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THE RELATIONSHIP OF TRIAGE SELECTION WITH LENGTH OF STAY ON PULMONARY TB PATIENTS

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ABSTRACT
Pulmonary TB is a contagious infectious disease that can cause morbidity and death and Indonesia is in second place with the most TB cases (9.2%) globally, so it requires quality services in hospitals. The quality of service for TB patients in the ER with a triage system can be measured through indicators of length of stay. Objective to analyze the relationship between triage selection and length of stay for pulmonary TB patients in the emergency room at Sultan Suriansyah Hospital, Banjarmasin. Quantitative research with analytical survey design and cross sectional approach on 47 respondents selected using purposive sampling technique. Data was taken using observation techniques and analyzed using the chi square test. The majority of respondents were categorized as yellow triage with a total of 23 out of 47 people (48.9%) and were treated for ≥6 hours with a total of 33 out of 47 people (70.2%). The chi square test results show a p value of 0.000 < α 0.05 so that Ha is accepted, which means there is a relationship between triage selection and length of stay for pulmonary TB patients in the emergency room at Sultan Suriansyah Hospital, Banjarmasin. Yellow triage patients have a length of stay that exceeds the average so that the patient's family is expected to be able to understand and hand over nursing actions to professional health workers so that the care provided can run smoothly.

Keywords: length of stay; pulmonary TB; triage

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INTRODUCTION

Maternal mortality rate (MMR) is an indicator used to measure the health status of mothers in a region. Currently, the maternal mortality rate is still very high, around 830 women die from complications of pregnancy or childbirth worldwide every day. The high number of maternal deaths in several regions of the world reflects the difficulty in gaining access to health services. It is estimated that in 2019 around 303,000 women died due to complications during pregnancy and childbirth (WHO, 2019). The delay in handling complications in the community is influenced by the community itself and health workers. The delay that occurs in the community is due to the family's delay in recognizing complications, lack of understanding of the dangers of complications and not understanding the referral system. Meanwhile, the delay in handling by health workers is because health workers are late in identifying complications, the distance of health workers is far, the competence of health workers is low and equipment and drugs are not available. The risk of complications is also higher due to the delay in early detection during pregnancy. Some pregnant women who come from families with low economic status prefer to give birth at home and are assisted by the local village midwife, so that if complications occur during childbirth, the mother is not immediately referred to a complete health facility and is late in getting fast and appropriate

help from health workers. (Yohana, Yovita, & Yessica 2018).

The objective of the Sustainable Development Goals (SDGs) is to reduce maternal mortality to below 70 per 100,000 live births and end preventable infant and under-five deaths by 2030, with all countries striving to reduce the Neonatal Mortality Rate to at least 12 per 1,000 live births (LBR) and the Under-five Mortality Rate to 25 per 1,000 LBR (Ministry of Health of the Republic of Indonesia, 2021). The Maternal Mortality Rate (MMR) in Indonesia in 2020 was 189 per 100,000 live births, while the Infant Mortality Rate (IMR) in 2020 showed a Neonatal Mortality Rate (NAR) of 15 per 1,000 live births, IMR of 24 per 1,000 live births, and Under-five Mortality Rate (IMR) of 32 per 1,000 live births. The number of maternal deaths collected from family health program records at the Ministry of Health increases every year. In 2021, it showed 7,389 deaths. This number shows an increase compared to 2020 which was 4,627 deaths (Indonesian Health Profile, 2021).

Based on data from the Aceh Provincial Health Office, the Maternal Mortality Rate (MMR) in 2017-2021 fluctuated, in 2017 it was 143 per 100,000 live births, in 2018 it decreased to 138 per 100,000 live births, in 2019-2020 it increased again to 172 per 100,000 live births but in 2021 it experienced a very significant increase, namely 223 per 100,000 live births, in 2022 141/100,000 live births, while the Infant Mortality Rate (IMR) in 2021 was 11 per 1000 live births, an increase compared to the previous four years, namely 2017-2020 which was only 9 per 1000 live births (Aceh Health Office, 2021). Data from the Bireuen Regency Health Office in 2021 and 2022, the number of maternal deaths was 11 people, a decrease from the previous year which was 13 people, while the number of infant deaths was 110 people, stillbirths 87 people and in 2022 it increased to 125 people and stillbirths 77. The target for pregnant women is 10,043 people, K1 is 9,483 people, K4 is 8,332 people, postpartum mothers are 9,587 people, the target for babies is 9,587 people, traditional birth attendants are 7 people, KF1 is 8,471 people, KF2 is 8,402 people, and KF3 is 7,214 people. (Bireuen Health Office, 2022).

