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The Role Of Family Support And Self-Efficacy On Self-Care Behavior In The Elderly With Type 2 Diabetes

Erika Chandra Dewi [1], *Umdatus Soleha* [2], *Ratna Yunita Sari* [3]

[1, 2, 3] *Universitas Nahdlatul Ulama Surabaya, Surabaya, Indonesia*

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CORRESPONDENCE

E-mail: ratna@unusa.ac.id

No. Tlp : +6287853911856

A B S T R A C T

Diabetic self-care is an effort to control type 2 diabetes. Family support and self-efficacy are need for the elderly with type 2 diabetes mellitus to increase independence in managing their disease. This study investigates the correlation between family support and self-efficacy with self-care behavior in the elderly with type 2 diabetes. This study was a correlational analysis using a cross-sectional approach. There were 100 respondents with simple random sampling. The independent variables were family support and self-efficacy, while the dependent variable was self-care behavior. The instrument to measure family support was the Hensarling Diabetes Family Support Scale (HDFSS), and to assess self-efficacy was the Diabetes Management Self Efficacy Scale (DMSES). Meanwhile, the instrument to evaluate self-care behavior was the Summary Diabetes Self Care Activities (SDSCA). The analysis utilized the Rank's Spearman test with a significant p <0.05. The results showed a correlation between family support and self-care with p=0.006 ($p \leq 0.05$) and an association between self-efficacy and self-care with p=0.001 ($p \leq 0.05$) in the elderly with type 2 diabetes. Family support and self-efficacy play an essential role in carrying out self-care behavior in the elderly with type 2 diabetes, so there is a need for family assistance and increased self-efficacy in carrying out self-care.

INTRODUCTION

Diabetes is a suboptimal insulin use in the body. This condition occurs due to increased blood glucose that exceeds the body's normal limits ((Rahmawati, Nursasi & Widyatuti, 2018)). Self-care is the basis for controlling diabetes and preventing complications. Increasing self-care activities will have an impact on improving the individual's health status. But in reality, most people with diabetes have not consistently carried out proper self-care activities. The low self-care carried out by them will harm their health status. Its manifestations are uncontrolled blood sugar and increased complications (Susanti & Bistara, 2018). Prolonged therapy and management for people with diabetes can cause boredom and even frustration. Therefore, it requires both internal and external motivation for patients to undergo all diabetes treatment therapy (Bistara & Ainiyah, 2017).

World Health Organization (WHO) predicts the prevalence of diabetes globally increases progressively every year to reach three times in 2030, which is 21.3 million. The International Diabetes Federation estimates it will touch 16.7. million in 2045 (International Diabetes Federation, 2019). According to Basic Health Research (Riskedas), the prevalence of self-care in people with diabetes was very low in Indonesia, namely 1.8% in 2018. Irregularity of taking anti-diabetes drugs in them as much as 9% in 2018

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because they feel already healthy (50.4%), no routine treatment (30.2%), traditional medicine use (25.3%), often forgetting (18.8%), and unable to buy medicine regularly (8,5%) (Kemenkes RI, 2018). Based on the data obtained from the Elderly Integrated Health Service Post (from now on, it is named with posyandu lansia) Wadungasri Village, Waru District, Sidoarjo Regency, There was 132 elderly living with diabetes. They had poor self-care behavior because their willingness and support to carry out self-care was very low. There was no proper self-care in diabetic elderly at posyandu lansia Wadungasri Village.

Family support has a positive effect on compliance in implementing self-care. People with diabetes have cognitive impairments and often rely on their families to help with self-care. Their self-care requires lifestyle modification plus the family's role to strengthen self-confidence, which leads to changes in self-care behavior (Mohebi et al, 2018; (Ravi, Kumar & Gopichandran, 2018). According to Firmansyah (2018), self-efficacy is the beliefs that exist in the patient. Changing or improving it will help enhance self-care independently. Self-care in people with diabetes improves their health status, and self-care includes dietary regulation, physical activity, periodic blood glucose monitoring, regular taking of medication, and doing foot care (Yao et al., 2019). Inadequate self-care will harm their lives and increase the risk of complications (Chaidir, Wahyuni & Furkhani, 2017).

There is a correlation between inadequate self-care and self-efficacy. Self-efficacy is a person's mindset to extensively regulate a human being's motivation and actions (Bandura, 1986). Self-efficacy can help know and see the strength of setting goals and holding fast in carrying out self-care behavior, which has become the goal (Amer et al., 2018)). Based on the above background, the authors want to prove whether there is a correlation between family support and self-efficacy with Self Care Behavior in the Elderly with Type 2 Diabetes Mellitus at the Posyandu Lansia in Wadungasri Village, Sidoarjo".

METHOD

The research design used qualitative analysis with a cross-sectional approach. This study population was 132 elderlies with type 2 diabetes at posyandu lansia Wadungasri Village. The number of samples in the study was 100 respondents with a simple random sampling. Inclusion criteria were elderly with type 2 diabetes, willing to be respondents, able to read and write and communicate well. The exclusion criteria were individuals with type 2 diabetes who experienced complications. The instrument utilized three standard questionnaires. To evaluate family support used the Hensarling Diabetes Family Support Scale (HDFSS) from (Hensarling, 2009), to assess self-efficacy utilized the Diabetes Management Self Efficacy Scale (DMSES) from Haghayegi, Ghasemi, Neshatdoost & Kajbaf (2010) Meanwhile, to measure self-care behavior took the Summary Diabetes Self Care Activities (SDSCA) questionnaire from Toobert, Hampson & Glasgow (2000). HDFSS includes questions about emotional support, appreciation support,

instrumental support, and information support with a total of 29 queries. DMSES contains 15 items about dietary regulation, physical activity, monitoring sugar levels, medication therapy, and general care. Meanwhile, SDSCA includes diet management, physical exercise, glucose monitoring, regular medication, and foot care with 17 questions. Data analysis used Spearman's rank Test with $p < \alpha = 0.05$, with ordinal variables. The research was carried out after obtaining approval from The Ethics Committee of the UNUSA Institute with No.139 / EC / KEPK / UNUSA / 2020. The study was conducted in June 2020.

RESULT

Research obtained respondent's characteristics, family support, Self Efficacy, and Self Care. Respondents Characteristics based on demographic data include:

1. Univariate Analysis

Tabel 1. Respondents Characteristics

No	Characteristics	Respondents (n=100)	
		Frequency	Percentage
1	Age (years)		
	Early elderly (46-55)	88	88
	Late elderly (56-65)	12	12
2	Work		
	Working	60	60
	Not working	40	40
3	Gender		
	Male	44	44
	Female	56	56
4	Education levels		
	Basic (elementary school to junior high school)	25	25
	Intermediate (senior high school)	69	69
	High (university)	6	6
5	Family support		
	Good	74	74
	Inadequate	26	26
6	Self-efficacy		
	Good	40	40
	Adequat	59	59
	Inadequate	1	1
7	Self-care behavior		
	Good	42	42
	Inadequate	58	58

Table 1 shows that most respondents are early elderly (88%), female (56%), an intermediate education level (69%), and actively working (60%). Meanwhile, in the study's variables, most of them have good family support (74%), adequate self-efficacy (59%), and inadequate self-care behavior (58%).

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Table 2. Correlation between Family Support and Self-Care Behavior in the Elderly with Type 2 Diabetes

Family Support	Self Care					
	Good		Less		Total	
	f	%	f	%	f	%
Good	37	50	37	50	74	100
Inadequate	5	19,2	21	80.8	26	100
Total	42	42	58	58	100	100
Spearman's Rank Test	p = 0.006					

Table 2 describes that half of the adequate family support (50%) have adequate self-care behavior, and almost all of them (80.8%) have inadequate self-care behavior. The Spearman rank test analysis shows p = 0.006 with a α <0.05 and the correlation coefficient of 0.273, which means the medium significant correlation between family support and self-care behavior in the elderly with type 2 diabetes.

Tabel 3. Correlation between Self-efficacy and Self-care Behavior in the Elderly with Type 2 Diabetes

Self-efficacy	Self-care behavior					
	Good		Inadequate		Total	
	frequency	Percentage (%)	frequency	Percentage (%)	frequency	Percentage (%)
Good	25	62.5	15	37.5	40	100
Adequate	16	27,1	43	72.9	59	100
Inadequate	1	100	0	0	1	100
Total	42	42	58	58	100	100
Spearman's Rank Test	p = 0.001					

Table 3 explains that from 40 respondents who have good self-efficacy, 62.5% have good self-care behavior. 72.9% of 59 respondents have less self-care. One respondent with good self-care behavior has less self-efficacy (100%). The Spearman Rank analysis shows p=0.001 with a α <0.05 and the correlation coefficient of 0.319, which showed a medium significant correlation.

DISCUSSION

1. Family support

In this study, most respondents got good support from their families. The authors believe that family support shows care for fellow family members. The family can compensate for family members with health problems to provide practical support consistently. This opinion is in line with a study by (Sudarman & Solissa (2020), which stated no separation between adherence and self-care behavior in people with diabetes with family support's significant role. The more incredible and optimal family support, the more patient compliance in implementing self-care as recommended.

The family is the predisposing factor for diabetic people in their support (Rahmawati, Nursasi & Widyatuti, 2018; (Bistara, et al 2020). It is the closest person to the environment and is easy to reach, especially in Indonesia, where the diabetic people lives with his family. The family has a massive role in providing direction for life to be healthy for family members, especially those who live with diabetes. The family is the most appropriate person to be their caregiver. The environment that exists in the family can

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have a positive influence. This study showed that family support correlated with self-care behavior. It is in line with a study by Prasetyani et al. (2018) which stated that family support is significantly associated with self-care abilities in diabetic people.

2. Self-efficacy

Most elderly with type 2 diabetes had adequate self-efficacy. Self-efficacy is very important for diabetic people. When the self-efficacy is low, doing self-care will be hampered. On the contrary, when self-efficacy is good, self-care behavior will be more obedient. This opinion is in line with the research of Handayani, Putra & Laksmi (2019) which reported that the higher the self-efficacy, the higher the compliance level in carrying out self-management of diabetic people. As a result, hopes or desires to improve health status or recover were more significant.

According to Handayani, Putra & Laksmi (2019), self-efficacy was the essential element to increase compliance in diabetic individuals in terms of self-management or self-care. The formation of a person's self-efficacy is obtained from experienced others by fostering self-confidence to affect the behavior to carry out well-planned tasks and goals, such as self-care compliance.

3. Self-care Behavior

This study showed that most respondents had inadequate self-care. Wrong perceptions can influence self-care implementation. Besides, the lack of self-care is because of a lack of confidence, so that there is insufficient self-care. This opinion is in line with Prasetyani et al. (2018) 's research that less self-care was likely due to other factors that affect uncontrolled self-care abilities, namely stress and social support from health workers, culture, and complications. Likewise, with Sudarman & Solissa (2020) research, respondents' external factors (such as low experience in doing self-care for diabetic people) resulted in inadequate self-care.

4. The correlation between family support and self-care behavior in the elderly with type 2 diabetes

Hanifah (2019) stated that the better family support, the better self-care. This opinion is in line with Ravi, Kumar & Gopichandran (2018) They reported that diabetic people with sufficient support from their families could influence the success rate in dealing with and overcoming their problems better than those who were not. This study also found an association between family support and self-care in the elderly with type 2 diabetes mellitus. They had good family support to elevate their self-confidence and hope in self-care behavior.

5. The correlation between self-efficacy and self-care behavior in the elderly with type 2 diabetes mellitus

According to research by Setyorini (2018), good self-efficacy indicated readiness to change behavior and willingness to perform behavior self-care, thereby reducing the fear of failure. This study found a

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correlation between self-efficacy and self-care behavior in the elderly with type 2 diabetes. The presence of good self-efficacy can increase adherence. It maintains the required behavior in self-care.

Self-care behavior in the elderly with diabetes controls blood sugar by eating control, physical activity or exercise, monitoring blood sugar levels within normal limits, taking the medication regularly, and foot care (Prasetyani et al. 2018). There will be good self-care behavior when there are family support and self-efficacy. In diabetic management, the family must understand the importance of dietary regulation, elderly physical activity, regulating blood sugar levels, and foot care (Ainiyah & Martining, 2021; Ravi et al., 2018). Family support can influence self-care behavior, but self-efficacy also has a significant role in building it. Self-efficacy plays a role in self-belief in carrying out self-care. Diabetic elderly must appropriately implement self-efficacy because it only can be carried out by themselves, so they need to instill confidence (self-confidence) in carrying out these self-care behaviors (Amer et al., 2018).

CONCLUSION

This study indicates that family support and self-efficacy correlates with self-care behavior in the elderly with type 2 diabetes. Family support to the elderly with type 2 diabetes will help maintain health. Besides, self-efficacy also has a significant role in older people's self-care behavior with type 2 diabetes. Good self-efficacy can increase adherence and maintain their health status.

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The Correlation Between Nutritional Status And Urine Glucose With Estimated Fetal Weight In Trimester III Pregnant Women At Prima Husada Hospital

Nur Masruroh [1], *Andreas Putro Ragil Santoso* [2]

[1, 2] *Universitas Nahdlatul Ulama Surabaya, Surabaya, Indonesia*

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CORRESPONDENCE

E-mail: masruroh@unusa.ac.id
andreasprs87@unusa.ac.id
No. Tlp : +6281332630941

A B S T R A C T

Estimated fetal weight is needed to predict fetal birth weight. Its predisposing factors are maternal nutritional status, age, and gestational spacing, and pregnancy complications. A pregnant woman's nutritional status consists of the Body Mass Index (BMI) and upper arm circumference. Urine glucose describes the existence of glucose in the urine. A baby's well-being in the womb can be measured through the estimated fetal weight based on gestational age. This study aims to determine the correlation between nutritional status and urine glucose with estimated fetal weight. It was conducted at the Prima Husada Hospital Sidoarjo during May-July 2020. It was a cross-sectional study with 30 respondents by purposive sampling. Independent variables were body mass index (BMI), upper arm circumference, and urine glucose, while the dependent variable was fetal weight estimation. The instrument to evaluate BMI was WHO's standard. To assess the mother's upper arm circumference was the Maternal and Child Health book, and to examine urine glucose using the dipstick method. Meanwhile, to calculate estimated fetal weight utilized the Johnson Tausack formula. Data analysis took the chi-square/Fisher exact test with a significance value of $p<0.05$. The analysis chi-square between BMI and estimated fetal weight obtained $p = 0.337$ ($p> 0.05$). Its analysis between urine glucose and fetal weight estimates had $p = 0.19$ (> 0.05). Meanwhile, its analysis between upper arm circumference and estimated fetal weight got $p = 0.03$ (<0.05). In conclusion, the upper arm circumference correlates with estimated fetal weight. Meanwhile, body mass index and urine glucose do not associate with estimated fetal weight in pregnant women in the third trimester. Women should prepare themselves before pre-pregnancy for future generations. As women's friends, midwives must routinely carry out health education to improve women's health status.

INTRODUCTION

For a woman, pregnancy is one of the happy and essential times in her life cycle. During pregnancy, a mother must prepare herself for her baby's birth. When she is in good health, she will give birth to a physically fit and perfect baby and has enough body weight. The gestation period starts from conception until the fetus's birth. The usual range of gestational age is 280 days or 40 weeks, starting from the first menstruation of the mother's last menstruation.

Maternal mortality rate (MMR) is an indicator of public health and a measure of the health sector's success. The MMR incidence describes the magnitude of health problems and the quality of health services and resources. It is one target that has been determined in the fifth Sustainable Development Goals (SDG) to improve maternal health. The Indonesian Ministry of Health is required to work hard to reduce the death rate to the target of 102 out of 100,000 live births by 2030 (Kementerian Kesehatan RI, 2018).

The body mass index (BMI) describes pregnant women's nutritional status at the beginning of pregnancy. The health worker can determine how much pregnant women are encouraged to gain weight from the

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BMI. It aims to meet the fetus's nutritional needs and prepare for the birth process. Besides, for first-time pregnant women or primigravida, health workers will measure the upper arm's circumference to determine the pregnant woman's nutritional status. When her arm circumferences are less than the health standard, the health worker will monitor the pregnancy, especially the fetus's growth in the womb (Laili & Andriyani, 2020)

A pregnant woman's nutritional status must be prepared, both from body weight and upper arm circumference. Normal nutritional status occurs when body weight is appropriate with height. Adverse effects of deficient nutritional status include growth, formation, and fetal organ development less than optimal. Furthermore, there will be congenital disorders in babies born, preterm babies, and low birth weight (less than 2500 grams). This condition can even lead to death in infants (Hidayah & Khusna, 2015).

