

# Analyzes of Nurse Work Load and Teamwork with the Service Quality of Pre-Hospital Emergency in Kupang, East Nusa Tenggara, Indonesia

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## Abstract

Pre-hospital emergency service is a complex service system and realized by sending care assistance to the location of incidence to prevent death or disability. Pre-hospital emergency service providers consist of individuals and groups in an organization that provides services in accordance with patient needs. The purpose of the study was to analyze the correlation between the factors of nurse workload and teamwork with the service quality of pre-hospital emergency. This study used survey analysis design with cross sectional approach. The population in this study were nurses at the Healthy Brigade of Kupang (BKS) and family of patients who received services from the BKS. The total sample of study was 20 of BKS nurses who selected with the total sampling technique and 80 people of patients' families who selected by accidental sampling technique. The instrument used was the work sampling form and the Nurse Practitioner Primary Care Organizational Climate Questionnaire (NPPCOCQ). The bivariate analyzes result with the contingency coefficient test shown significant correlation between nurse workload and service quality ( $p=0.008$ ) and teamwork with service quality ( $p=0.009$ ). Thus could be concluded that there was a significant correlation between nurse workload and teamwork with the service quality of pre-hospital emergency in Kupang. The lighter the nurse's workload and good teamwork would improve the assessment of service quality.

**Keywords:** Pre-Hospital Emergency Care, Nurse, Quality Services.

## Background

Services on pre-hospital emergency department is part of the framework for emergency care service system established by the World Health Organization <sup>(1)</sup>. The main focus of the emergency services on pre-hospital is to prevent death and disability in the victim in the pre-hospital environment and during the referral process. An emergency services on pre-hospital successfully determined from the empowerment rescuers at the incidence location (bystander), submission of the right report to the recipient of operator call (dispatcher),

length of waiting time, accuracy evacuation of patients and health care that received at the incidence location or during the process reference.

Therefore, the emergency services on pre-hospital is critical, thus the Republic of Indonesia Government has set up the implementation of the emergency services in the rule of Ministry of Health of RI Year of 2016. The Indonesian Ministry of Health (MoH RI) stated that the emergency services on pre-hospital included in the System Integrated Emergency services (SPGDT). SPGDT is a mechanism for victims emergency aid implemented in an integrated manner, utilizing a call center, communications systems and engaging the community. Implementation can be national and local levels in every county or city in Indonesia<sup>(2)</sup>.

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Kupang is the capital of East Nusa Tenggara (NTT), which is one of the provinces in Indonesia. There is an increasing trend of traffic accidents during the past three years in Kupang. Based on data obtained from the Regional Police of East Nusa Tenggara Resort Kupang in 2018 has occurred 199 traffic accidents, in 2015 occurred 280 cases of traffic accidents with 60 occurrences died on the spot and in 2016 occurred 385 traffic accidents with 51 cases died on the spot. In 2017 there has been 356 cases of traffic accidents with 58 occurrences died on the spot, 7 incident major injuries and 611 minor injuries incident<sup>(3)</sup>.

The Municipal Government of Kupang responses to serious health problems of its citizens. Therefore, it has formed a technical and operational units, namely Healthy Brigade of Kupang (BKS) under the auspices of the City Health Office conducted specifically by Kupang health care for 24 hours to emergency state for Kupang. BKS duties and functions with the availability of 8 doctors, 20 nurses, 6 midwives, 8 drivers and 2 janitors and equipped with 2 units of ambulances<sup>(4)</sup>.

BKS presence has helped in the health services in Kupang and help in access to health facilities. However, if the review is based on quantity, it is necessary to increase human resources and tools for health services should be available 24 hours given to 412.708 residents of Kupang scattered in locations 180.27 km<sup>2</sup> and risk of emergency conditions at any time<sup>(4)</sup>.

Health care provided in emergency conditions both in the hospital and pre-hospital is a kind of dynamic services. Nurses or other health personnel on duty can not predict the number, and severity of condition of patients who need help<sup>(5)</sup>. In general, the role of the nurse is to provide a more focused nursing care for life-threatening circumstances at the time. However, keep in mind that for the creation of an emergency services on pre-hospital maximum will not be separated from the various interruptions, either by doctors, preparing tools and materials for the service process, ensuring a working environment in a condition conducive and ready to receive calls emergency anytime<sup>(5)(6)</sup>.