Data obtained from the Jeumpa Health Center, Bireuen Regency, in 2020 there were two cases of maternal death with bleeding and suspected preeclampsia, in 2021 there was 1 case with comorbidities, in 2022 there were no maternal deaths and in 2023 there were 2 cases of maternal deaths while the number of infant deaths in 2020 was 21 cases, in 2021 there were 18 cases, in 2022 there were 15 cases and in 2023 there were 18 cases with causes including LBW, asphyxia, pneumonia, stillbirth and other causes. (Jeumpa Health Center Profile, 2023). This problem is increasingly complex due to the presence of high-risk pregnant women who still use traditional birth attendants for pregnancy and childbirth checks even though health services are available, so strong cooperation and commitment are needed with stakeholders and across sectors to realize these hopes because a program will be easier to implement if there is cooperation with other institutions or parties so that it can facilitate the achievement of the program's goals, based on the data and problems above, researchers together with related staff at the Jeumpa Bireuen Health Center designed an innovation entitled "KAMOE SAJAN GATA" which means Kamoe = We are health workers, across sectors and all villagers, Sajan = Together, namely accompanying, assisting and closely monitoring the pregnancy/childbirth process, Mother = the softest term or greeting for mothers including pregnant women. (Jeumpa Health Center Profile, 2019).

The innovation of “KAMOE SAJAN GATA” is to accompany and provide care to pregnant women from pregnancy until the end of the postpartum period (42 days after giving birth).

Assistance is provided to pregnant women, especially high-risk pregnant women, together with cross-sectors according to their respective roles and functions so that pregnant women can go through their pregnancies healthily, undergo safe childbirth and avoid maternal and infant deaths. The purpose of being given a name in the local language is to make it easier to remember and easier for the community to accept, because in the Acehnese language "Kamoe sajan gata" is a language that also has a quite touching and deep meaning. (Jeumpa Health Center Profile, 2019). The "KAMOE SAJAN GATA" innovation began with a strong desire from the Jeumpa Health Center team to reduce maternal and infant mortality rates. This innovation was motivated by a visit to the homes of mothers and babies who had died to conduct verbal autopsies and maternal perinatal audits. Based on this study, it was found that maternal and infant mortality was not only caused by health factors but also by non-health factors that were more dominant, such as socio-cultural factors: customs, traditions, beliefs and the powerlessness of women in making decisions so that the responsibility is not only by health workers but all stakeholders and cross-sectors must support and be actively involved, especially in handling matters related to social factors, traditions, beliefs and culture (Ministry of Health of the Republic of Indonesia, 2022). The purpose of this study was to determine the performance of the implementation of the "KAMOE SAJAN GATA" (Collaborative Assistance for High-Risk Pregnant Women with Cross-Sector) innovation towards reducing the Maternal Mortality Rate in the working area of the Jeumpa Health Center, Bireuen Regency.

METHOD

This research uses a quantitative method, analytical survey type with a cross sectional approach. The research was carried out for 1 month in the period June 2024 in the emergency room at Sultan Suriansyah Hospital, Banjarmasin. The population of this study was pulmonary TB patients treated in the emergency room at Sultan Suriansyah Hospital with 630 patients in 2023 with a monthly average of 53.3 which was rounded up to 53 patients. The total sample was 47 people, the sampling technique uses a purposive sampling technique which is selected based on criteria determined by the researcher. The data collection instrument was a triage checklist sheet and a length of stay checklist. The data analysis used was univariate analysis and bivariate analysis with the Chi Square test to determine the relationship between triage selection and length of stay in pulmonary TB patients at Sultan Suriansyah Hospital, Banjarmasin. This research has been ethically approved by the Sari Mulia University Banjarmasin Ethics Commission No.241/KEP-UNISM/V/2024.

RESULTS

Table 1.
Characteristics of Respondents (n=57)

Category	f	%
Age		
Adolescence (<19 tahun)	5	10,7
Adult (19-59 tahun)	23	48,9
Elderly (≥60 tahun)	19	40,4
Gender		
Male	26	55,3
Female	21	44,7

The results of data processing on respondent characteristics show that the majority of respondents are in the adult age group (19-59 years) with a total of 23 out of 47 people (48.9%) and male with a total of 26 out of 47 people (55.3%).

Table 2.
Triage Selesction (n=57)

Category	f	%
Red	10	21,3
Yellow	23	48,9
Green	14	29,8

The results of data processing for the triage selection variable show that the majority of respondents are in the yellow triage with a total of 23 out of 47 people (48.9%).