The nutrition in pregnant women is closely correlated with the baby's weight to be born. Pregnant women are a group of people who are very vulnerable to nutritional problems. Malnutrition in pregnant women will cause Chronic Energy Deficiency (CED). Babies born to mothers with CED will have Low Birth Weight (LBW), which is less than 2500 grams. A chronic energy deficiency is a lack of energy that harms the mother's health and the fetus's growth and development. Pregnant women are categorized as chronic energy deficiency if the upper arm circumference is <23.5 cm (Laili & Andriyani, 2020)

Estimating fetal weight is considered necessary during pregnancy because intrauterine fetal growth is not constant. It occurs rapidly at the beginning of the period, then slows down as gestational age increases and is associated with an increased risk of complications during labor for mothers and babies, such as low birth weight or excess birth weight (Santjaka and Walin, 2011)

Estimating the fetus's weight is one of the crucial tasks for midwives and other practitioners. They can predict labor difficulties experienced by pregnant women and count the weight baby born. Midwives will prepare for delivery and other challenges such as hemoglobin levels, pelvic width, and early labor history. Estimated fetal weight based on fundal height is universal regardless of local conditions, such as race, genetics, and geographic conditions (Astriana, 2019)

Glucosuria is glucose in the urine – usually when the serum glucose is> 180mg/dL. Excretion of glucose in urine occurs when glucose levels in the blood increase and cannot be (Welliangan et al., 2019) An increase in serum metabolites in the mother with glucose in the urine will trigger an increase in the transfer of nutrients to the fetus to cause hyperglycemia in the uterine environment. It can change the fetal body's composition and growth so that the estimated fetal weight measurement will appear more prominent than the gestational age. It will result in hypoglycemia, polycythemia, hyperbilirubinemia, respiratory complications, fetal overgrowth, or macrosomia. This study investigates the correlation between nutritional status and urine glucose on the estimated fetal weight in pregnant women.

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METHOD

This study used a descriptive-analytic method with a cross-sectional design. The population was third-trimester pregnant women at Prima Husada Hospital, Sidoarjo, in May-July 2020, with 30 respondents by purposive sampling. The inclusion criteria were normal pregnant women without complications of pregnancy and comorbidities. Independent variables were body mass index (BMI), upper arm circumference, and urine glucose, while the dependent variable was fetal weight estimation. The instrument to evaluate BMI was the body mass index data before pregnancy using the WHO's standard (underweight: 17.0-18.4 kg/m2; normal: 18.5-25.0 kg/m2; and overweight: 25.1- 27.0 kg/m2). The instrument to assess the mother's upper arm circumference was the Maternal and Child Health book with a normal value of upper arm circumference> 23.5. To examine urine glucose using the dipstick method – negative when a color change becomes yellow and positive when there is a color change to orange, red, or brick red. To calculate estimated fetal weight utilized the Johnson Tausack formula, with the formula (TFU-N) x 155 in grams with an N value of 11 or 12 adjusted for the baby head position. Data were processed using the SPSS 20 program. Data analysis took the chi-square / Fisher exact test with a significance value of $p<0.05$.

RESULT

Table 1 Characteristics of Respondents by BMI, Upper Arm Circumference and urine glucose in pregnant women in the third Trimester at Prima Husada Hospital

Variables	Frequency	Percentage (%)
Body Mass Index		
Underweight	0	0
Normal	26	86.6
Overweight	4	13.4
Upper arm circumference		
< 23,5	2	6.6
> 23,5	28	93.4
Urine glucose		
Negative	23	76.6
Positive	7	23.4

Table 1 describes that most respondents have a normal body mass index (86.6%), normal upper arm circumference (93.4%), and negative urine glucose examination (86.6%).

Table 2 Estimated Fetal Weight in Pregnant Women in The Third Trimester at Prima Husada Hospital

Estimated Fetal Weight	Frequency	Percentage
Appropriate with gestational age	25	83.3
Inappropriate with gestational age	5	16.7

Table 2 explains that most respondents have an estimated fetal weight appropriate with their gestational age (83.3%).

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Table 3 Correlation Between Nutritional Status and Urine Glucose with Estimated Fetal Weight

Variables		Estimated Fetal Weight		p-value
		Appropriate with gestational age	Inappropriate with gestational age	
Body mass index	Underweight	0	0	0.337
	Normal	22	4	
	Overweight	3	1	
Upper arm circumference	<23,5	0	2	0.03
	≥23,5	25	3	
Glucose urine	Negative	22	1	0.19
	Positive	3	4	

Table 3 shows that p=0.337 (p>0.05) means no correlation between body mass index and estimated fetal weight. The value of p=0.03 (p<0.05) implies a correlation between upper arm circumference and the estimated fetal weight. Then, p=0.19 (p> 0.05) means no association between urine glucose and the estimated fetal weight.

DISCUSSION

There was a correlation between the upper arm circumference and estimated fetal weight. It is in line with research that upper arm circumference was associated with estimated fetal weight (Astriana, 2019; Hidayah and Khusna, 2015). Other studies also stated an association between the upper arm circumference in pregnant women and the baby's birth weight (Putri, 2017; Vitriani, Ardyta and Hamidah, 2018; Astriana, 2019).

Upper arm circumference is a more accessible and more practical measurement of nutritional status because it only uses one measuring instrument, namely the upper arm circumference measuring tape. However, the upper arm's circumference can only be used for screening purposes, not for monitoring. Especially for pregnant women, the upper arm's circumference shows chronic energy deficiency risk. In general, Indonesian women do not know their prenatal weight, so the pre-pregnancy BMI cannot be measured. The BMI measurement requires two tools: a scale and a height meter. Its tools require specific requirements that must be met, such as the calibration of the weighing equipment and a hard and flat floor for height measurement. Therefore, the upper arm circumference helps detect the risk of chronic energy deficiency in pregnant women because the upper arm circumference is relatively stable. It has been a risk indicator of chronic energy deficiency for pregnant women in Indonesia because there is no pre-pregnancy weight in most pregnant women. So far, the upper arm circumference threshold is 23.5 cm. The recommendation is to use the upper arm circumference threshold of 24.95 cm to detect the risk of chronic energy deficiency in women aged 20-45 years, while 23.5 cm to estimate baby's weight (Ariyani et al., 2012).

CED causes pregnant women not to have adequate nutritional reserves to provide physiological pregnancy needs – hormonal changes and increased blood volume for fetal growth. As a result, there is a

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reduced fetus's supply of nutrients and stunted fetus's growth and development. Furthermore, they will have low birth weight (Putri, 2017).

Most respondents who had normal BMI showed an appropriate estimated fetal weight with gestational age. Only a few respondents who had normal BMI exhibited an inappropriate estimated fetal weight with gestational age. Body mass index did not correlate with estimated fetal weight. This result occurs because the fetus's genetic weight during pregnancy is influenced by age, birth spacing, normal weight of pregnant women, hemoglobin levels, and disease presence during pregnancy. Fetal weight in the womb is an important and reliable indicator of neonatal survival (physical growth, development, and mental status). Age, diet, genetics, and mother's activity predispose factors in pregnant women's body mass index. So mothers with normal body mass index and high activity can have an estimated fetal weight appropriate for their gestational age. Body mass index does not differentiate between muscle levels and fat levels in the body. A study reported that mothers' average pre-pregnancy BMI was 22.3 ± 3.9kg/m2 (the smallest BMI 17kg/m2 and the most significant BMI of 30 kg/m2), and the average birth weight was 2800 ± 390.8 grams (the smallest was 2200 grams and the largest was 3800 grams). The average birth length was 48.3 ± 1.4cm, with the shortest body length of 46 cm and the longest 50 cm. The pre-pregnancy BMI (nutritional status) correlated with the estimated baby birth weight and length (Ningrum & Cahyaningrum, 2018).

Most respondents who had negative urine glucose tests showed an appropriate estimated fetal weight with gestational age. Only a few respondents who had positive glucose tests exhibited an inappropriate estimated fetal weight with gestational age. Urine glucose did not correlate with estimated fetal weight. Glucose will be secreted into the liver to be stored as fat reserves in the body, which in the end will increase the mother's weight. This result probably occurs because of false-positive urine glucose tests because of excess sugar consumption before the test. The dipstick method examination is carried out randomly without fasting or reducing sugar consumption excess before checking urine glucose. Factors that cause positive urine glucose test results are excess sugar consumption before the test, gestational diabetes, or liver disease.

Glucosuria is a condition of glucose urine. One of the causes of glucosuria is diabetes. The risk of maternal and infant mortality increases in pregnancy with diabetes. Gestational diabetes mellitus (DMG) is diabetes diagnosed in the second or third trimester of pregnancy that is not diabetes before pregnancy. The chance of DMG in women with a history of diabetes in the family was 3.46 greater. In this study, primigravidas with negative glucosuria were more than positive glucosuria, namely three samples (10%). Urine glucose levels are closely correlated with blood glucose levels. Several factors influence the increase in blood glucose, especially in GDM. The most likely factors in this study were primigravida and

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a family history of diabetes. High glucose levels in the body at risk indicate a big baby at birth (Welliangan et al., 2019)

It is essential to measure a woman's body weight before the pregnancy to anticipate the complication risks. One of the methods commonly used to estimate a newborn's weight is to use the estimated fundal uterine height with the Johnson formula. This formula is calculated based on the fundal height (FH), which is the distance from the top of the pubic bone (pubic symphysis) to the top of the uterus (fundus) in centimeters (cm) minus 11,12,13. The result is times 155, and the baby's weight is in grams. The Johnson Toshack formula: BB = (FH- N) x 155. All respondents' TFU measurement in the head position is below the ischial spine, so the TFU calculation is N = 11 (Santjaka et al. 2011)

Calculation or estimation of fetal weight is vital in antenatal care performed during pregnancy and before delivery. Determining the estimated fetal weight during pregnancy can reduce the morbidity and mortality rates associated with complication risks during the delivery process. The accuracy of the assessment of fetal weight will also affect the management of delivery. There are several ways to determine the estimated fetal weight, including measuring the uterine fundus' height and using an ultrasound examination (USG). Fundal height measurement can be done by all health workers, practical, relatively simple, and with reasonable accuracy (Simanjuntak & Simanjuntak, 2020).

CONCLUSION

The upper arm circumference correlates with estimated fetal weight. Meanwhile, body mass index and urine glucose do not associate with estimated fetal weight in pregnant women in the third trimester at Prima Husada Hospital. All women should prepare themselves before pre-pregnancy for future generations. As women's friends, midwives must routinely carry out health education to improve women's health status.

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The Length Of Stay In Patients Undergoing Diagnostic MRI And CT-Scan With Intravenous Anesthesia At Outpatient Clinic Dr. Soetomo General Hospital: An Overview

Virda Maharani [1], Arie Utariani [2], Lucky Andriyanto [3], Bambang Harjono [4]

[1, 2, 3, 4] *Anesthesiology and Reanimation Department of Medical Faculty of Universitas Airlangga / Soetomo General Hospital, Surabaya, Indonesia*

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CORRESPONDENCE

E-mail: vmaharani.anes@gmail.com

No. Tlp : +628123301587

A B S T R A C T

Magnetic Resonance Imaging (MRI) and Computerized Tomography (CT) Scans might be challenging for children or individuals with anxiety or claustrophobia. General anesthesia aims to increase the success rate, but inadequate management can result in a longer length of stay. This study aims to analyze patients' length of stay on MRI and CT-scan with intravenous anesthesia. This was a descriptive observational study. The data were collected retrospectively from the medical records at General Diagnostic Center Dr. Soetomo General Hospital. A total of 721 patients underwent MRI or CT Scan procedures with intravenous anesthesia during 2017-2018. The data obtained were patients' age, gender, procedure, physical status, comorbid, type of anesthesia drug, diagnostic procedure duration, length of observation in the Post Anesthesia Care Unit (PACU), and overall length of stay. All MRI procedures used a midazolam-propofol combination. Meanwhile, only one CT scan procedure used those combinations, and other CT scan procedures utilized propofol. Patients undergoing MRI had a length of stay with a mean duration of 6,6,3±1,26 hours, compared to CT scans with 5,20 ±1,38 hours, due to the lengthier procedure and observation duration in the PACU. Patients undergoing MRI have a longer overall length of stay than the ones doing CT scans.

INTRODUCTION

Magnetic Resonance Imaging (MRI) and Computerized Tomography (CT) Scans have been widely used in Indonesia. These diagnostic procedures require patients to stay still for a certain amount of time during the process, which might be hard to achieve for patients with certain conditions, such as children and patients with anxiety or claustrophobia. General anesthesia to increase these diagnostic procedures' success rates has been commonly used (Bailey et al., 2016; Choi et al., 2018; Rubin, 2014).

According to Mujiburrahman, there were 1.399 and 1.048 procedures in 2015 and 2016 in the General Diagnostic Center of Dr. Soetomo General Hospital that used general anesthesia (Mujiburrahman, 2017). Ambulatory anesthesia can lower-risk nosocomial infection, better cost-effectiveness, and shorter length of stay. It can be done in patients with physical status (PS–ASA) I and II; and all ages except premature infants (Lee, 2017).

Recovery post-anesthesia procedures are crucial. After anesthesia, patients are observed in the Post-Anesthesia Care Unit (PACU) then assessed with Modified Aldrete Score before getting discharged. This criteria evaluates activities, respiration, circulation, consciousness, oxygen saturation, scaled 0,1, and 2. The patient can be removed from PACU after reaching a score >9 (Lee, 2017; Shetty & Raveendra, 2015). A study comparing propofol and thiopental found that the recovery time needed in patients who

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used propofol is less than thiopental. The mean of Modified Aldrete Score in PACU was also higher in patients who used propofol (Makwana et al., 2016).

Sometimes, there is a complication in patients undergoing anesthesia. Largo-Pineda et al. showed that adverse effects in children aged less than 15 years old happened to 12 children in a study of 4.786 subjects. The most common negative impact was nausea and vomiting that primarily resulted from inadequate post-anesthesia treatment (Largo-pineda et al., 2017). Poor complication management can result in a longer length of stay. No study ever mentioned how long a patient should ideally stay in the hospital. Therefore, this study aims to analyze patients' overall length of stay undergoing diagnostic procedures such as MRI and CT-scan with intravenous anesthesia.

METHOD

This study was a descriptive observational study. The data were collected retrospectively from the medical records in the General Diagnostic Center of Dr. Soetomo General Hospital, which consisted of 721 patients who underwent diagnostic procedures such as MRI and CT scan with intravenous anesthesia from 2017 until 2018. The inclusion criteria were patients with no history of difficult anesthesia and no acute or chronic respiratory system infection. Exclusion criteria were not enough fasting period, difficult intravenous access, life-threatening organ dysfunction, and incomplete medical record. The sample was chosen using total sampling. The data obtained were patients' characteristics: age, gender, procedure, physical status classification, comorbid, type of anesthesia drug and its dose, diagnostic procedure duration, length of observation in the Post Anesthesia Care Unit (PACU), and patient's overall length of stay. The data presentation was descriptive.

The study was initiated with a research proposal and accepted by research supervisors. Its proposal was assessed for ethical clearance. After our hospital's ethical committee approved it, we proceeded with data collection through medical records and data proceedings.

Data obtained from patients' medical records were then presented as a table consisted of name, age, gender, physical status classification, diagnostic procedure type (MRI or CT Scan), procedure duration, duration of observation in the PACU, and patient's overall length of stay. Data were processed using SPSS 20.0.

RESULT

Subjects' characteristics

A total of 721 patients underwent diagnostic procedures with general anesthesia in our outpatient clinic that fulfilled inclusion and exclusion criteria. There were 319 procedures in 2017 and 402 in 2018. Over

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60% of these procedures are MRIs. There was no significant difference in patients' gender. The highest number was among children 1 to 5-years-old. More than half of the patients were categorized into PS-ASA 2 and had one comorbid (See table 1). 2,1

Table 1. Subjects' characteristics

Characteristics	Frequency (n)	Percentage (%)
Year		
2017	319	44,3
2018	402	55,7
Procedure		
CT Scan	280	38,8
MRI	441	61,2
Gender		
Female	339	47,0
Male	382	53,0

	MRI		CT Scan	
	N		%	
Age group			n	%
0-11 months	47	10,7	64	22,9
1-4.9 years	205	46,5	169	60,4
5-18 years	162	36,7	46	10,5
>18 years	27	6,1	1	0,2
PS – ASA				
1	76	17,2	61	21,8
2	325	73,7	188	67,1
>2	40	9,1	31	11,1
Comorbid				
None	61	13,8	50	17,9
1	249	56,5	145	51,8
2	116	26,3	79	28,2
3	15	3,4	6	2,1

Drugs used in the procedures

All of the MRI procedures used midazolam and propofol combination. Only one CT scan procedure utilized both; most CT scan procedures used propofol only. The propofol dose was 2mg/kg body weight (BW), while midazolam was 0.15/kg BW. The mean dose of midazolam and propofol used in the MRI procedures sequentially were 2,93±2,31 mg and 78±46,24 mg, while the mean dose of propofol used in most of the CT scan procedures was 23,42±15,23 mg.

Table 2. Intravenous anesthesia drugs and doses administered in milligrams

Drug	Frequency of procedures	Min.	Max	Mean	Std. Deviation
MRI					
Midazolam	441	0,48	15,00	2,93	2,31
Propofol	441	9,60	300,00	58,78	46,24
CT Scan					
Midazolam	1	1,31	1,31	1,31	-
Propofol	280	5,80	160,0	23,42	15,23

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Duration of procedures, observation in PACU, and overall length of stay

MRIs took longer than CT scans, with a mean duration of 55,96±15,85 minutes compared to CT scan with a mean duration of 10,31±6,71 minutes. Patients who underwent MRI also took a more extended observation period in the PACU, with a mean duration of 173,61±67,52 minutes compared to CT scans with 135,29 ±62,98 minutes mean duration. Therefore, MRI patients had a longer overall length of stay than CT scans with a mean duration sequentially of 6,6,3±1,26 hours and 5,20 ±1,38 hours.