A number of targets nurses work performed during the working hours referred to the workload of nurses<sup>(7)</sup>. There are four types of activities nurses, namely directly and indirectly productive activity, personal activity and non-productive activity<sup>(8)</sup>.

Nurses in carrying out their activities for the emergency services on pre-hospital should work in a team due to handle patients in unpredictable conditions required collaboration with a team of medical and other health personnel. The familiar team working will reduce the risk of injury to any member of the team. Teams that have good cooperation has mutual trust, always shared and supported by good communication. Good teamwork will improve the quality of service provided<sup>(9)(10)(11)</sup>.

Pre emergency care hospital in Kupang expected a quality service. Quality of service can be reviewed on the determinants indicator of the service quality in the form of services, according to Parasuraman, Zeithaml, and Berry (1994), they are reliability (health services that can be trusted), responsiveness (the responsible health services), assurance (health services which ensure given), empathy (empathy health services) and tangibles (health services which have a good look). As a health service, the pre-hospital emergency services are also formed from the expectations of health workers in this case the nurse as one of the service providers perceived to be in accordance with the needs of patients and the satisfaction of patients or their families as recipients of the service itself<sup>(12)</sup>.

The purpose of this study was to analyze the correlation between the factors of nurses workload and teamwork against service quality pre-hospital emergency in Kupang.

## Method

This research used the survey analysis design and cross sectional approach. The population in this study is nurses in Healthy Brigade of Kupang (BKS) and families of patients who receive services from BKS. The number of samples is 20 of BKS nurses who selected by total sampling technique and 80 of patient's family who selected by accidental sampling technique. Nurses are asked to write down all the activities conducted for 3 times the duty schedule in the work sampling form for the assessment of the workload of nurses<sup>(8)</sup>. Nurses also filled out questionnaires Primary Care Nurse Practitioner Organizational Climate Questionnaire (NPPCOCQ) which consists of 34 questions for the assessment of teamwork<sup>(13)</sup>. Families patients are asked to fill out questionnaires of Service Quality which consists of 22 questions<sup>(14)</sup>.

## Results

Univariate analysis result can be seen in Table 1, 2 and 3 below

**Table 1. Distribution of Nurses based on Workload and Teamwork.**

		n	%
The nurses workload	Light	13	65
	Weight	7	35
Total		20	100
Teamwork	Good	15	75
	Poor	5	25
Total		20	100

According to Table 1 note that as many as 13 nurses (65%) had a light workload and 15 nurses (75%) had good teamwork.

**Table 2. Distribution of Working Group on Duty Schedule**

	Morning	Noon	Evening	Off Duty
Doctor	2	2	2	2
Nurse	5	5	5	5
Midwife	1	2	2	1
Driver	2	2	2	2
Total	10	11	11	10

According to Table 2 that in duty schedule, the morning, noon and evening always provide a working group consisting of doctors, nurses, midwives and driver.

**Table 3. Distribution of Patients' Familybased on Services Quality Assessment**

		n	%
Service quality	Satisfy	44	55
	Very satisfy	36	45
Total		80	100

According to Table 3 is known that as many as 44 families of patients (55%) considered that the service quality is satisfy and 36 families of patients (45%) rate the quality of service is very satisfy.

Bivariate analysis using contingency coefficient test was conducted to see the correlation between the workload of nurses and teamwork against service quality of pre-hospital emergency in Kupang. The results of analysis are shown in Table 4 below.

**Table 4. Analysis Result of Correlation Between Nurses Workload and Teamwork with Emergency Services Quality of Pre Hospital in Kupang.**

		Service quality		r value	p-value
Satisfy n (%)	n (%)	Very satisfy			
		The nurses workload	Light	23 (44.2)	29 (55.8)
Weight	21 (75)		7 (25)		
Total		44 (55)	36 (45)		
Teamwork	Good	16 (80)	4 (20)	0.279	0.009
	Poor	28 (46.7)	32 (53.3)		
Total		44 (55)	36 (45)		

According to Table 4 can be understand that there is significant correlation between the factors of nurses workload and teamwork with the quality of emergency services on pre-hospital in Kupang that conducted by Healthy Brigade of Kupang with p values are 0.008 and 0.009, respectively.