Tabel 3.
Length of Stay (LOS)

Category	f	%
<6 hours	13	29,8
≥6 hours	33	70,2

The results of data processing for the length of stay (LOS) variable showed that the majority of respondents were treated for ≥6 hours, with 33 out of 47 people (70.2%).

Table 3.
Relationship between Triage Selection and Length of Stay (LOS) (n=57)

	Length of Stay (LOS)				Total	
	≥6 hours		<6 hours			
Triage Selection	f	%	f	%	f	%
Red	9	19,1	1	2,1	10	21,3
Yellow	23	48,9	0	0,0	23	48,9
Green	1	2,1	13	27,7	14	29,8
p value = 0,000						

The results of the chi qsuare test show a p value of 0.000, so it means that Ha is accepted, which means there is a relationship between triage selection and length of stay for pulmonary TB patients in the emergency room at Sultan Suriansyah Hospital, Banjarmasin. The cross table shows that the majority of respondents in the yellow triage had a length of stay of ≥6 hours with a total of 23 out of 47 people (.48.9%).

DISCUSSION

Triage

The results of data processing on respondent characteristics show that the majority of respondents belong to the adult age group (19-59 years) with a total of 23 out of 47 people (48.9%). The youngest respondent was 11 years old, the oldest respondent was 82 years old and the average respondent was 49.17 years old. Researchers assume that the large number of respondents with pulmonary TB who are adults (average 49 years) in this study occurs because it is related to the aging process which makes patients susceptible to infection by pathogens that cause pulmonary TB. Researchers are of the opinion that respondents with an average age of 49 years experienced many pulmonary TB due to a decrease in the body's immune system due to the aging process. The researcher's opinion is supported by the theory presented by Irianti et al., (2021) which states that the aging process starts from the age of 30 and becomes more progressive with age. This aging process is characterized by the slow death of several body cells so that the body's systems experience a decline in function, including the immune system, which makes a person susceptible to infection with various diseases. This is supported by the results of previous research by Sunarmi and Kurniawaty (2022) which shows that the incidence of pulmonary TB increases with age and is confirmed by the results of previous research by Nopita, Suryani and Siringoringo (2023) which shows a relationship

between age and the incidence of pulmonary TB (p = 0.045). The solution that can be taken by respondents who are entering aging age (above 30 years) is to improve their lifestyle such as maintaining their diet, quality of sleep, doing regular physical activity and avoiding stress (Rejeki & Prasetya, 2022).

The results of data processing on the characteristics of respondents show that the majority of respondents are male with a total of 26 out of 47 people (55.3%). The results of this research are supported by the results of previous research by Marleni, Syafei and Saputra (2020) which shows a relationship between gender and the incidence of TB (p = 0.047). Researchers assume that the large number of male respondents suffering from pulmonary TB occurs due to differences in lifestyle with female respondents because men have more frequent contact with cigarette smoke and other pathogens which can increase the risk of contracting pulmonary TB. This assumption is based on the theory presented by Sangadji et al., (2024) which states that men suffer more from pulmonary TB than women because men's lifestyles make them more frequently exposed to cigarette smoke and alcoholic drinks, which can reduce the body's defense system. This is supported by the results of previous research by Noris et al., (2023) which shows a relationship between cases of active smoking and passive smoking and the incidence of pulmonary TB (p = 0.001) where active smokers are more susceptible to TB.

Smoking can cause histological changes in the lower respiratory tract including peribronchial inflammation, fibrosis, intestinal vascular thickening, and destruction of alveoli so people diagnosed with TB should often be asked about their smoking history and should be advised on smoking cessation as a practical approach to lung health (Handayani & Sumarni, 2021). The results of data processing for the triage selection variable show that the majority of respondents are in the yellow triage with a total of 23 out of 47 people (48.9%). The majority of TB patients in this study required immediate treatment but were not life-threatening with ineffective airway clearance nursing problems (D.0001) so they were included in the yellow triage category. Triage determination is carried out by nurses in the emergency room at Sultan Suriansyah Banjarmasin Hospital as soon as the patient enters the emergency room using the principles of assessing the airway, breathing and circulation.