Table 3. Duration of Procedures in minutes

Diagnostic procedure	Min.	Max	Mean	Std. Deviation
CT Scan	4	70	10,31	6,71
MRI	5	135	55,96	15,85

Table 4. Duration of Observation in the PACU in minutes

Diagnostic procedure	Min.	Max	Mean	Std. Deviation
CT Scan	0	390	135,29	62,98
MRI	20	360	173,61	67,52

Table 5. Patients' overall Length of Stay in hours

Diagnostic procedure	Min.	Max	Mean	Std. Deviation
CT Scan	1,5	9,5	5,20	1,38
MRI	1,5	11	6,63	1,26

DISCUSSION

The anesthesia drugs used in our outpatient clinic's diagnostic procedures were propofol and a combination of propofol and midazolam. All MRI procedures used propofol and midazolam. Meanwhile, only one CT scan procedure used propofol and midazolam, and the other 279 CT scan procedures used propofol only. The mean dose of propofol used in MRI was higher, which was 58,78±46,24 mg compared to CT scan with a mean dose of 23,42±15,23 mg. It was possible because the mean age of patients undergoing MRI was older than CT scan, which also came with heavier bodyweight.

Ambulatory anesthesia commonly uses propofol because of its rapid onset and recovery. However, it has a narrow therapeutic range, so that respiratory distress is more likely to occur when there is carelessness in use. In this combination, midazolam plays a role as a sedation agent chosen because of its rapid onset and short half-life (Dasgupta et al., 2017). A study in the Netherlands showed that the mean dose of midazolam needed to sedate a child less than six years old was twice as required for an adult (Verhage, Mulder & Willekens, 2003). A similar thing did not happen in this study. Despite the differences of patients' age, all procedures used the same small dose of midazolam, which was 0.15mg Kg BW. Its combination with propofol is beneficial for both drug use since the dose of propofol was also small, 2mg/kg BW, which lowered respiratory distress. A study in Korea reported that midazolam as a combination of propofol could reduce the dose of propofol needed, so the odds of respiratory distress

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were lower. The research informed that used only propofol showed the risk of respiratory distress of 7%. In comparison, the ones that used midazolam and propofol combination indicated the risk of respiratory distress of only 2.8% (Kang et al., 2017). Both propofol and midazolam combinations were used in all MRI procedures because the procedure duration took longer than the CT scan.

Diagnostic procedures in patients who needed general anesthesia consist of these phases: risk assessment, history taking, and physical examination; diagnostic procedure; and post-anesthesia observation in the PACU. MRI took longer than a CT scan, with a mean duration of 55,96±15,85 minutes and 10,31±6,71 minutes. Observation in patients undergoing MRI was also longer than the CT scan, with a mean duration of 173,61±67,52 minutes and 135,29 ±62,98 minutes. It resulted in a longer overall length of stay in the hospital, with a mean duration of 6,6,3±1,26 hours in MRI patients and 5,20 ±1,38 hours in CT scan patients. To date, no studies directly analyzed the difference in length of stay between patients undergoing MRI and CT scans under intravenous anesthesia.

Furthermore, we investigate these findings in terms of anesthetic agents. The contrast of length of stay might be happening because the drugs used in MRI are a combination of midazolam and propofol, which have a longer recovery time than propofol alone. Kang et al. reported that patients that were sedated using those combinations had longer recovery time significantly compared to propofol only (mean difference 1.8 minutes; CI 95% 0.9-2.9; $p<0.001$). It resulted in a shorter stay in the hospital (mean difference 4 minutes; CI 95% 3.0-5.1; $p<0.001$) (Kang et al., 2017). A study also showed that the overall length of stay (the duration from the end of the anesthetic administering to the condition appropriate for discharge) was longer in patients who received intravenous propofol than intravenous midazolam ($p = 0.010$). The research was conducted on MRI, CT scans, or DTPA renal scintigraphy procedures (Sebe *et al.*, 2014). The synergistic characteristics in the combined regimen of midazolam and propofol promote more profound and longer moderate sedation, which may prolong the early recovery time (Molina-Infante et al., 2012).

As an impact of the COVID-19 pandemic, we found difficulties in sample collection due to limited access to medical records installation. Therefore, data collection was used manually using the registration book of patients in the Radiology Unit of General Diagnostic Center.

CONCLUSION

Of all the imaging diagnostic procedures using intravenous anesthesia, there is a longer overall length of stay in patients who undergo MRI than patients undergoing CT scans.

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Bacterial Identification And Antibiotics Sensitivity Of Ventilator-Associated Pneumonia (VAP) Patients At RSD Dr. Soebandi Jember

Muhammad Ali Shodikin [1], *Mira Haninda Ramadhanty* [2], *I Nyoman Semita* [3]

[1, 2,] *Faculty of Medicine University of Jember, Jember, Indonesia*
[3] *RSD dr. Soebandi, Jember, Jember, Indonesia*

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CORRESPONDENCE

E-mail: alipspd@unej.ac.id
No. Tlp : -

A B S T R A C T

Ventilator-Associated Pneumonia (VAP) is pneumonia in patients with a mechanical ventilator. The use of empirical antibiotics therapy to VAP patients based on bacterial identification and its antibiotics sensitivity. This study aims to determine bacterial identification and antibiotics sensitivity of VAP patients at RSD dr. Soebandi Jember. A descriptive observational study was conducted with a retrospective approach. The data were collected from the medical record of VAP patients from September to October 2019. All samples meet the inclusion and exclusion criteria. Data analysis utilized Microsoft Excel 2010. This paper had 15 VAP patients who conducted bacterial identification and its sensitivity to antibiotics. The most frequent bacteria that cause VAP was Acinetobacter baumannii. Klebsiella pneumoniae, Pseudomonas aeruginosa, Enterobacter aerogenes, Burkholderia cepacia, Pseudomonas fluorescens, Salmonella arizonae, and Escherichia coli also cause VAP. Antibiotics with the highest sensitivity to VAP-causing bacteria were amikacin, meropenem, and piperacillin-tazobactam. Meanwhile, the antibiotics that bacterial resistant were cefixime, cefotaxime, and ceftriaxone.

INTRODUCTION

Ventilator-associated pneumonia (VAP) is pneumonia in a ventilated patient on a ventilator for at least 48 hours (Dahlan, 2014). Its symptoms are fever, tachypnea, increased respiratory secretions, leukocytosis. Other than that, its symptom also includes lung consolidation accompanied by new or changes in infiltrates on radiological examination (Hunter, 2006; (Mandell and Wunderink, 2015). Gadani's research showed that 37% of patients hospitalized in the Intensive Care Unit (ICU) became VAP (Gadani et al., 2010). Prolonged use of a ventilator leads to VAP risk, thereby increasing mortality from 5% to 65% (Schweiger et al., 2013) Several factors that influence VAP include the patient's age, length of use of a ventilator, patient consciousness level, comorbid disease, and antibiotic treatment (Wu et al., 2019)

Several studies have reported bacterial resistance to antibiotics in humans, animals, and the environment García et al.,2020; Hoque et al., 2020). The negative impact of bacterial resistance in humans is that the infection does not recover by antibiotic therapy, more complication, a longer length of stay, higher cost of care, and increased patient mortality rate (Collignon, 2012; (Friedman et al., 2016). To avoid the negative impact of bacterial resistance to antibiotics, the treatment of bacterial infectious diseases in humans, including VAP, should be given according to bacterial culture and antibiotics sensitivity test results. Unfortunately, it needed several days for the results. Before there are results, antibiotics therapy

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was given empirically based on the hospital antibiogram.

Every hospital should have an antibiogram regularly as a reference for empiric antibiotics therapy. Previously RSD Dr. Soebandi did not have bacterial mapping and antibiogram of VAP patients. This study aims to determine the bacterial species and its antibiotics sensitivity of VAP patients at RSD. Dr. Soebandi Jember, so that it can be as a practical guide for antibiotics therapy.

METHOD

This research was a descriptive study. Data were obtained retrospectively from VAP patients' medical records hospitalized at RSD Dr. Soebandi from September to October 2019. The inclusion criteria were VAP patients who used ventilator > 48 hours, that had bacterial culture and antibiotics sensitivity test in their medical records. The exclusion criteria were VAP patients who had HIV or tuberculosis comorbid. This research utilized total sampling.

VAP patients' sputum was collected from the endotracheal tube, carried by transport media, and then cultivated in blood agar and Mac Conkey media. Growth continued to be planted on Muller Hinton agar to identify the bacteria and antibiotics sensitivity test (Soleha, 2015). Identification of bacteria used Analytical Profile Index (API), API Strep, and API 20E (O'Hara, 2005). Antibiotic sensitivity test utilized agar diffusion method with various antibiotic discs (Soleha, 2015).

Data analysis applied with Microsoft Excel 2010. This study was approved by The Health Research Ethics Committee, Faculty of Medicine, University of Jember, number 1.347/H25.1.11/KE/2019

RESULT

15 sputum of VAP patients had bacterial identification and antibiotics test sensitivity. The gender distribution was 11 male and four female. Based on the age group, four patients aged < 17 years, one patient aged 17-25 years, three patients aged 25-45, 4 patients aged 45-65, and 3 patients aged > 65 years old. The bacterial culture results showed that 14 samples had bacterial growth and 1 sample had no bacterial growth (see table 1).

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Table 1. The samples' characteristics.

Characteristic	Amount (n)	%
Gender		
Men	11	73,3
Women	4	26,6
Age		
< 17 years	4	26,6
17-25 years	1	6,6
25-45 years	3	20
45-65 years	4	26,6
> 65 years	3	20
Bacterial culture results		
Bacterial growth	14	93,3
No bacterial growth	1	6,7

In bacterial growth from 14 sputum of VAP patients, there were Acinetobacter baumannii in 4 samples (29%). Klebsiella pneumonia, Enterobacter aerogenes, and Pseudomonas aeruginosa each bacteria were two samples (14%). Burkholderia cepacia, Pseudomonas fluorescens, Salmonella arizonae, and Escherichia coli each bacteria were 1 sample (7%) (see table 2).

Table 2. Species of bacteria from the sputum of VAP patients.

Species	Amount (n)	%
Acinetobacter baumannii	4	29
Klebsiella pneumoniae	2	14
Enterobacter aerogenes	2	14
Pseudomonas aeruginosa	2	14
Burkholderia cepacia	1	7
Pseudomonas fluorescens	1	7
Salmonella arizonae	1	7
Escherichia coli	1	7
Total	14	100

Furthermore, samples with bacterial growth were analyzed for the antibiotics sensitivity test. The results showed that nine out of 11 bacterial isolates (81.8%) were sensitive to amikacin. Meanwhile, six out of eight (75%) were sensitive to meropenem, five out of seven (71.4%) were sensitive to piperacillin-tazobactam. Antibiotics resistance had occurred. Six out of seven bacterial isolates (85.7%) were resistant to cefixime. Meanwhile, five out of six (83.3%) were resistant to ceftriaxone, seven out of ten (70%) were resistant to cefotaxime (See table 3).

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Table 3. Results of antibiotics sensitivity test

Antibiotics	Bacterial isolate number													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Antibiotics sensitivity													
Amikacin	R	S	-	R	-	-	S	S	S	S	S	S	S	S
Ampicillin	-	R	-	-	-	-	S	I	-	-	S	I	S	-
Ampicillin-sulbactam	R	-	-	-	R	R	-	-	-	-	S	I	I	S
Aztreonam	-	R	-	-	-	-	R	R	S	S	S	R	R	-
Cefuroxime	-	R	-	-	-	-	R	-	-	-	S	R	R	-
Chloramphenicol	-	-	R	-	S	S	R	S	-	-	S	R	S	R
Ciprofloxacin	R	-	-	R	I	R	R	R	S	S	S	S	R	R
Cephalexin	R	-	-	R	S	R	S	-	S	S	-	R	S	S
Cefixime	-	-	-	-	-	-	-	R	R	R	S	R	R	R
Cefotaxime	R	R	-	R	-	-	R	-	S	S	S	R	R	R
Ceftazidime	R	I	R	R	-	-	R	I	S	S	S	I	R	R
Ceftriaxone	-	-	-	-	-	-	R	R	-	-	S	R	R	R
Gentamicin	-	R	-	-	S	R	S	S	-	-	S	-	-	-
Levofloxacin	R	I	-	-	-	-	S	I	S	S	S	S	R	R
Meropenem	-	-	-	-	S	R	-	-	S	I	S	S	S	S
Cotrimoxazole	R	R	-	R	-	-	I	R	-	-	S	S	R	R
Tobramicin	R	-	R	S	S	R	R	R	S	S	S	R	R	S
Tetracycline	R	S	-	R	-	-	S	R	-	-	S	R	R	R
Ticarcillin	-	S	-	R	S	R	R	S	I	S	-	-	-	-
Piperacillin-tazobactam	R	-	-	-	-	-	-	-	S	S	S	S	S	I

Abbreviation: R= resistant; I= Intermediate; S= sensitive, and (-)= untested antibiotics.

Bacterial species according to the bacterial isolate number: 1. Acinetobacter baumannii; 2. Klebsiella pneumoniae; 3. Burkholderia cepacia; 4. Acinetobacter baumannii; 5. Pseudomonas flurescens; 6. Acinetobacter baumannii;7. Salmonella arizonae; 8. Enterobacter aerogenes; 9. Pseudomonas aeruginosa; 10. Pseudomonas aeruginosa; 11. Klebsiella pneumoniae; 12. Enterobacter aerogenes; 13. Escherichia coli; 14. Acinetobacter baumannii.

DISCUSSION

The results of this study showed that VAP was more frequent in men than in women. This result is in line with Gadani et al., which reported that VAP was more frequent in men than women (Gadani et al., 2010). The smoking habits in most men can cause damage to the epithelium lining in the airway, thus interfering with the clearance of the pathogen (Falaga et al., 2007). Based on the age group, patients who had VAP mainly occurred in the elderly (45-65 years old) and (> 65 years old), sequentially obtained 4 and 3 samples. The elderly group has an increased risk of infection due to decreased immune system and physiological change that affects the organ system, increasing the risk of respiratory tract infection (El Chakhtoura et al., 2017)

The presence of bacterial growth in 14 sputa of VAP patients showed that most VAP patients at RSD dr. Soebandi was caused by bacteria. Only 1 sample did not have bacteria growth. It is because that the

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sputum was collected after antibiotics treatment (Kalil *et al.*, 2016; Harris et al., 2017). In this study, eight Gram-negative bacteria species grew on bacterial culture. A study found Gram-negative bacteria caused 45-70% of VAP (Barbier et al., 2013). This paper showed that the most common bacteria that cause VAP was Acinetobacter baumannii (29%). Research reported that Acinetobacter baumannii was the cause of VAP in the ICU by 7.9% (Kalanuria et al., 2014). Acinetobacter baumannii is Gram negative, rod-shaped, and non-motile aerobic bacteria. It is often found in nosocomial pneumonia and immunosuppressed patients (Cilloniz, 2014). This bacteria has a particular target of moist tissue such as mucous membranes (Howard et al., 2012).

Klebsiella pneumonia, Enterobacter aerogenes, and Pseudomonas aeruginosa each bacteria were two samples (14%). Klebsiella pneumoniae and Enterobacter aerogenes are in the Enterobacteriaceae family that cause nosocomial pneumonia (Amer et al., 2018). Enterobacter aerogenes cause various nosocomial infections; one of them is VAP (Donenberg et al., 2015). Pseudomonas aeruginosa, in the form of rods and Gram-negative, can infect immune-compromised humans and become one of the pathogens that cause pneumonia in the ICU setting (Zander and Farver, 2018).

Pseudomonas fluorescens causes diseases in the respiratory tract and bacteremia in immune-compromised humans (Scales et al., 2014). In this paper, there were Escherichia coli and Salmonella arizonae; each bacteria were as many as two samples. They are Gram-negative, rod bacteria, and members of the Enterobacteriaceae family. Salmonella arizonae infection can occur in immune-compromised patients (Lee et al., 2016). Also, there was Burkholderia cepacia in one sample. However, these Gram-negative bacteria were reported to cause community-acquired pneumonia (Bayram et al., 2011).

Antibiotics therapy empirically on VAP with the suspected cause of Gram-negative bacteria can use beta-lactam and non-beta-lactam antibiotics. Its antibiotics such as Fluoroquinolone, aminoglycosides, and polymixine (Kalil et al., 2016). The bacterial isolates were most sensitive to amikacin, meropenem, and piperacillin-tazobactam. 81% of the tested isolates were sensitive to amikacin, which is included in the aminoglycoside group. Aminoglycosides are therapy for infections caused by Gram-negative bacteria. It has a mechanism by inhibiting bacterial protein synthesis (Brunton et al., 2008). Some isolates were resistant to aminoglycoside. Aminoglycoside works through aminoglycoside modifying enzymes (AMEs) and ribosome target mutations (Garneau, 2016).

Meropenem and piperacillin-tazobactam are often used as empirical therapy for VAP – administered intravenously. In this study, meropenem had a high level of sensitivity. Meropenem is a beta-lactam antibiotic in the carbapenem class and has a broader spectrum of activity than most other beta-lactam

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antibiotics (Hardman and Limbird, 2012). Piperacillin-tazobactam is stable against beta-lactamase and effective against Gram-positive and Gram-negative bacteria (Ito et al., 2010).

