J. Nurs. Knowl.*, vol. 24, no. 1, pp. 49–53, (2013).
- [17] D. J. Robinson, "An integrative review: Triage protocols and the effect on ED length of stay," *J. Emerg. Nurs.*, vol. 39, no. 4, pp. 398–408, (2013).
- [18] M. Gerdzt and T. Bucknall: "Australian Triage Nurses' Decision-Making and scope of Practice," *Aust. J. Adv. Nurs.*, vol. 18, no. 1, pp. 24–33, (2000).
- [19] B. Duko, E. Geja, Z. Oltaye, F. Belayneh, A. Kedir, and M. Gebire: "Triage Knowledge and Skills among Nurses in Emergency Units of Specialized Hospital in Hawassa, Ethiopia: Cross sectional study," *BMC Res. Notes*, vol. 12, no. 1, pp. 19–22, (2019).
- [20] K. Hammad, L. Peng, O. Anikeeva, P. Arbon, H. Du, and Y. Li: "Emergency nurses' knowledge and experience with the triage process in Hunan Province, China," *Int. Emerg. Nurs.*, vol. 35, pp. 25–29, (2017).
- [21] C. Arslanian-Engoren, B. Hagerty, C. L. Antonakos, and K. A. Eagle: "The Feasibility and Utility of the Aid to Cardiac Triage Intervention to Improve Nurses' Cardiac Triage Decisions," *Hear. Lung J. Acute Crit. Care*, vol. 39, no. 3, pp. 201–207, (2010).