The triage system used in the ER at Sultan Suriansyah Hospital, Banjarmasin is the emergency severity index (ESI) system. According to (Makkasau et al., 2022) The ESI triage system consists of 4 color components according to the severity of the patient's condition. Red triage (immediate or T1 or Priority 1) are patients whose lives are in danger and require immediate treatment; yellow triage (delayed or T2 or Priority 2) namely patients whose lives are not in immediate danger, requiring urgent but not immediate medical treatment; green triage (minimum or T3 or Priority 3) namely patients with minor injuries; and black triage (hopeful or not priority) namely patients who have died or have serious injuries that cannot be saved with the limited resources available. The results of this research are in line with previous research by Januarista, Indriyani and Siauta (2024) which shows that the majority of respondents in the ER are included in the yellow triage category (43.7%) and the research shows that there is a relationship between the triage category and the level of family anxiety (p = 0.004) so that nurses must be able to maximize the triage process and minimize family anxiety through therapeutic communication, especially for families who endure long waiting times. The triage selection process was carried out by nurses without any checklist evidence or documents that support documentation of the triage process so that researchers could not prove the implementation of the tiage process at the research location. Based on the results of previous research by Sari et al., (2022) The implementation of triage in the ER still needs to be

standardized and documented because the implementation of triage is still not good (60%) and there are no standardized infrastructure in the triage process (60%).

Length of Stay

The results of data processing for the Length of Stay (LOS) variable show that the majority of respondents were treated for ≥6 hours with a total of 33 out of 47 people (70.2%). The results of this research are in line with previous research by Sutarya (2022) which showed that the majority of respondents in the ER had LOS > 6 hours (76.8%). The length of patient care or length of stay (LOS) really determines the level of efficiency of service to patients so that it can be used as an indicator of the quality of service in a hospital (Darmawan, 2021). Longer length of stay for patients when compared to the average length of stay (ALOS) can indicate poor medical performance and quality because patients need a longer time to reach a stable condition (Oktamianiza & Afridon, 2022). The longer the patient's LOS, the higher the risk of exposure to the source of infection in the patient (Wahyuningsih et al., 2022).

The average length of stay for respondents was 6 hours 17 minutes. Every patient who enters the emergency room with suspected TB at Sultan Suriansyah Regional Hospital must go through a consultation with the doctor in charge and have a BTA examination in the laboratory for all TB patients, both patients with new suspicions and drug-resistant TB (TB RO) patients, so it takes a long time before admission. to the inpatient room. This is in line with previous research by Harahap et al., (2022) which shows that the time for supporting examinations is a factor that is related to LOS in the ER (p = 0.000) so that collaboration with laboratory staff is needed to reduce the length of stay of patients in the ER because it has the potential to cause a backlog of patients.

Relationship between Triage Selection and Length of Stay

The results of the chi qsuare test show a p value of 0.000, so it means that Ha is accepted, which means there is a relationship between triage selection and length of stay for pulmonary TB patients in the emergency room at Sultan Suriansyah Hospital, Banjarmasin. The results of this research are in line with previous research by Indriyani (2020) which shows that there is a relationship between triage method and length of stay (p = 0.000). The cross table shows that the majority of respondents in the yellow triage had a length of stay of ≥6 hours with a total of 23 out of 47 people (.48.9%). Based on the master table data recapitulation, it is known that patients in red triage have an average length of stay of 8 hours 28 minutes, patients in yellow triage have an average length of stay of 8 hours 16 minutes and patients in green triage have an average length of stay of 8 hours 16 minutes. of stay for 2 hours 12 minutes. So the researchers assume that the worse the patient's condition, the longer the patient's length of stay until he is stable and can leave the emergency room. This assumption is supported by previous research by (Sutarya, 2022) which shows that there is a relationship between triage and length of stay (p = 0.001) where patients with red and yellow triage have a longer length of stay in the ER.

According to Maulana (2023) the complexity or severity of a disease can affect the workload of medical personnel so that the more complex the disease, the longer the time required for medical personnel to treat patients. If this situation continues to recur, it can result in lengthening the patient's service time in the ER. Extending patient service time in the ER also has an impact on the risk of undesirable events such as accumulation of patients, delays in service, increased morbidity and mortality rates, as well as other detrimental things, especially in critical patients. The increasing number of patients in the emergency room can also affect patient satisfaction, which can lead to complaints about the hospital, resulting in a decline in

the hospital's image. The solution that the hospital can take to overcome this is by adding more health workers to share the workload in the ER.

CONCLUSION

The majority of respondents were categorized as yellow triage with a total of 23 out of 47 people (48.9%) and were treated for ≥6 hours with a total of 33 out of 47 people (70.2%). The chi square test results show a p value of 0.000 < α 0.05 so that Ha is accepted, which means there is a relationship between triage selection and length of stay for pulmonary TB patients in the emergency room at Sultan Suriansyah Hospital, Banjarmasin. The conclusion is Yellow triage patients have a length of stay that exceeds the average so that the patient's family is expected to be able to understand and hand over nursing actions to professional health workers so that the care provided can run smoothly.

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