There were many bacteria from the Enterobacteriaceae family in this study. Most Enterobacteriaceae families are sensitive to cephalosporine and fluoroquinolone. Less than one percent of these bacteria had Extended-Spectrum Beta-Lactamase (ESBL) (Shindo et al., 2013). ESBL is an enzyme that can hydrolyze most of the penicillin class antibiotics. This paper showed that bacteria were resistant to the cephalosporin class, especially the third generation. The third generation of cephalosporin consists of cefixime, ceftriaxone, cefotaxime, and ceftazidime. The most common resistance mechanism to cephalosporins is the destruction of antibiotics through hydrolysis of the beta-lactam ring. The level of resistance to third-generation cephalosporin in Enterobacteriaceae currently reached 10-70% (Ruppé et al., 2015). The production of beta-lactamase usually causes the resistance of Enterobacteriaceae to antibiotics. ESBL arises when there are mutations in genes encoding TEM-1, TEM-2, or SHV-1. Its mutations are new beta-lactamase capable of hydrolyzing third-generation cephalosporin and aztreonam (Paterson, 2006).

CONCLUSION

Acinetobacter baumannii is the most frequent VAP-causing bacteria at dr. Soebandi Hospital, Jember. Klebsiella pneumoniae, Pseudomonas aeruginosa, Enterobacter aerogenes, Burkholderia cepacia, Pseudomonas fluorescens, Salmonella arizonae, and Escherichia coli also cause VAP. Amikacin, meropenem, and piperacillin-tazobactam are antibiotics with the highest sensitivity to VAP-causing bacteria. Meanwhile, the antibiotics that bacterial resistant are cefixime, cefotaxime, and ceftriaxone.

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The Effect Of Listening To Quran Recitation On Social-Emotional Development In Pre-School Children During Covid-19 Pandemic

Firdaus [1], *Rahmadaniar Aditya Putri* [2], *Andini Hardiningrum* [3]

[1, 2, 3] *Universitas Nahdlatul Ulama Surabaya, Surabaya, Indonesia*

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CORRESPONDENCE

E-mail: firdaus@unusa.ac.id

No. Tlp : +628179331571

A B S T R A C T

Covid-19 pandemic, a non-natural disaster, has a prolonged impact on children, such as trauma. The biggest challenge for children with a pandemic is a growing risk that affects cognitive, behavioral, and emotional abilities. This study analyzes listening to Quran recitation on social development in pre-school children at Baitul Karim Quran Education Center. The research design used Quasy-Experiment with pretest-posttest approach with control group design. Fifty-four pre-school children at TPQ Baitul Karim were the population with 48 respondents by cluster sampling technique. The independent variable was listening to Quran recitation, while the dependent variable was social-emotional development. The instrument utilized a questionnaire sheet. Data were analyzed by the Wilcoxon signed-rank test and Mann-Whitney test with a significance $p<0.05$. The results showed that there was no significant difference in social-emotional development before intervention between intervention and control groups. Meanwhile, its result in post-test was $p=0.000$ ($p<0.05$), there was a significant difference in the social-emotional development after intervention between both groups. In conclusion, listening to Quran recitation affects social-emotional development in pre-school children during the pandemic. Also, there is a difference between listening to Quran recitation and classical music. Listening to classical music does not affect social-emotional development in pre-school children.

INTRODUCTION

Many people, including children, felt the problems in the Covid-19 pandemic era. Children should get the right to play. However, there is health protocols limitation and stringent rules to avoid transmission of the Covid 19 virus. Many parents are not aware of the dangers of the Coronavirus. Pandemics are an element of non-natural disasters that often have a prolonged impact on children, for example, traumatic power. The biggest challenge for this new problem is early childhood social-emotional disorders.

Social-emotional development is critical in child development. It is because children are formed through a learning process. The learning process during childhood affects development at a later stage (Briggs, 2012). American Academy of Pediatrics (2012) states that social-emotional development refers to the child's ability to manage and express emotions entirely, both positive and negative emotions, building relationships with other children and adults around them, and actively explore the environment through learning. The social development of children is very much influenced by treating or guiding parents towards children in introducing various aspects of social life or norms in society. Parents can create structures or routines for children and foster positive attitudes in children.

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A study by Maulina et al., (2015) stated that Quran recitation therapy overcoming developmental problems. Medicine Institute for Education and Research in Florida, United States, researched the effect of listening to Quran recitation in humans on physiological and psychological conditions. The research results proved that listening to Quran recitation had physiological and psychological changes. It showed that listening to Quran recitation reduced the tension of the nerves by 97%.

One of the surahs in the Qur'an, which has a therapeutic effect, is Surah Al-Rahman, which has the meaning of God's merciful towards His servants and describes the blessings of Him. Quran recitation in surah Al-Rahman has relaxing effects. It has a slow, gentle and harmonious tempo. It can reduce stress hormones, activate natural endorphins, and increase relaxation. Also, it will affect the control of the limbic system (Har, 2018). Listening to Quran recitation will bring sound waves from the audio and stimulate delta waves to affect the body's cells and affect the receptors in the body and make the body relax and feel comfortable (Elzaky, 2011)

METHOD

The research design used the Quasy-Experiment method and pretest-posttest design with control group design. The population in this study were pre-school children at the Baitul Karim Education Center (TPQ). The sample in this study was 48 pre-school children divided into two groups consisting of 24 treatment groups and 24 control groups. The intervention group was listening to Quran recitation, while the control group was hearing classical music. Sampling utilized probability sampling with cluster sampling technique. Implementation of Quran recitation therapy by listening to Quran surah Ar-Rahman, while classical music using a mobile phone with back sound. It was done every day in 1 week with a duration of approximately 15 minutes, with a sitting state. Before and after the intervention, there were interviews with respondent's mothers using a social-emotional development questionnaire. Instrument to evaluate social-emotional development based on the social expressions of early childhood emotions according to Golman (1996). There is an achievement in social-emotional development when 50% of items are answered with yes. The independent variable in this study was listening to Quran recitation, while the dependent variable was the social-emotional development in children aged 3-5 years. Data analysis utilized the non-parametric Wilcoxon test (effect) and Mann-Whitney (difference) because the data were not normally distributed.

RESULT

Research obtained respondents' age, social-emotional development between pre-test and post-test, and social-emotional development between the intervention and control groups.

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Table. 1 Characteristics of Respondents by Age

No.	Age (years)	Intervention Group		Control Group	
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
1.	4	4	16.6	6	25
2.	5	12	50	10	41.7
3.	6	8	33.3	8	33.3
	Total	24	100	24	100

Table 1 describes that most of the intervention and control groups are five years old (50%).

Table.2 Social-emotional development before listening to Quran recitation in the intervention group and classical music in the control group

No.	Social-emotional development	Intervention Group		Control Group	
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
1.	Not achieved	16	66.6	14	58.3
2.	Achieved	8	33.3	10	41.6
	Total	24	100	24	100

Table 2 shows that most respondents do not achieve milestones in social-emotional development before listening to Quran recitation in the intervention group (66.6%) and classical music in the control group (58.3%).

Table 3 Social-emotional development after being given Murottal Al-Qur'an therapy in the intervention group and classical music in the control group

No.	Social-emotional development	Intervention Group		Control Group	
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
1.	Not achieved	2	8.3	7	29.2
2.	achieved	22	91.6	17	70.8
	Total	24	100	24	100

Table 3 explains that most respondents achieve milestones in social-emotional development after listening to Quran recitation in the intervention group (91.6%) and classical music in the control group (70.8%).

Table 4 Wilcoxon signed-rank results between pre-test and post-test in control and intervention group

Group		Wilcoxon Signed-Rank Test			
		n	Mean	Z	Sig. (2-tailed)
Control	Pre-Test and Post-Test	24	5.00	-1.00	.317
Intervention	Pre-Test and Post-Test	24	7.50	-3.74	.000

Table 4 shows that in the intervention group p = 0.000 (p<0.05), listening to Quran recitation affects social-emotional development. Meanwhile, in the control group, p = 0.317 (p<0.05), listening to classical music does not affect social-emotional development.

Table 5 Mann-Whitney results in pre-test between intervention and control group as well as post-test between two groups

Group		*Mann-Whitney*		
		n	Mean	p
Pre-Test	Intervention and Control	48	25.50	.555
Post-Test	Intervention and Control	48	32.00	.000

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Table 5 shows p = 0.555 (p>0.05), which means there is no significant difference in socio-emotional development before intervention between intervention and control groups. Meanwhile, the result in post-test is p=0.000 (p<0.05), there is a significant difference in the socio-emotional development after intervention between both groups.

DISCUSSION

Most respondents did not achieve milestones in social-emotional development before listening to Quran recitation in the intervention group and classical music in the control group. Developing social-emotional must be done from an early age, especially in kindergarten age. It is because children begin to build relationships with peers in the home and outside the home. However, due to the Covid-19 pandemic, they must be at home. Their social development cannot be reached. Social-emotional development is critical in child development. It is because children are formed through a learning process. From the early stages of development, babies show a sense of security in their families when the environment meets their needs. American Academy of Pediatrics (2012) states that social-emotional development refers to the child's ability to manage and express emotions entirely, both positive and negative emotions, building relationships with other children and adults around them, and actively explore the environment through learning. Pre-school children are those aged between 3-6 years. They usually attend pre-school programs.

Most respondents achieved milestones in social-emotional development after listening to Quran recitation in the intervention group. Increased social-emotional development in the intervention group was due to listening to Quran recitation. Quran recitation will carry sound waves from the audio stimulating delta waves associated with sound impulses transmitted into the body and affect the body's cells. Sounds received by the ear and central nerve, then transferred to all parts of the body, and encourage the brain to produce chemicals called neuropeptides and stimulate the release of natural endogenous opioids. As a result, it can reduce stress hormones, activate natural endorphin hormones, increase feelings of relaxation, improve the body's chemical system. This molecule will affect the receptors in the body so that the result is that the body feels comfortable (Elzaky, 2011). According to Izzat & Arif (2011) the Quran has many benefits for healing physical and spiritual ailments. A study by El-Kadhi stated that listening to Quran recitation had a tremendous influence on body physiology. Al-Qur'an could improve health and mental states by up to 98% (Al-Atsary, 2017)

Moreover, most respondents achieved milestones in social-emotional development after listening to classical music in the control group. Music therapy heals people physically and psychologically. Researchers from The Neuro, through MRI scans, prove that the brain releases dopamine (a hormone related to the brain system, providing feelings of pleasure and reinforcement to motivate a person to do certain activities proactively) while doing music therapy in a capacity that is not excessive. Music therapy

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can be assigned to everyone, either in a state of suffering from certain diseases or in good health (Natalina, 2013).

There was no significant difference in socio-emotional development before intervention between intervention and control groups ($p>0.05$). Meanwhile, there was a significant difference in the socio-emotional development after intervention between both groups ($p<0.05$). The results showed that respondents with the intervention had a good response. The intervention can affect the psychological side of the respondent, which creates calm. In line with Har (2018) research, Surah Ar-Rahman has a slow tempo ranging from 60 to 120 bpm. The slow tempo itself is a tempo that is in line with the human heartbeat so that the heart will synchronize its beat according to the rhythm of the sound. Reading Quran with a slow, gentle and harmonious tempo will reduce stress hormones, activate endorphins, increase relaxation in the body and affect the control of the limbic system as an emotional center in humans to control feelings. Belief in the Al-Qur'an as a holy book and a guideline from God can increase relaxation so that the child's social-emotional can be adequately managed.

CONCLUSION

Listening to Quran recitation affects social-emotional development in pre-school children during the pandemic at Baitul Karim Quran Education Center. Also, there is a difference between listening to Quran recitation and classical music. Listening to classical music does not affect social-emotional development in pre-school children.

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Adherence Level Of Medical Personnel In Implementing 2019 Postoperative Pain Management Guidelines

Nasrulloh [1], Hamzah [2], Arie Utariani [3], Dedi Susila [4]

[1, 2, 3, 4] *Department of Anesthesiology and Reanimation, Faculty of Medicine Universitas Airlangga, Dr. Soetomo General Academic Hospital, Surabaya, Indonesia*

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CORRESPONDENCE

E-mail: rul.anes@yahoo.com
anestesi.hamzah@gmail.com
arie_utariani@yahoo.co.uk
ddi_sus@yahoo.com
No. Tlp : +62813747882

A B S T R A C T

Inadequate pain management may increase the risk of complications and postoperative chronic pain. Postoperative Pain Management Guidelines of The Anesthesiology and Reanimation Department, Faculty of Medicine Universitas Airlangga/ Dr. Soetomo Hospital Surabaya were arranged in 2019. This study aims to describe the medical personnel's adherence to implementing postoperative pain management guidelines. This was a descriptive observational study with a retrospective design. Total sampling was carried out on the medical records of patients who underwent elective surgery and received postoperative acute pain management during March-May 2020. A total of 349 patients had moderate pain intensity (62.8%). The medical personnel's adherence with postoperative pain management guidelines was 88.0%. The details were as follows: 99.1% adherence in patients with mild pain, 82.6% in moderate pain, and 81.2% in severe pain. The multimodal analgesia was 12.3% in patients with mild pain, 83.6% in moderate pain, and 100% in severe pain. Most medical personnel have adhered to the postoperative pain management guideline and widely used in multimodal analgesia. There should be a systematic evaluation of guidelines implementation, patient satisfaction, and outcomes.

INTRODUCTION

According to the International Association for Study of Pain (IASP), pain is a subjective and acquired unpleasant sensory and emotional experience associated with actual or potential tissue damage or represents the damage condition (Treede, 2018). Postoperative pain is still frightening for patients who undergo surgery (Schroeder et al., 2016). According to data in the United States, pain perception is a significant source of anxiety in patients undergoing surgery, and this suggests postoperative pain management is far from satisfactory (Apfelbaum et al., 2003; Glowacki, 2015). More than 80% of patients undergoing surgery had acute postoperative pain, and about 75% of these patients experience moderate, severe, or extreme pain levels. Data in Dr. Soetomo General Hospital Surabaya, most patients (59.2%) experienced moderate-severe postoperative pain in the first 24 hours postoperatively (Suwiknyo et al., 2017). Inadequate pain management can interfere with the quality of life and functional recovery and increase postoperative complications and postoperative chronic pain risk (Kehlet et al., 2006). An American survey conducted for more than 20 years showed that only 1 in 4 patients got adequate postoperative pain management. This background makes pain crucial. Pain is the fifth vital sign in the

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patient's assessment when undergoing inpatient care at the hospital, especially as a protocol in the Recovery Room.

Adequate pain management is dependent on the commitment of medical personnel in the hospital. There are many guidelines for perioperative pain management, arranged by the American Society of Anesthesiologists (ASA), the American Pain Society (APS), and the World Health Organization (WHO). Still, when these guidelines are not implemented, then pain therapy provision will not be adequate. Implementing pain management guidelines depends on medical personnel's adherence, facilities, and drugs in the hospital. Good local pain management guidelines should be adjusted to local wisdom and hospital conditions (Wels, 2012).

One highlighted thing is the uniformity of understanding and adherence among medical personnel in hospital facilities. The commitment to implementing pain guidelines by non-anesthetists and other medical personnel, such as nurses, is also an essential part of pain management services (Fitzgerald et al., 2017). Several studies also reported gaps regarding expectations of pain management implementation and medical staff adherence. Kerner et al., (2013) assessed inadequate pain management by health workers in internal medicine wards. Adherence to pain treatment guidelines was 29.3% of cases. Re-evaluation after treatment was 33.3%, and additional evaluation is only 22%. Another study was conducted by (Hakonsen et al., 2009) in patients with cancer pain in Scotland, United Kingdom. Adherence to the pain guideline criteria indicated that the overall adherence rate was 75%. However, it still showed a low level of adherence (29%) for inpatients service. There were adherence gaps between the inpatient and the outpatient palliative care, particularly to pain assessment.

A study reported that adherence level to pain management before invasive treatment in neonates increases after implementing strict protocols, socialization, and counseling (Sari, 2016). Postoperative pain management guidelines at Dr. Soetomo General Hospital, Surabaya, were made in 2019. There was no evaluation of medical personnel's adherence to implementing this guideline. This study analyzes the level of medical personnel adherence in implementing postoperative pain management guidelines at Dr. Soetomo General Hospital, Surabaya.

METHOD

Study Design

This research was a descriptive observational study with a retrospective design that analyzed medical personnel's adherence in implementing the 2019 postoperative pain management guidelines for the Department of Anesthesiology and Reanimation, Faculty of Medicine Universitas Airlangga/Dr. Soetomo General Hospital, Surabaya. This research was conducted at the Inpatient Medical Record Installation at Dr. Soetomo General Hospital, Surabaya.

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Population and Sampling Technique

The sample was the medical records of patients who had undergone elective surgery and received postoperative acute pain management at Dr. Soetomo from March 2020 to May 2020. A total of 349 patient medical records met the criteria by total sampling. The research data included age, sex, Physical Status-American Society of Anesthesiologists (PS ASA), anesthesia technique, type of surgery, and procedure duration.

Subject Criteria

The sample selection in this study met the following inclusion criteria: (1) Medical records of inpatients aged 18 years to 60 years, did elective surgery at Dr. Soetomo General Hospital, Surabaya, with a duration of postoperative care ≥ 24 hours, with PS ASA Score 1-2. (2) The authors can read medical records. Meanwhile, the exclusion criteria were an incomplete medical record.