## Discussion

Correlation Between Nurses Workload With Services Quality of Pre Hospital Emergency in Kupang.

At each duty schedule of BKS in morning, noon and evening always assigned one working group composed of two working teams. Each working group is composed of 2 doctors, 5 nurses, 1 or 2 midwives and 2 drivers. Each working group will be composed of 1 doctor, 2 or 3 nurses and 1 person without a midwife or midwife that are tailored to the type of cases that will be handled, and 1 driver. Work placement at each scheduled team guard causing the service can be implemented at any time so that patients and families can access the services of BKS.

The results shown that most nurses have a light workload, but this does not mean that nurses are not productive at work. It should be understood that the emergency services were conducted in the pre hospital is a dynamic service system. This means service providers can not predict the amount and severity of patients in need of emergency assistance during working hours<sup>(5)</sup>. The nurse said to have a heavy workload for the total amount of time the most used three times schedule watch is for productive activities directly and indirectly, while having light workload for a total time of the most used during working hours is for personal activities and the activities of non-productive more<sup>(8)</sup>.

Their placement work teams and various categories of activities that can be conducted by a nurse and her team at the BKS with service quality pre-hospital emergency perceived by the patient's family. The workload of nurses in this study relates to the dimensions of trust or reliability, responsibility or responsiveness, assurance or assurance and reality or tangibles.

Placement of the number of nurses in each health service area greatly affect the success of treatment for patients<sup>(15)</sup>. Another study conducted by Aiken et al (2014) also states that the better patient outcomes and is directly proportional to the ratio of the number of placements is also good nurse<sup>(16)</sup>. There are also studies that conducted by Brecher & Graves (2018) which explain about the quality of emergency services on pre-hospital for pediatric patients can not be separated from the involvement of nurses since the preparation phase until the end of service<sup>(17)</sup>.

Nurses are human resources that was the most in a health care at the hospital, which is in the 55% to 65% of the overall human resources<sup>(18)</sup>. The same fact is also happening in the organization of BKS, i.e the number of nurses are more than the number of doctors and nurses with the type of service that can not be predicted, dynamic and exhausting. Matejic et al (2015) also explained that the staffing portion is activity among nurses working team can affect the quality of service perceived by the patient as the recipient of the service, especially in emergency conditions<sup>(19)</sup>.

Correlation Between Teamwork with Services Quality of Pre Hospital Emergency in Kupang.

Good team work will provide good service as well as every member of the team give their best ability to serve patients. Teamwork in this study relates to the dimension of reliability, responsibility, assurance and empathy on the quality of service perceived by the patient's family as the recipient of the service pre-hospital emergency department. Through good teamwork among nurses of BKS and his team created the emergency care service that looked and felt better overall by patients' families. The patient's family also felt that nurses provide professional skills when providing care. Received treatment appropriate to the patient and family expectations. Patient's family also assess the nurses of BKS is responsible for fast and responsive in responding to patient complaints. Nursing care provided by nurses in BKS trustworthy for assessing the patient's family that has been a professional nurse working in a team for every patient who needs help.

Their team work in the emergency services both in pre-hospital and hospital is needed because no one can predict the type and number of cases requiring immediate treatment. Nurses need to perform the role of collaboration with the medical team and other medical personnel when carrying out emergency services for a number of comprehensive case<sup>(6)(20)</sup>.

Teamwork both within the emergency services pre hospital can lead to several things, namely familiarity between officers, better communication, arises a sense of mutual trust and respect opinions, reduced risk of injury at work, the performance of services delivered better, and each of the team members influence each other both in terms of attitudes and responses given to patients<sup>(9)(10)</sup>, Hwang & Ahn (2015) also states that the quality of service will be increased if their good cooperation between team members because it can affect the safety of donor and recipient of the service<sup>(19)</sup>.

## Conclusion

There is a significant correlation between the workload of nurses and teamwork to service quality pre-hospital emergency in Kupang, East Nusa Tenggara, Indonesia. Nurses who work in the service of pre-hospital emergency department has the most light workload and teamwork are good. This led to the assessment of the quality of service perceived by the patient's family is satisfactory to very satisfactory.

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