Study Procedures

The classifications of medical personnel's adherence to pain management guidelines were into adherence and non-adherence, for each category of pain intensity influenced by the type of surgery. Medical personnel's adherence level was assessed by looking at RM 30sK (Anesthesia Status) in medical records. The adherence category, defined as therapy with one analgesic for mild pain; treatment with ≥ two analgesics for moderate to severe pain. The non-adherence category was medical personnel who are not providing analgesic therapy for mild pain; give ≤ one analgesic therapy for moderate-severe pain. The data presentation was in tables and graphs.

RESULT

Subjects Characteristics

The research data included age, gender, PS ASA, anesthesia technique, type of operation, operation duration, and pain intensity.

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Table 1 Subject Characteristic

Variables	Frequency	Percentage
Gender		
Male	141	40.4%
Female	208	59.6%
Age (years old)	Mean: 40.64	
PS ASA		
1	60	17.2%
2	289	82.8%
Total	349	100%
Anesthesia Technique		
CSEA	21	6.0%
GA Epidural	41	11.7%
GA Intubation	197	56.4%
GA LMA	12	3.4%
GA Mask	6	1.7%
GA TIVA	9	2.6%
GA Tracheostomy	1	0.3%
PNB	3	0.9%
SAB	56	16.0%
SAB + Obturator Block	3	0.9%
Operation Duration (minutes)		
Oral and Maxillofacial Surgery	10	2.9%
Plastic Surgery	12	3.4%
Neurosurgery	5	1.4%
General Surgery	100	28.7%
Thoracic and cardiovascular surgery	9	2.6%
Ophthalmology	22	6.3%
Obstetric & Gynekologi	69	19.8%
Orthopaedic	69	19.8%
ENT	29	8.3%
Urology	24	6.9%
Pain Intensity		
Mild	114	32.7%
Moderate	219	62.8%
Severe	16	4.6%

Almost half of the subjects were male (40.4%). The mean age of them was 40.64 years old. Most of them were patients with mild systemic disease (82.8%) and classified into PS ASA II. General Anesthesia (GA) with intubation technique (56.4%) was the most used technique. General surgery (28.7%) was the most performed surgery in this study. Most of the subjects (62.8%) experienced moderate pain after underwent a surgical procedure.

Distribution of the First Analgesic Modality

A drug administration in the first analgesic modality was 348 patients, and there was no drug administration only in one patient. Of the 348 patients, the first analgesic modality was metamizole in 164 patients (47.1%) and ketorolac in 135 patients (38.8%). In contrast, the least used drug was Ropivacaine, in 1 patient with a percentage of 0.3%. There were two patients with each Dynastat and novalgin administration (0.5%).

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Table 2. Distribution of the first analgesic modality

First Analgesic Modality	Frequency	Percentage	Drug's Name	Frequency	Percentage
Drug Administration	348	99.7%	Dynastat	2	0.5%
			Ketorolac	135	38.8%
			Metamizole	164	47.1%
			Novalgin	2	0.5%
			Paracetamol	44	12.6%
			Ropivacain	1	0.3%
Without drugs	1	0.3%			

Distribution of The Second Analgesic Modality

A drug administration in the second analgesic modality was 163 patients, 51 epidural patients, and no drug administration in 135 patients. Paracetamol and tramadol were the most used drugs, while the least used were ketorolac and metamizole. For epidural patients, 45 patients had ropivacaine administration (88.2%), and six patients had morphine administration (11.8%).

Table 3. Distribution of the second analgesic modality

Procedure	Frequency	Percentage	Drug	Frequency	Percentage
Drug Administration	163	46.7%	Fentanyl	17	10.4%
			Ketorolac	4	2.5%
			Metamizole	4	2.5%
			Oxycodon	7	4.3%
			Paracetamol	67	41.1%
			PNB	7	4.3%
			Tramadol	57	35.0%
Epidural	51	14.6%	Morphin	6	11.8%
			Ropivacain	45	88.2%
Without Drugs	135	38.7%			

Analysis of Pain Management Guidelines Adherence in Each Pain Intensity Category

Almost all medical personnel (88.0%) adhered to the guidelines in providing postoperative analgesia therapy. In comparison, 12% of them did not adhere to the postoperative pain management guidelines.

Table 4. Distribution of Adherence

Adherence	N	Percentage
Adhere	307	88.0%
Non Adhere	42	12.0%

The distribution of adherence to postoperative pain management guidelines based on the pain category showed that in patients with mild pain, the adherence rate was in 113 cases (99.1%). In contrast, one case (0.9%) did not adhere to the guideline. There were an 82.6% adherence and 17.4% non-adherence in patients with moderate pain category. For patients with severe pain levels, as many as 16 patients with an adherence rate of 13 cases (81.2%).

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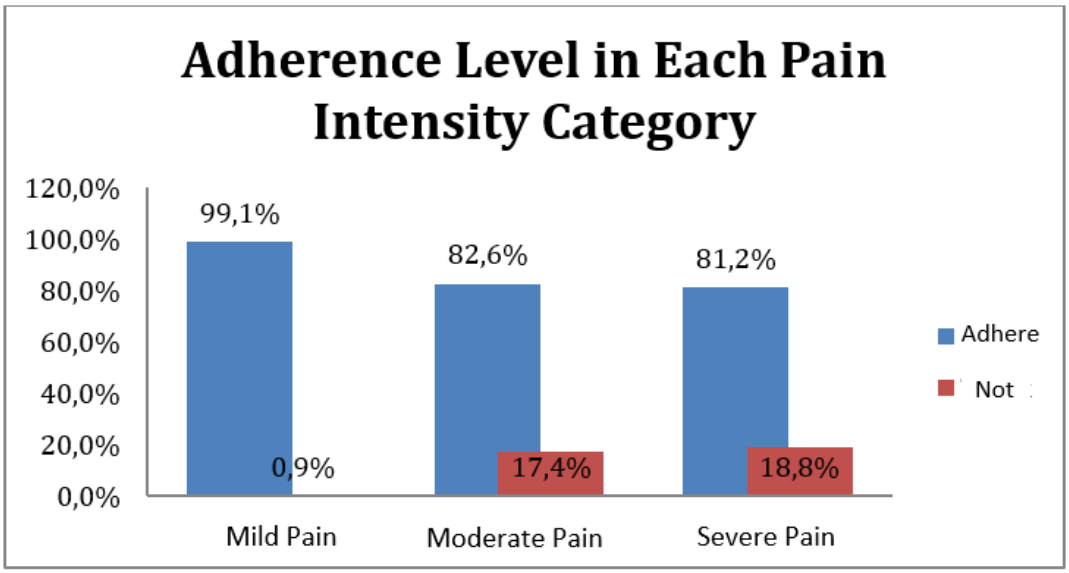

Figure 1. Medical personnel's adherence to postoperative pain management guideline in each pain intensity category

Analysis of Multimodal Analgesia in Each Pain Intensity Category

The total distribution of multimodal analgesia in the study sample was 213 (61.0%). Meanwhile, multimodal analgesia usage in moderate and severe pain cases was 199 cases (84.7%).

Table 5. Distribution of Multimodal Analgesic Usage

Multimodal Analgesia	Total		Moderate and Severe Pain	
	N	Percentage	N	Percentage
Yes	213	61.0%	199	84.7%
No	136	39.0%	36	15.3%

The distribution of multimodal analgesia based on the pain intensity showed that in 114 patients with mild pain, 14 cases used multimodal analgesia (12.3%). For patients with moderate pain levels, 183 of 219 patients used multimodal analgesia (83.6%). In all 16 patients with severe pain levels, multimodal analgesia was used (100%).

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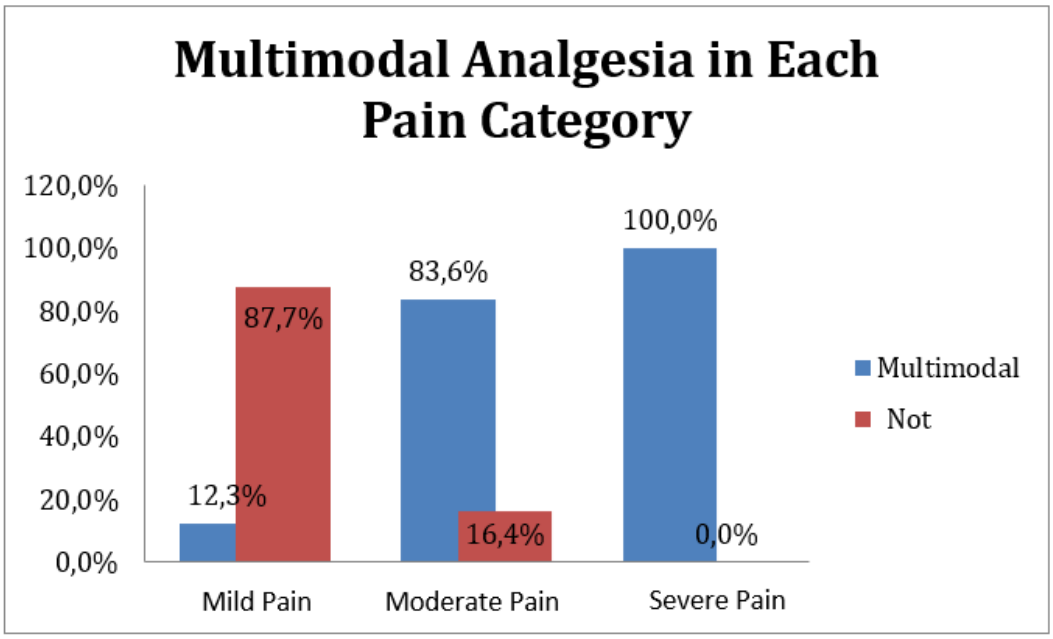

Figure 2. Distribution of multimodal analgesia usage in each pain intensity category

DISCUSSION

The characteristics of the subjects certainly affect pain manifestations. In this paper, age and sex were two essential variables that influenced pain. This result is in line with Wandner et al., (2012), which reported that age was an important variable affecting pain in both children and adults. In this study, the mean ages of the subjects were 40.64 years old. A study by Nasir & Ahmed (2020) about postoperative pain management perception stated similar data. In their study, the average patient's age was 42.97 ± 13.05 years old. Research by Chae et al., (2019) found significant differences between the sex of patients and postoperative pain relief also analgesic need. Young female patients needed higher doses of analgesics than elderly patients. The long operative duration correlated with postoperative pain and analgesic consumption (Gagliese et al., 2008). Meanwhile, another study showed no correlation between the type of surgery and postoperative pain outcomes (Ip et al., 2009; Mamie et al., 2004).

The 2019 Postoperative Pain Management Guideline of Department Anesthesiology and Reanimation Faculty of Medicine Universitas Airlangga/ Dr. Soetomo General Hospital uses the principle of multimodal analgesic therapy. This study analyzed analgesic drugs using whether suitable with the guidelines or not. The use of analgesic modalities is a multimodal approach (drug use and or action more than one). It is following the particular guidelines that every operation must get analgesia depends on pain intensity.

The first analgesia in the guideline is Nonsteroidal anti-inflammatory drugs (NSAIDs) or paracetamol. It found that in our study, the most widely used NSAIDs were metamizole and ketorolac. There were 85.9% of metamizole and ketorolac administration in patients undergoing surgery. Nonsteroidal anti-

inflammatory drugs are the most widely used primary therapy for chronic and acute pain, mild or moderate postoperative pain. In mild intensity postoperative pain, NSAIDs are often used alone. This modality is often combined with adjuvants or opioids (multimodal analgesia) in severe postoperative pain (Cosmo & Congedo, 2015). The most used second analgesic drugs modality in postoperative pain management were paracetamol and tramadol.

Meanwhile, the least used were ketorolac and metamizole. For epidural patients, 45 patients had ropivacaine administration (88.2%), and six patients had morphine administration (11.8%). According to The American Pain Society Guidelines, the use of multimodal analgesia with more than one analgesic drug targets different mechanisms of action on the nervous system. Multimodal analgesia may combine with non-pharmacological interventions to effectively reduce pain compared to a single modality. Anesthetists can combine regional anesthetics techniques combined with systemic opioids and other analgesics as part of a multimodal approach to postoperative pain (Chou et al., 2016).

Most of the samples had multimodal analgesic therapy. The use of multimodal analgesia was 61% in all surgery cases. It was 83,6% in moderate pain and 100% in severe pain. Meanwhile, most of the sample (87.7%) used one type of analgesic drug for mild pain; This is because, in the category of mild pain, there is no need for multimodal analgesics. 17.4% non-adherence to the moderate pain category guidelines because the therapy provided only one type of analgesia. 18.8% non-adherence to the severe pain category guidelines because the patients received two analgesics types but with the same drug class. Our study's findings differ from the Hakonsen et al., (2009) study, which reported a 100% adherence rate for moderate/severe pain.

Pain management guideline adherence evaluated from Anesthesia Status in medical records refers to the category of pain from surgery. Based on the adherence level, 88% of medical personnel provided postoperative analgesic therapy based on the guidelines. This study's findings are consistent with Sauaia et al., research. They analyzed medical personnel adherence to postoperative pain management protocols in elderly patients and found 62% of the subjects were adherent. However, 87% of patients were satisfied with their treatment (Sauaia et al., 2005).

Meanwhile, there were about 12% who did not adhere. A few medical records showed non-adherence of anesthesiology residents, which showed the absence of analgesic therapy for mild pain and only analgesic therapy for moderate-severe pain. This condition is because patients respond adequately even though only one type of analgesic. Another cause is some new medical personnel who have not received the socialization about postoperative pain management guidelines made in 2019.

Another study also emphasized the importance of increasing adherence to postoperative pain management in all medical personnel. Improved compliance, especially in local post-operative pain management guidelines, appears to be an effective method for optimizing postoperative pain control in patients

(Dürango et al., 2016). Guidelines for postoperative pain control help establish basic pain management parameters, and it is necessary to ensure that medical personnel adheres to evidence-based standards. Further postoperative pain management will emphasize the role of communication between patients and medical personnel (Kuusniemi & Pöyhiä, 2016).

The literature points to several factors associated with the adherence of medical personnel in implementing specific practice guidelines. A study by Wulandari & Lisum (2019) showed the correlation between compliance to pain reassessment documentation with the nurse's age, years of service, and attitude. Monitoring all nurses in documenting pain reassessments according to existing standard operating procedures/guidelines is also required. The study by Houghty et al., (2019) also stated a similar thing. The factors that affected medical personnel's adherence to the guidelines were lack of facilities and training. A supportive environment such as training carried out by the education department at the hospital supports a positive attitude. Our study's limitation was the absence of an analysis of the factors that affected medical personnel's adherence to pain management guidelines. It should be a concern for further research

CONCLUSION

Medical personnel has adhered to the 2019 Postoperative Pain Management Guidelines in most patients who undergo surgery. Most of the patients with moderate to severe pain category had received multimodal analgesic therapy. After conducting this study, we recommend counselling and resocialization regarding postoperative pain management guidelines considering there is still medical personnel that provides single modal therapy in patients undergoing surgery with moderate-severe pain. Systematic follow-up/evaluation is crucial for successfully implementing postoperative pain management guidelines in the hospital wards. Further research should analyze the correlation between medical personnel's adherence level in implementing the Postoperative Pain Management Guidelines with the level of pain and patient satisfaction and the effectiveness/outcome of implementing the postoperative pain management guideline.

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Evaluation Of Programs For Stunting Prevention Management At Tajinan Public Health Center

Rifzul Maulina [1]

[1] *Institut Teknologi, Sains dan Kesehatan RS dr Soepraoen Malang, Malang, Indonesia*

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CORRESPONDENCE

E-mail: rifzulmaulina3@gmail.com
No. Tlp : -

A B S T R A C T

East Java is one of the provinces that has a high prevalence of stunting. The government is committed to reducing stunting rates through several health policies. The Indonesian Ministry of Health recommend programs for stunting prevention management. The purpose of this study was to evaluate the programs for stunting prevention in toddlers through elements of input, process, and output. This research was qualitative. It took place at Tajinan Public Health Center (PHC). The purposive sampling technique determined the initial informants. The data collection method was in-depth interviews, observation, and documentation of 6 initial informants consisting of the head of the PHC, the coordinator midwife for children and maternal health, the nutrition coordinator, the village midwife, the cadres, and some target mothers. Two triangulation informants were the family health coordinator and the nutrition coordinator at the District Department of Health Office. The results showed that the health workers involved still needed additional at the input stage. There were no nutrition workers. There were well-implemented programs with the family approach through home visits by the cadres in the process element. The taburia administration was a program that need development. In the output element, the coverage of the prevalence of stunting at TajinanPHC, Malang Regency, in 2018 was 17.24%.

INTRODUCTION

Stunting in children is a severe problem because it can cause morbidity and mortality, obesity and non-communicable diseases in the future, short adults, poor cognitive development, and low productivity and income (Fikawati, 2017). Currently, around 162 million stunted children under the age of five. When this trend continues, by 2025, 127 million children under five years of age will be stunted. According to the United Nations, Children's Emergency Fund (UNICEF), more than half of the children are stunted, or 56% live in Asia, and more than a third or 37% live in Africa (Supariasa, 2011).

Indonesia is a country with many stunted children. 32 out of 34 provinces had numbers of stunting above 20% based on the stunting rate limit from the World Health Organization (WHO). Based on Basic Health Research (from now on, it is named with Riskesdas), in 2018, the stunting rate in Indonesia for toddlers reached 30.8%, consisting of 11.5% severely stunted children and 19.3% short children. Indonesia's stunting rate decreased compared to the 2013 Riskesdas data, which reached 37.2%, consisting of 18% severely stunted toddlers and 19.2% short children under five (Kemenkes RI, 2018)

Based on the results of Riskesdas, East Java is one of the provinces that has a high prevalence of stunting. The number of toddlers with stunting in East Java in 2018 reached 25.2%. Malang Regency was the 100 priority districts with a stunting rate of 20% spread over six priority villages (Dinas Kesehatan

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Kab.Malang, 2019). Data from the Malang District Health Office, in 2017, the prevalence of stunting in toddlers was 30,323 out of the total number of toddlers 154,188 under five. There were 3,443 children under five with 17,6% short children and 9,4% severely stunted at Tajinan Public Health Center (PHC), so that the stunting cases were 27% under-five. Preliminary study on March 12, 2019, 23,9% stunted children under five at Tajinan PHC. Meanwhile, 26% of stunted children under five at Wagir PHC (Dinas Kesehatan Malang, 2019) Many factors cause stunting, including low birth weight (LBW) – babies with birth weight is less than 2,500 grams (Sistiarani, 2008). LBW has a high risk of neonatal death, child growth disorders, including the risk of stunting when it is not appropriately handled. It is in line with research conducted by (Tiwari et al., 2014), which stated that children with a history of LBW were at risk of suffering from stunting compared with no LBW. A study conducted in Nigeria also reported that children with LBW were at risk of suffering from stunting (Akombi et al., 2017).

The education level affects stunting incidence. Children born to educated parents are less likely to be stunted than children born to parents with low education levels. Research conducted in Nepal also showed that children born to well-educated parents had a lower potential to suffer from stunting. This study is in line with research conducted by Haile et al., (2016). The study reported that children born to parents with higher education tend to receive health education more easily during pregnancy, for example, health education in the importance of meeting nutritional needs during pregnancy and exclusive breastfeeding (Haile et al., 2016).

The problem of stunting is an intergenerational nutritional problem. Stunted women will give birth to babies with LBW, which contributes to the cycle of malnutrition in life (Haile et al., 2016). Mothers with a height less than 150 cm tended to give birth to stunted babies (42.2%) than the group mothers with standard tall (36%). A study conducted in Ghana, with a sample of children under five years, showed that children with mothers who were shorter than 150 centimeters were at risk of suffering from stunting (Ali et al., 2017) Exclusive breastfeeding for less than six months is a factor that inhibits stunting. A study conducted in Nepal reported that children aged 0-23 months had a significantly lower risk of stunting than children aged > 23 months because of breast milk protection (Tiwari et al., 2014). WHO declares the resolution of global targets on maternal and child nutrition as a priority. Its main target is to reduce stunting in children by 40% globally or a 3.9% reduction annually from 2012 to 2025 (World Health Organization, 2012). The 2015-2019 National Medium-Term Development Plan stated four priority health development programs in Indonesia. Stunting prevalence reduction was one of them.

Prevention efforts in stunting begin in adolescence. Young women should raise their knowledge and understanding of the importance of fulfilling nutrition as a teenager. Adequate intake during adolescence can prevent malnutrition during pregnancy. Furthermore, it can prevent stunted growth in the fetus (World Health Organization, 2014). Stunting prevention also focuses on the first 1,000 days of life, from pregnant

mothers to nursing mothers, until the child reaches 24 months of age or two years old. The critical 1,000 periods effectively prevent stunting because it is a period that determines the quality of life – the child's growth will be rapid in the "Golden Period". Therefore, nutritional coverage must be fulfilled starting from 270 days during pregnancy and the first 730 days after the baby is born. However, prevention of stunting does not only begin at the first 1,000 days but begins in adolescence by improving nutrition (World Health Organization, 2014). Stunting prevention starts with improving the nutrition of pregnant women. Nutritional improvement is giving Fe supplementation at least 90 tablets during pregnancy. Also, mothers who experience chronic energy deficiency (CED) need to get additional food to improve the nutrition (World Health Organization, 2014). Increased breastfeeding practice is also one of the measures to prevent stunting. Early initiation of breastfeeding and exclusive breastfeeding for six months can protect against gastrointestinal infections. It is in line with research conducted by Tiwari, which reported that children with exclusively breastfed were less likely to suffer from stunting compared to children who were not nutrition (World Health Organization, 2014).

The factors that cause stunting from the mother are the mother's education level and nutritional status. Factors causing stunting in infants are Fetal growth restriction (FGR), LBW, gender, and exclusive breastfeeding. This study aims to evaluate the management of the nutritional status in children under five with stunting at Tajinan PHC, through system elements (input, process, and output) including programs: 1) health program for pregnant women, 2) exclusive breastfeeding for infants 0-6 months, 3) infant growth and development monitoring, 4) supplementary food, 5) vitamin A supplements to toddlers, 6) taburia (multivitamins and mineral supplement for children age 6-59 months) administration.

METHOD

It was a qualitative study at Tajinan PHC, Malang Regency. The purposive sampling technique determined the initial informants. The data collection method was in-depth interviews, observation, and documentation of 6 initial informants consisting of the head of the PHC, the coordinator midwife for Child and Mother Health, the nutrition coordinator, the village midwife, cadres, and target mothers who have a baby. The data validity used two triangulation informants: the coordinator of family health and the nutrition coordinator in the Malang District Department of Health Office. The data analysis technique was reducing, displaying, and drawing conclusions.

RESULT

Input: From the interview results on managing the nutritional status for toddlers with stunting at the Tajinan PHC, human resources (human resources) still required an additional nutrition coordinator. There was task integration in the management of stunting toddlers. Still, there was no special team – the job and

functions were not according to competence, especially the nutrition coordinator held by midwives. The Health cadres participated in the management of children under five in every integrated service post (from now on, it is named with posyandu) activity. They carried out home visits to motivate clients who had not received health services. The facilities were sufficiently supportive in stunted toddlers' management, including drugs, vitamins, micronutrients, and examination equipment. The District Department of Health Office subsidized all the funding. The only problem was the limitation of the tools for anthropometry measurement. There was a lack of anthropometric measurement tools, only one tool available.

Process: Based on the process element, the Tajinan PHC has implemented a first 1000 days of life program according to the guidebook. The Tajinan PHC also has a policy in managing stunting in toddlers by empowering village midwives as the primary implementing staff with the help of cadres and health workers to motivate all pregnant women to carry out prenatal visits to PHC.

Stunting begins from the nutritional status of pregnant women, even before pregnancy. It determines fetal growth. Undernourished pregnant women are at risk of giving birth to LBW babies, a significant cause of stunting (World Health Organization, 2014). After delivery, babies without adequate breastfeeding have a risk of suffering from various infections due to inadequate nutritional and unhygienic diets. Infant and child feeding greatly determines a child's growth. After the age of 6 months, children need to get nutritional intake to meet the needs of micro, macro, and safe nutrition (Putri, 2012) Socio-economic conditions, food security, availability of clean water, and access to various primary service facilities are predisposing factors in stunting prevalence (Sattu, 2014).

A study on pregnant mothers who visited health professionals and gave birth at Banyumas Hospital in 2012 reported that LBW babies incidence correlated 5.85 times with poor quality antenatal compared with good quality antenatal. LBW is a factor that plays a role in the incidence of stunting (Sistiarani, 2008).

Output: The stunting prevalence decreased to 17.24% in 2018. It was much less than in 2017 and 2016, which reached up to 30% or more. The prevalence reduction because of stunting prevention management, including the health program for pregnant women, exclusive breastfeeding, growth monitoring, supplementary feeding, vitamin A supplementation, and taburia administration.

DISCUSSION

The health program for pregnant women is a part of managing the nutritional status of stunted toddlers at the Tajinan PHC. From the input element, human resources (HR) required additional, especially in health promotion related to nutrition and healthy socialization. The job descriptions were integrated, but not by their primary duties and competence. There were no nutritionists at the Tajinan PHC, while the health promotion staff were nurses. The health cadres of the Tajinan PHC in managing stunting toddlers focused on the health program for pregnant women – they had been accommodating. Last year, the Tajinan PHC

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had implemented a program for the first 1000 days of life. The difference in 2019 was that apart from the Tajinan PHC still implemented 1000 HPKs; the Tajinan PHC also mobilized cadres for home visits for pregnant women to motivate them to carry out integrated ANC visits at the PHC. Based on the interview, stunting management focused on health program for pregnant women was subsidized by the District Department Health Office. The program also focused on pregnant women with CED by milk administration. Observing the facilities and infrastructures at the Tajinan PHC in stunting management focused on health programs for pregnant women was good.

The interview revealed that all health workers had run the 1000 first day of life program at the implementation stage, appropriate with the guidebook. Cadres also did home visits to monitor targets who had not received health services, especially mothers. All the pregnant women had antenatal care as early detection. ANC visit analysis to monitor the output of the program. The first ANC visit (K1) was 96.5%, and the fourth ANC visit (K4) was 84.8%.

Results showed that the management of the nutritional status for stunted toddlers focused on the health program for pregnant women at the Tajinan PHC had been 97,8% integrated quite well but has not been 100%. Human Resources (HR) needs an additional, especially implementing personnel who increase their competence for cross-sectoral socialization about integrated ANC.

The integration of a health program for pregnant women at the Tajinan PHC was influenced by many factors, including health workers and cadres. The percentage of pregnant women who made ANC visits on the K1 96.5%, and K4 were 84.8%. It means that pregnant women's compliance in the ANC examination met the Tajinan PHC policy standards and significantly affects stunting prevalence.

Research revealed that several factors predisposed stunted toddlers, one of them was ANC visit. ANC visits can detect earlier risks in pregnancy in mothers, especially those related to nutritional problems (Putri, 2015). A study found that babies whose mothers did ANC visits only once (less than the minimum standard) had a 2.4 times risk of stunting than four times ANC visit Najahah et al., (2013). The exclusive breastfeeding program in the management of stunted toddlers in the Tajinan PHC was not conducive because health workers were not following their primary duties and functions. Some health workers didn't receive training on lactation counsellors, so they had lack confidence when providing health education to patients. The health worker is the key to successful breastfeeding education for the mothers. This opinion is in line with former research that concluded that health workers' support was related to the mothers' exclusive breastfeeding behavior. Health workers are the key to success in exclusive breastfeeding education (Rosita, 2014).

Based on an interview with the head of PHC, exclusive breastfeeding program for infants aged 0-6 months at the Tajinan PHC consist of: a) Skin to skin contact between mother and baby immediately after giving birth b) Breastfeeding in the first 60 minutes c) Giving colostrum d) Emptying one breast before

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transferring the baby to the other breast e) Not giving any other food including plain water, sugar water or other food until six months old f) On-demand breastfeeding, according to the baby's wishes day and night at least eight times per day. All health workers at the Tajinan PHC must know the existing policies to provide health education related to standardized exclusive breastfeeding. Thus, the implementation process had been integrated following the guidelines of the Tajinan PHC, although it was not yet optimal. The coverage of the exclusive breastfeeding program as the output of the program at the Tajinan PHC in 2018 was 89.3%. It means that exclusive breastfeeding significantly affects the stunting prevalence.

Every month, the village midwife as the implementer, with the help of cadres, carried outweighing and measuring the babies during the posyandu activities. There was a lack of anthropometric measuring tools. The Tajinan PHC had one midwifery and nine village midwiferies. At the stage of the process, the Tajinan PHC had a policy in monitoring the growth and development of infants, namely monitoring the body weight measured every month and the height of the toddler measured simultaneously every year. These results were recorded and entered into a growth and development chart. When there are subnormal anthropometric results, the village midwife will report them to the PHC and directly visit the target toddler's house. Based on the interview, the coverage of the infant's growth and development monitoring program did by weighing and measuring periodically every month and simultaneously through posyandu activities. The percentage of presence infants and toddlers in monitoring growth and development at the Tajinan PHC in 2018 was 79.5%.

A study related to consumption patterns, health status, and its correlation with nutritional status and development of toddlers reported that nutrition in toddlers was essential. It is the foundation for health, strength, and intellectual abilities. The study also revealed that toddlers had a more excellent average developmental value of 71.60 ± 11.91 than preschool-aged subjects of 68.08 ± 15.54 (Lampung et al., 2018). Monitoring children's growth and development should be attention because it will affect the nutritional status, one of which is stunting.

The supplementary feeding program (SFP) in managing stunting toddlers in the Tajinan PHC was quite integrated. Every month the village midwife as the implementer, assisted by cadres, implemented the posyandu. They gave additional food to toddlers who come during weighing and measurement. PHC and Health Operational Cost (BOK) funded this activity. Providing additional food at the Tajinan PHC involved cadres in posyandu activities. The Tajinan PHC have standardized procedures related to SFP, including 1) Local food or food ingredients and not given in the form of money 2) SFP is only as an addition to the food consumed by target children daily, not as a substitute for the main meal 3) SFP intend to meet the nutritional needs of target toddlers as well as a learning process and a means of communication between mothers of target children 4) SFP is an activity outside the PHC building with a public empowerment approach with cross-program activities and other related sectors. Based on the interview,

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the SFP coverage was through activities during the posyandu activity involving cadres. The output coverage of infants and toddlers at the posyandu that received SFP at the Tajinan PHC in 2018 was 79.5%. It is following the policy standards of the Tajinan PHC. However, there should be a concern in the quality and quantity of additional food so that children health status, especially nutritional status, can be optimal.

Research on risk factors for underweight children aged 7-59 months stated that parenting played a significant role and dramatically affected the nutritional status of children, one of which was stunting. One of the critical aspects of food parenting is compiling and giving complementary foods, namely in additional food (Septiana et al., 2014). The practice can include colostrum administration, exclusive breastfeeding, and weaning practices (Doloksaribu et al., 2016).

Vitamin A administration program in managing the nutritional status of children under five with stunting at Tajinan PHC had been integrated. The village midwife was the implementer of giving vitamin A at the posyandu and assisted by the cadres to record the targets who received the vitamin. The District Department of Health Office subsidized the provision of vitamin A. Giving vitamin A at Tajinan PHC was implemented in February and August by involving cadres to give vitamin A directly from the house to house to targets who had not received vitamin A at posyandu. The vitamin A distribution to infants was 100% in February and 98.77% in August. This coverage describes the integration of the vitamin A administration program in line with the policy target of the Tajinan PHC and significantly affects the prevalence of stunting.

Research on vitamin A and zinc deficiency as a risk factor for stunting revealed that vitamin A deficiency affected protein synthesis, affecting cell growth. For this reason, children who suffer from vitamin A deficiency will experience growth failure and lack of micronutrients (Vitamin A and Zinc). It is one of the factors that influence the stunting incidence.

The taburia administration program in managing the nutritional status of stunting toddlers at the Tajinan PHC was not effective. The coordinator, who were also nutrition coordinators, did not know the main task and function in procuring taburia. The District Department of Health Office subsidized the procurement of taburia. Simultaneously, the PHC only plans taburia needs and distributes it to target children based on projection calculations from Statistics Indonesia. The policy of giving taburia at the Tajinan PHC in terms of duties and implementation teams did not integrate, especially in managing the provision of taburia, which included planning needs, provision, storage, distribution, recording and reporting, monitoring, and evaluation. Based on interviews and documentation, the taburia administration program output coverage for children under five was 0% in 2018. This coverage does not have a positive effect on reducing the prevalence of stunting under five.

Based on the evaluation of the taburia administration program, the organizing must be coordinated. This program involves other sectors of the sub-district in disseminating taburia to the public. The handbook on

the management of taburia administration program states that socialization is an essential part of increasing the coverage of taburia giving. Socialization can mobilize all levels of society to support the activity of giving taburia as a micronutrient to prevent stunting (Alim et al., 2011).

CONCLUSION

The health program for pregnant women, development monitoring program for toddlers, supplementary feeding program, vitamin A administration, correlates with the reduction of stunting toddler's incidence at Tajinan PHC. However, the taburia administration program is not effective yet.

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The Correlation Between Total Cholesterol Levels In Pregnancy Women And Baby Birth Weight

Uliyatul Laili [1], *Rizki Amalia* [2]

[1,2] *Universitas Nahdlatul Ulama Surabaya, Surabaya, Indonesia*

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CORRESPONDENCE

E-mail: uliyatul.laili@unusa.ac.id
amalia24@unusa.ac.id
No. Tlp : +6285694374759

A B S T R A C T

Maternal nutritional intake during pregnancy will affect fetal growth and development, including cholesterol intake. The fetus obtains amino acids and fatty acids through the placental absorption mechanism. The fetus needs cholesterol levels in pregnant women to meet fetal cholesterol during organogenesis. This study aims to determine the correlation between total cholesterol levels in pregnant women and baby birth weight. The research method was a prospective cohort. It took place at the Endang Maternity Clinic, Sidoarjo, from June to August 2020. The sample in this study was 33 respondents in the third trimester of pregnancy. This paper used purposive sampling. The independent variable was total cholesterol levels, while the dependent variable was baby birth weight. Cholesterol levels were evaluated by digital measurements using easy touch GCU (Glucose, Cholesterol, Uric acid) meter device, while birth weight was measured using baby scales. The data analysis utilized fisher's exact test. The results showed that most respondents had normal cholesterol levels (75.8%) and a baby birth weight between 2500 - 4000 grams (81.8%). Based on the data analysis p-value was 0.137($p > 0.05$). This study concludes that there is no correlation between total cholesterol levels in pregnant women and baby birth weight. Health workers should conduct cholesterol counseling and monitoring in pregnant women.

INTRODUCTION

Infant Mortality Rate (IMR) is the number of infant deaths in the first 28 days of life per 1000 live births. In Indonesia, 45% of child mortality occurs during the neonatal period or the first month of life (Kementerian Kesehatan Republik Indonesia, 2016; UNICEF Indonesia, 2012). Low birth weight (LBW) caused most infant deaths in East Java in 2019 (Dinkes Jawa Timur, 2019). It happens because of preterm delivery (<37 weeks), small babies during pregnancy, or both. Infants with LBW had 20 times the risk of mortality in the neonatal period than babies born with normal weight (≥ 2500 grams) (Kramer, 1987). Also, babies with small gestational age (SGA) have a 5-fold risk of neonatal death compared to babies born normally (García-Basteiro et al., 2017).

A study showed that the unbalanced lipid content during pregnancy could change fetal lipid metabolism to impact fetal growth and development and maternal metabolism (Wild, 2015; Jin *et al.*, 2016). Maternal malnutrition, inflammation, and infection during pregnancy can impact lipid changes during pregnancy and fetal outcomes.

Cholesterol levels are a form of free fatty acids. Cholesterol levels in pregnant women increase compared to the conditions before pregnancy, impacting fetal growth and development. The nutritional intake of pregnant women dramatically influences the growth and development of the fetus. Cholesterol levels in

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the mother obtained by uptaking and using low-density lipoproteins (LDL) by the placenta to get essential fatty acids and amino acids needed by the fetus. The process of endocytosis by the placenta on LDL particles plays an important role. LDL is the primary precursor for progesterone synthesis by the corpus luteum. HDL particles deliver cholesterol for progesterone synthesis (Baardman et al., 2013).

Hypercholesterolemia causes changes in vascular reactivity that can affect the supply of oxygen and nutrients to the fetus via the placenta. Cholesterol is an indispensable source for fetal hormone synthesis. Although cholesterol is necessary for fetal growth, excess cholesterol in pregnant women should be evaluated as a risk factor during pregnancy and fetal development (Zeljkovic *et al.*, 2013). A study in the Gambia showed that lipid levels during pregnancy are associated with the baby's birth weight and the risk of low birth weight (BLR) and small gestational age (SGA). This association varies according to lipid levels in each of the changes during pregnancy because maternal lipid levels affect fetal growth and birth outcomes (Sandra *et al.*, 2020). A previous study reported that the LBW incidence was still high and required proper management (Nadhifah *et al.*, 2012).

METHOD

The research method was a prospective cohort. It took place at the Endang Maternity Clinic, Sidoarjo, from June to August 2020. The population in this study were trimester III pregnant women at Endang Maternity Clinic. The samples were trimester III pregnant women with the inclusion criteria of mothers who had no history of disease and comorbidities during pregnancy. Sampling used purposive sampling as many as 33 respondents. The independent variable in this study was total cholesterol levels, while the dependent variable was baby birth weight. Cholesterol levels were evaluated by digital measurements using easy touch GCU (Glucose, Cholesterol, Uric acid) meter device, while birth weight was measured using baby scales. The data analysis utilized fisher's exact test.

RESULT

Table 1 Cholesterol Levels in Pregnant Women and Baby Birth Weight

Variable		Frequency	Percentage (%)
Cholesterol Levels	Normal	25	75.8
	Abnormal	8	24.2
Birth Weight	< 2500 grams	6	18.2
	2500 – 4000 grams	27	81.8

Table 1 shows that most respondents have normal cholesterol levels (75.8%) and a baby birth weight between 2500 - 4000 grams (81.8%).

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Table 2. Cross Table Between Cholesterol Levels in Pregnant Women and Baby Birth Weight

		Birth Weight				p-value
		< 2500 gr		2500 – 4000 gr		
		n	%	n	%	
Cholesterol Levels	Normal	3	9,1	22	66.6	0.137
	Abnormal	3	9,1	5	15.2	
Total		6	18,2	27	81.8	

Table 2 describes that most respondents (66%) with normal cholesterol levels give birth to babies with normal birth weight (2500-4000 grams). Based on the results of statistical test analysis, the P-value of fisher's exact test was 0.137 ($p>0.05$), so there was no correlation between cholesterol levels and baby birth weight.

DISCUSSION

The results showed no correlation between cholesterol levels in pregnant women and baby birth weight, with $p = 0.137$. Based on the research results, many factors can affect the fetal outcome/birth weight. Baby birth weight is influenced by several factors, namely internal factors, and external factors. Internal factors that affect the baby's birth weight are pregnancy spacing, parity, hemoglobin levels, nutritional status, and disease during pregnancy (Maryunani, 2013). During pregnancy, these factors affect baby growth and development. Most of the fetuses born to mothers with these factors will be delivered with low birth weight.

Another problem that can affect the growth process of the fetus in the uterus is cholesterol levels in pregnant women. The fetus needs cholesterol in the right amount, and when it is excessive, it can cause problems. The increased LDL influences the increased cholesterol levels in the blood—secondary LDL due to a significant buildup in triglycerides in the circulation (Thais et al., 2011). Cholesterol disorders in pregnant women are associated with abnormal pregnancy outcomes. A study found an association between low serum cholesterol in pregnant women and pregnancy outcomes, including microcephaly and growth retardation. Previous research reported the same finding that low concentrations of LDL-cholesterol and serum total cholesterol levels of pregnant women cause intrauterine growth restriction (IUGR) (Vrijkotte et al., 2012). Cholesterol levels need to get attention to pregnant women with a pregnancy age more than 35 years. Though it is not directly related to pregnancy, it can affect the mother's health.

CONCLUSION

In conclusion, there is no significant correlation between total cholesterol levels in pregnant women and baby birth weight. Health workers should conduct cholesterol counseling and monitoring in pregnant women.

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The Correlation Between Participation In Pregnancy Workouts And Perineum Ruptures Incidence In Woman With Normal Labor At The Sumengko Village Maternity Cottage, Lamongan District

Khusnul Nikmah [1], Eka Sarofah Ningsih [2], Vita Yushofa [3]

[1, 2, 3] *Universitas Islam Lamongan, Lamongan, Indonesia*

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CORRESPONDENCE

E-mail: khusnulnikmah.80@gmail.com
No. Tlp: +6281330148254

A B S T R A C T

Pregnancy workouts are exercise programs intended for pregnant women to tighten the body and prepare the necessary muscles to face labor. Labor often results in perineum tears. This study aims to determine the correlation between participation in pregnancy exercise and perineal rupture incidence. The research method used correlation analysis using a retrospective approach. The population in this study were postpartum mothers at the Sumengko village maternity cottage, Kedungpring District, Lamongan Regency. The sample was 24 respondents using the quota sampling technique and then analyzed using Chi-Square. Most respondents who participated in pregnancy workouts did not experience perineal rupture (54.2%). Meanwhile, respondents who did not participate in pregnancy workouts experienced perineal rupture (33.3%). The chi-square test result was p=0.000 (α<0.05). There was a correlation between participation in pregnancy workouts and perineal rupture incidence in women with normal delivery. Thus, pregnant women should participate in pregnancy workouts regularly to prevent perineal tears.

INTRODUCTION

A pregnancy workout is a useful exercise for helping pregnant women get the energy to smooth the labor process. It is recommended for mothers who are pregnant for the first time and mothers who have experienced difficulties in childbirth or have given birth to premature children (Widianti and Proverawati 2010). Labor often results in perineum tears or perineum rupture. When perineal rupture does not manage well, it can cause bleeding and infection, and for a long time, discomfort in sexual intercourse (Saifuddin, 2014)In Indonesia, 75% of women who experience normal delivery have perineal lacerations. In 2017, out of a total of 1951 spontaneous vaginal births, 57% of mothers received perineal sutures (28% due to episiotomy and 29% due to spontaneous tears) (Depkes, 2017).

The direct cause of maternal death was bleeding (28%), preeclampsia/eclampsia (24%), infection (11%), prolonged labor (5%), and abortion (5%). Besides, anemia and chronic energy deficiency (CED) in pregnant women are also the leading causes of maternal mortality, as much as 5% of the causes of maternal mortality in Indonesia (Kementrian Kesehatan, 2014). The most common cause of maternal death in Indonesia is postpartum hemorrhage. Postpartum hemorrhage caused by perineal tear is the second cause of bleeding after uterine atony. It happens in almost all first deliveries and not infrequently in subsequent deliveries. Birth canal tears also cause discomfort during the puerperium, giving pain to the

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suture marks and interfering with the mobilization of postpartum mothers. The risk of infection can also occur in perineal wounds when there is no appropriate care at home (Mochtar, 2012)

One way to control the perineal rupture incidence is pregnancy workout. It is a useful exercise for helping pregnant women get the energy and smooth the labor process. It is recommended for mothers who are pregnant for the first time and mothers who have experienced difficulties in childbirth or have given birth to premature children (Widianti and Proverawati, 2010). In general, it is recommended for pregnant women so that the mother is ready when labor arrives. With breathing exercise carried out in pregnancy workouts, the mother has no longer trouble following the doctor's or midwife's orders during childbirth. Many benefits can be obtained, especially for mothers whose pregnancy is more than 32 weeks. As a result, the mother is ready to give birth and expedite the delivery process (Fania, 2010).

Based on a preliminary study on December 19, 2016, at PKU Muhammadiyah Bantul Hospital, the number of normal deliveries was 452 from January to December 2016. There were 81 mothers (17.9%) who experienced perineal rupture during childbirth. Based on the data obtained by the Sumengko village maternity cottage (from now on, it is named with polindes), Kedungpring District, Lamongan Regency, ten mothers experienced normal labor from May 17 to 25, 2017. Six women of them had a perineal rupture. Of six women, four women did pregnancy exercise, and two women did not participate in pregnancy exercise. Four women who did not experience perineal rupture regularly did pregnancy exercises. This study analyzes the correlation between participation in pregnancy workouts and perineal rupture incidence at Sumengko Polindes, Kedungpring Sub-District, Lamongan District.

METHOD

Research methods used correlation analysis. The population was postpartum mothers with 24 respondents by quota sampling technique who met the inclusion criteria – postpartum mothers with normal delivery. The instruments utilized questionnaires and medical peer data (rupture perineum examinations), then data processing by editing, coding, scoring, and tabulating. Data analysis utilized the Chi-Square test with significance $p<0.05$.

RESULT

Table 1 Respondent's Characteristics Based on Age, Parity, Education, and Occupation at Sumengko Polindes

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Characteristic	Frequency	Percentage (%)
Age		
Age < 25 Years	6	25.0
26 - 35 Years	14	58.3
> 36 Years	4	16.7
Education		
Senior High school	18	75.0
College	6	25.0
Parity		
Primipara	9	37.5
Multiparaous	15	62.5
Profession		
Housewive	8	25
Private	12	37.5
Civil servant	4	16.7

Table 1 shows that most respondents aged 26 - 35 (58,3%), multiparous (62,5%), and private workers (37,5%). They graduate from senior high school (75,0%).

Table 2 Participation in Pregnancy Workout and Perineal Rupture Incidence

Variable	Frequency	Percentage (%)
Participation in pregnancy workout		
Participate	14	58.3
Not Participate	10	41.7
Perineal Rupture Incidence		
Yes	9	37.5
No	14	62.5

Table 2 explains that most respondents participate in pregnancy workouts (58,3%) and do not experience perineal rupture (62,5%).

Table 3 Cross Tabulation Between Participation in Pregnancy Workout and Perineal Rupture Incidence

Participation in Pregnancy Exercise	Perineal Rupture Incidence				Total	
	Yes		No			
	N	%	N	%	N	%
Participate	1	4.2	13	54.2	14	58.4
Not Participate	8	33.3	2	8.3	10	41.6
Total	9	37.5	15	62.5	24	100
	p = 0.000					

Table 3 describes that most respondents who participate in pregnancy workouts do not experience perineal rupture (54,2%). Meanwhile, respondents who do not participate in pregnancy workouts experience perineal rupture (33,3%). The chi-square test result is p=0.000 (α<0,05). There is a correlation between participation in pregnancy workout and perineal rupture incidence in a normal delivery at Sumengko Polindes, Kedungpring Sub-District, Lamongan District.

DISCUSSION

Most respondents who participated in pregnancy workouts did not experience a perineal rupture. Pregnancy workouts are carried out from 28 weeks of gestation until birth. The benefits of regular

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pregnancy workouts help maintain the health and smoothness of the labor and postpartum process. It will make the body flexible, especially in the birth canal muscles. Anggraini dan Martini (2015) research reported that 36.4% of mothers who did pregnancy workouts graduate from senior high school. Education levels affect the interest in pregnancy exercise. Knowledge is associated with education levels. The higher education levels, the more comprehensive the knowledge, the more interesting mothers to participate in pregnancy workouts. A study by Anasari (2013) about factors analysis related to the participation of pregnant women in doing pregnancy workouts in the pregnant class. Pregnant women who work did not have time to participate in pregnancy workouts and spend more time at the office. Previous studies showed that most pregnant women who participated in pregnancy workouts did not experience perineal tears, and few of them only experienced the first degree of perineal tears (Anggraini dan Martini, 2015; Turlina, 2015). It is because they often do relaxation exercises that can make the perineum flexible. There are pelvic gymnastics in pregnancy workouts. Regular pregnancy workouts can help the pelvic floor muscles' elasticity and get effective results in the labor process. Mother can train calm in facing the labor process, strengthen and maintain elasticity when straining the pelvic floor muscles and inner thigh muscles to relax actively so that the pelvic floor muscles become elastic during labor (Hullian, 2012).

The results showed that most respondents who experienced perineal rupture did not participate in pregnancy workouts. It is in line with Turlina (2015) study regarding the correlation between pregnancy workout and perineal rupture incidence. The study reported that women with normal labor who did not participate in pregnancy exercise experienced perineal tears (62.5%), and 37.5% did not have perineal tears. Oxom & Forte (2010) states that perineal rupture generally occurs in primiparous, but not infrequently also in multiparous. The usual causes of perineal rupture at parity are precipitous labor, forceful straining, edema, and fragility of the perineum, flexibility of the birth canal, and labor with cesarean section. The causes of fetal factors are fetal birth weight, breech presentation, abnormal head position, forceps extraction, shoulder dystocia, and congenital anomalies.

There was a correlation between participating in pregnancy workouts and the perineal rupture incidence in a woman with normal delivery. In line with Riswati (2015) the results showed a significant correlation between pregnancy workout and perineal tears in primigravida at the Tegalrejo Public Health Center, Argomulyo District, Salatiga City. Perineal rupture has many factors that influence both maternal, fetal, and helper factors. Maternal factors consist of uncontrolled and precipitous labor (the most common cause). Other maternal factors are the patient cannot stop pushing, labor resolves hastily with excessive fundal push, edema, and fragility of the perineum. Narrow arcus pubis with narrow lower pelvic gates also presses the baby's head towards the posterior and enlargement the episiotomy. Fetal factors are a big infant with an abnormal head position, facial and occiput posterior presentation, breech birth, forceps

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extraction, shoulder dystocia, and congenital anomaly (Oxom & Forte, 2010). Besides, adjuvant factors can also affect the incidence of perineal rupture. Helping factors consist of the way to communicate with the mother. During childbirth, the examination to prevent perineal rupture is a pelvic examination with the suitability of the baby to be born (Oxom & Forte, 2010). Pushing too hard will cause perineal rupture because the baby will be born uncontrollably and too quickly. Health workers should establish cooperation with mothers, guide mothers to rest or breathe quickly and use the correct manual tactics to regulate the baby's birth and prevent lacerations (JPNK-KR, 2008). A straining mother before complete cervical opening can cause edema and cervical laceration (Kementerian Kesehatan Republik Indonesia, 2013).

CONCLUSION

Participation in pregnancy workouts correlates with perineal rupture incidence. Most respondents who participated in pregnancy workouts did not experience perineal rupture at the Sumengko Polindes, Kedungpring Sub-District, Lamongan District. Thus, pregnant women should participate in pregnancy exercise regularly to prevent perineal rupture

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The Correlation Between Patient Satisfaction Regarding Nutrition Service And Hospital Length Of Stay With Food Waste In Covid–19 Patients

Budhi Setianto [1], *Agus Aan Adriansyah* [2], *Umi Hanik* [3], *Difran Nobel Bistara* [4]

[1, 2, 3, 4] *Universitas Nahdlatul Ulama Surabaya, Surabaya, Indonesia*

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CORRESPONDENCE

E-mail: budhisetianto@yahoo.com
No. Tlp: +6282131718862

A B S T R A C T

Patient satisfaction is one indicator of success in the hospital nutrition service. In Covid-19 patients, several symptoms affect the hospital length of stay so that the patient's nutrition dramatically affects the patient's improvement. This study aims to determine the correlation between patient satisfaction regarding nutrition service and length of stay with food waste in Covid-19 patients. This study used quantitative research with an observational approach and cross-sectional method at the isolation room of Surabaya Islamic Hospital during July-September 2020. The method to evaluate food waste was Comstock scale visual estimation. The questionnaire consisted of patient satisfaction regarding nutrition service and the length of stay. The data analysis utilised the chi-square test. The 116 sample was all patients who were hospitalised at the isolation room during July-September 2020. The results showed a correlation between patient satisfaction regarding nutrition service and plate waste (p=0.000), while hospital length of stay did not correlate with food waste (p=0.517). In conclusion, there is a correlation between patient satisfaction regarding nutrition service with plate waste. The better the food presentation, the more the food eaten. The hospital length of stay does not affect food waste. Food consumption should be more varied to improve the patient's appetite and patient satisfaction. As a result, it can faster the healing process.

INTRODUCTION

The development of society is increasingly critical, causing the quality of service, both medical and other services, in the hospital to become the spotlight. There is patients' demand toward qualified service in patient's recovery and patient's satisfaction toward the quality of the entire service process, including nutrition service for the patient in the hospital. The better the nutrition service quality in the hospital, the higher the patient's cure rate (RI, 2007).

Nutrition service in a hospital is a service given and customised to the patient's state based on clinical condition, nutritional status, and body metabolism status. The patient's nutritional status is influential to the disease recovery process; (Nurhasanah M, Fasty A, 2020) otherwise, the course of the disease can affect the patients' nutritional status. Good intake use to heal organs. The impaired organ function will be worse because of illness and lack of dietary needs (Kementerian Kesehatan Republik Indonesia, 2013). The 2013 Indonesian Ministry of Health Guidelines explain the factors that can affect patient satisfaction, namely the food presentation, punctuality in food serving, food menu variety, food taste, cleanliness of tools, and professional appearance of officers (Kementerian Kesehatan Republik Indonesia, 2013).

Covid-19 patients experience many symptoms; one is olfactory dysfunction, which includes hyposmia and anosmia: the anosmia influences the patient's appetite and food waste (Meng et al., 2020). The length

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of stay of a covid-19 patient is influenced by the course of the disease experienced by the patient. The disease begins with an incubation period of about 3-14 days (median five days). In this period, leukocyte and lymphocytes are still normal or decrease slightly, and the patient is asymptomatic. In the next phase (early symptoms), the virus spreads through blood flow, especially in tissue expressing ACE2 like lungs, gastrointestinal tract, and heart (Susilo, 2020). Symptoms of this phase are commonly light. The second attack occurs after four to seven days of the first symptoms. In this period, the patient still begins to spasm, the lesions in the lung lesions worsen, and lymphocytes decrease. Inflammation sign begins to increase, and hypercoagulation occurs. When it is not handled, the following inflammation will be more uncontrollable. Cytokine storms will occur which cause Acute Respiratory Distress Syndrome (ARDS), sepsis, and other complications. Covid-19 patients desperately need an immunity role so that they can recover faster (Lipoeto, 2006). Therefore, nutrition is essential in covid-19 patients. Nutrition support is part of therapy that has a vital role in patients' recovery. Optimal nutrition support will increase the patient's immunity, increasing the body's ability to strive against the disease (Nurhasanah M, Fasty A, 2020; Men et al., 2020) Food waste is one of the optimal indicators in hospital food administration. It reflects the patient's inadequate nutrition intake and economically represents a lot of wasted costs. Insufficient energy intake for an extended period increases a 2.4 times risk of malnutrition (Nurqisthy et al., 2017). Assessment of plate waste is necessary to evaluate the patient's intake in handling malnutrition risk. Plate waste can be affected by taste, food variation, and environmental factors such as meal schedules, food from outside hospitals, meal tools, and food distribution officers (Nurhasanah M, Fasty A, 2020).

Observation of food consumption and plate waste is a crucial and straightforward evaluation. Weighing the food left on the plate directly is the accurate method, but this method has weaknesses –much time, special equipment, and trained staff – so it is not easy to do. One way that developed to assess a patient's food consumption is the Comstock scale visual estimation method. This method is more profitable because it is easy to do, inexpensive, and does not take a lot of time (Susyani et al., 2005).

A study in the patients who got nutrition service at Bhayangkara Hospital showed dissatisfaction, seen from over 25% of patients' leftover food. According to the Indonesian Ministry of Health (2008), the minimum nutrition service standard in the hospital is ≤ 20%. Previous research by Ariefuddin (2009) in Gunung Jati Hospital, Cirebon showed that leftover snacks did not correlate with patient satisfaction about the food quality. However, all subjects had a leftover snack in the small category (≤25%) and expressed their satisfaction with food quality (Kartini, 2018). This paper investigates the correlation between hospital length of stay and patient satisfaction in nutrition service with plate waste in Covid-19 patients hospitalised at the Surabaya Islamic Hospital.

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METHOD

This research was a quantitative study with an observational approach and a cross-sectional research method. The study took place at the Covid-19 isolation room at Surabaya Islamic Hospital during July-September 2020. The sample was all patients who were hospitalised during July - September 2020. Primary data collection was carried out by distributing questionnaires to subjects. The independent variables were patient satisfaction in food service and hospital length of stay, while the dependent variable was plate waste. The questionnaire consisted of patient satisfaction in nutrition service and the length of stay. The method to evaluate food waste was Comstock scale visual estimation. The data analysis used the Chi-square test with a significant level of 95%.

RESULT

Table 1 Respondents characteristic by gender, age, house distance, and length of stay (N= 116)

Characteristic	n	%
Gender		
Woman	64	55
Man	52	45
Age (Years old)		
<25	12	10
25-35	32	28
36-45	15	13
46-55	34	29
>55	23	20
House Distance (kilometres)		
<5	36	31
5 -10	33	28
10 -20	29	25
>20	18	16
Length of Stay		
≤ 9 days	33	28
> 9 days	83	72

Table 1 shows that most respondents are women (64%), 46-55 years old (29%), house distance less than five kilometres (31%), and length of stay at covid-19 isolation room more than nine days.

Table 2. Patient Satisfaction regarding nutrition service, length of stay, and plate waste in Covid-19 patients

	n	%
Hospital Length Of Stay		
Long Enough Hospitalisation	40	34
Long Hospitalisation	76	66

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Total	116	100
Patient Satisfaction regarding Nutrition Service		
Satisfied	63	54
Not satisfaied	53	46
Total	116	100
Plate waste		
Yes	72	62
No	44	38
Total	116	100

Table 2 describes that most respondents have a long hospitalisation (66%), are satisfied with food service (54%), and have plate waste (72%).

Table 3. The Correlation between patient satisfaction in nutrition service and plate waste in covid-19 patients

Satisfaction	Plate waste				p-value
	Yes	%	No	%	
Satisfied	22	19	36	31	0.000
Not Satisfied	50	43	8	7	

Table 3 shows that respondents with no food waste state that they were satisfied with nutrition service (31%). Meanwhile, respondents who have plate waste express dissatisfaction with nutrition service (43%). The chi-square test result is p=0.000 (α<0.05). Thus, there is a correlation between patient satisfaction in nutrition service and plate waste in covid-19 patients.

Table 4. The correlation between hospital length of stay and plate waste in Covid-19 patients

Length of Stay		Plate Waste			p-value
		Yes		No	
	n	%	n	%	0.517
Long Enough	26	22	14	12	
Long	46	40	30	26	

Based on table 4, respondents with long enough hospitalisation do not have plate waste (12%), while respondents with long hospitalisation have plate waste (40%). The chi-square test result is p=0.516 (α>0.05). Thus, there is no correlation between hospital length of stay and plate waste in covid-19 patients.

DISCUSSION

The correlation between patient satisfaction in nutrition service and plate waste

Patient satisfaction is the hospital's priority as an organisation. Patient satisfaction, in this term, is nutrition service. There were several indicators of patient satisfaction in the questionnaire that we distributed. The questionnaire consisted of the food portions, food presentation, the taste of the vegetable/ animal side dishes, cutlery cleanliness, punctuality in serving food, food served to support recovery, and diet adherence. Meanwhile, The plate waste in this study was categorised into 2 – there is and no plate waste. Plate waste is one indicator to determine patient satisfaction with food service in the hospital.

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The statistical test showed the value p = 0.000. Thus, there was a significant correlation between patient satisfaction regarding nutrition service with plate waste in Covid-19 patients at the isolation room of Surabaya Islamic Hospital. Satisfaction describes someone who has experienced an outcome following his expectations. So satisfaction is a function of the level of expectation and activity results. When an activity results exceed one's expectations, someone is satisfied. Meanwhile, someone will feel dissatisfied when the results are far below expectations (Farida, 2018).

According to Istianto (2011), five dimensions that affect patient satisfaction are food quality, punctuality in food serving, service reliability, food temperature, and the attitude of the food serving staff. Satisfaction with the food served is good when the food has a high taste, appearance, and attractive presentation. It encourages patients to finish the served food so that there is no food waste. As a result, it can accelerate the healing process (Farida, 2018).

The correlation between hospital length of stay and food waste Hospital length of stay dramatically affects the patient's cure rate. It is one of the elements or aspects of care and service in the hospital that can be assessed or measured. Someone in hospitalisation expects a change in the health degree. Most respondents in this paper had a long hospitalisation. There was no correlation between hospital length of stay and plate waste in covid-19 patients.

This result is in line with research conducted by Iswanto et al., (2016) It reported that there was no significant relationship between staple leftover food and vegetable side dishes with hospital length of stay ($p>0.05$). Still, there was a significant relationship between leftover animal side dishes and fruit with hospital length of stay ($p<0.05$). However, it is different from research conducted by Kandiah (2006). The study showed a relationship between leftover food and hospital length of stay in patients (Iswanto et al., 2016). This study indicated that patient satisfaction regarding nutrition service would provide overall satisfaction in inpatient services. Furthermore, it can shorten the treatment period in the patient.

CONCLUSION

There is a correlation between patient satisfaction regarding nutrition service with plate waste. The better the food presentation, the less food waste in the patient. The hospital length of stay does not affect food waste. Food consumption should be more varied to improve the patient's appetite and patient satisfaction. As a result, it can faster the healing process.

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Genetic Polymorphism In Individuals With Type II Diabetes Mellitus Using PCR-RAPD In Sidoarjo District

Miftahul Mushlih [1], Fitri Kumala Sari [2], Djauharoh A. Hadie [3], Syahrul Ardiansyah [4]

[1, 2, 3, 4] *Universitas Muhammadiyah Sidoarjo, Sidoarjo, Indonesia*

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CORRESPONDENCE

E-mail: mif.mushlih@umsida.ac.id
No. Tlp: +6288235806040

A B S T R A C T

Diabetes Mellitus type II (T2DM) is a metabolic disorder. Its incidence increases from year to year. The control of T2DM incidence is problematic because it is involved genetic and environmental factors. Moreover, it can cause complications in people with infectious diseases. This study aims to determine the polymorphism of sufferers and non-sufferers of T2DM using the Polymerase Chain Reaction-Random Amplified Polymorphic DNA (PCR-RAPD) method. This research was descriptive-analytic with a cross-sectional approach. The sample consisted of 60 samples – 30 positive and 30 negative samples taken from several clinics in the Sidoarjo district. The primer used was A18 (5'- AGGTGACCGT-3'). Data analysis used Chi-square with a 95% confidence level. The results produced 17 bands with the length of 197 bp, 239 bp, 269 bp, 319 bp, 390 bp, 530 bp, 588 bp, 686 bp, 777 bp, 972 bp, 1175 bp, 1676 bp, 2780 bp, 3843 bp, 6563 bp, 11072 bp & 18434 bp. The four bands were monomorphic. Two bands that showed significantly different results were 319bp (p=0.035) and 18434 bp (p=0.004). In conclusion, there are significant differences between people with and without T2DM in several fragments, namely 319 bp and 18434 bp bands. Further analysis needs to confirm the genes involved.

INTRODUCTION

Type II diabetes mellitus (T2DM) is a metabolic disorder characterized by increasing blood sugar levels due to insulin resistance so that glucose cannot enter the cells as a source of energy (Ekoe et al., 2018). Based on the International Diabetes Federation (IDF), in 2020, people with diabetes reached 463 million in the world. Half of them do not realize they had diabetes. In addition, diabetes also causes more financial expenditure for treatment (Loviana et al., 2015). T2DM caused an additional 2.2 million deaths by increasing the risk of cardiovascular and other diseases. 43% of the 3.7 million deaths occurred before 70 years (WHO, 2004). The T2DM incidence also exacerbates the comorbidities (Singh et al., 2020). The hematological character also changes according to the characteristics and severity (Kekenusa et al., 2016; Mushlih, 2020; Sebayang, 2016).

T2DM control has not been optimal because genetic and environmental factors affect its incidence (Al-Quwaidhi et al., 2013; Karalliedde & Gnudi, 2016). Genetic factors are inherited from parents, while environmental factors can be habits or lifestyles. In addition, it is influenced by the complex interaction of several genes that regulate energy metabolism in the body. Polymorphisms that occur in genes associated with regulating glucose metabolism have significant implications for T2DM onset (Chen et al., 2013;

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Tsaih et al., 2014). Another factor that also influences T2DM incidence is race (Gray et al., 2015), obesity, age (Evi & Yanita, 2016), and others (Rahayu et al., 2012).

Genotype analysis of people with T2DM is critical to detect possible incidence and preventive measures (Lyssenko & Laasko, 2013). Previous studies could identify polymorphisms in T2DM sufferers using the Polymerase Chain Reaction-Random Amplified Polymorphic DNA (PCR-RAPD) method (Zahid et al., 2011). However, the study had several shortcomings, including too few samples, and the genes involved had not been detected. PCR-RAPD is a relatively inexpensive and easy method to identify polymorphisms in individuals (Anggraeni, 2008). In addition, the PCR-RAPD will produce a particular band pattern. This pattern can be used as a fingerprint to detect the possibility of T2DM tendency. This study analyzes the polymorphism in people with T2DM using the PCR-RAPD technique. We used more samples to confirm the band differentiation between T2DM and non T2DM. So that in the future, it can be used to analyze the potential for a person to have T2DM based on genetic markers.

METHOD

This research did at the Molecular Biology Laboratory, University of Muhammadiyah Sidoarjo. The Health Research Ethics Committee (KEPK) approved the feasibility test for sampling, Faculty of Medicine, Airlangga University with numbers 194, 195, & 196 / HRECC. FODM / V / 2019. This paper was descriptive-analytic with a cross-sectional approach. There were 60 samples – 30 T2DM positive and 30 T2DM negative samples. Positive samples were taken from the Sidoarjo Hospital Wounds Clinic & Krian Public Health Center. Meanwhile, negative samples were taken from community volunteers and students at the Muhammadiyah University of Sidoarjo. A positive sample was T2DM diagnosed by a doctor, or random blood sugar (GDA) levels more than 210 mg/dl. Negative samples were determined from the absence of T2DM family history and confirmed by random blood sugar examination less than 180 mg/dl. The venous blood sample was taken using macro sampling (3 ml), then placed in an EDTA tube and stored in a cool box, and immediately taken to the laboratory to be stored in a cold cupboard until it is used. DNA extraction utilized the standard GeneAid protocol and then checked the concentration using a UV Vis Spectrophotometer (Thermoscience evolution 201). The PCR process was carried out with a total volume of 20 µl with a composition of 2 ul DNA (average concentration 200 ng/ul), 10 ul PCR mix, 2 ul primer A 18 (5'- AGGTGACCGT-3') (10 pmol) and the rest was ddH2O. A18 primer produces polymorphic DNA, which has the sequence 5 '- AGGTGACCGT-3'.

The PCR-RAPD process was carried out using a Biorad T100 thermocycler with predenaturation details 96oC for 5 minutes; denaturation of 96oC for 1 minute; annealing 36oC for 1 minute; elongation at 72oC for 1 minute; post elongation at 72oC for 10 minutes. The process was carried out 40 cycles. The PCR product was then carried out electrophoresis using 2% agarose gel. The data was processed based on the

presence or absence of the resulting band, and the band length is analyzed based on the resulting slope and intercept values. The data were analyzed using the Chi-Square cross-sectional test with a confident level of 95%.

RESULT

The results showed that there were 17 bands produced, namely bands at lengths 197 bp, 239 bp, 269 bp, 319 bp, 390 bp, 530 bp, 588 bp, 686 bp, 777 bp, 972 bp, 1175 bp, 1676 bp, 2780 bp, and 3843 bp. In this study, The four bands were monomorphic. In addition, one band (11072 bp) had the same frequency. The significance difference could be seen in the bands 319bp (p= 0.035) and 18434 bp (p= 0.004). A difference in polymorphisms in T2DM sufferers and controls can be seen in Table 1. The DNA bands from the electrophoresis were then analyzed using 2% agarose gel in Figure 1.

Table 1. Analysis of polymorphisms in people with T2DM and controls

Band length (bp)	Frequency		Percentage		p-value
	Negative	Positive	Negative	Positive	
197	22	19	73.3%	63.3%	0.405
239	30	30	100.0%	100.0%	1
269	9	4	30.0%	13.3%	0.117
319	16	8	53.3%	26.6%	0.035
390	30	30	100.0%	100.0%	1
530	1	0	3.3%	0.0%	0.313
588	30	30	100.0%	100.0%	1
686	30	30	100.0%	100.0%	1
777	29	30	96.6%	100.0%	0.313
972	3	6	10.0%	20.0%	0.278
1175	29	30	96.6%	100.0%	0.313
1676	29	30	96.6%	100.0%	0.313
2780	27	29	90.0%	96.7%	0.301
3843	27	28	90.0%	93.3%	0.64
6563	29	30	96.6%	100.0%	0.313
11072	13	13	43.3%	43.3%	1
18434	11	22	36.6%	73.3%	0.004

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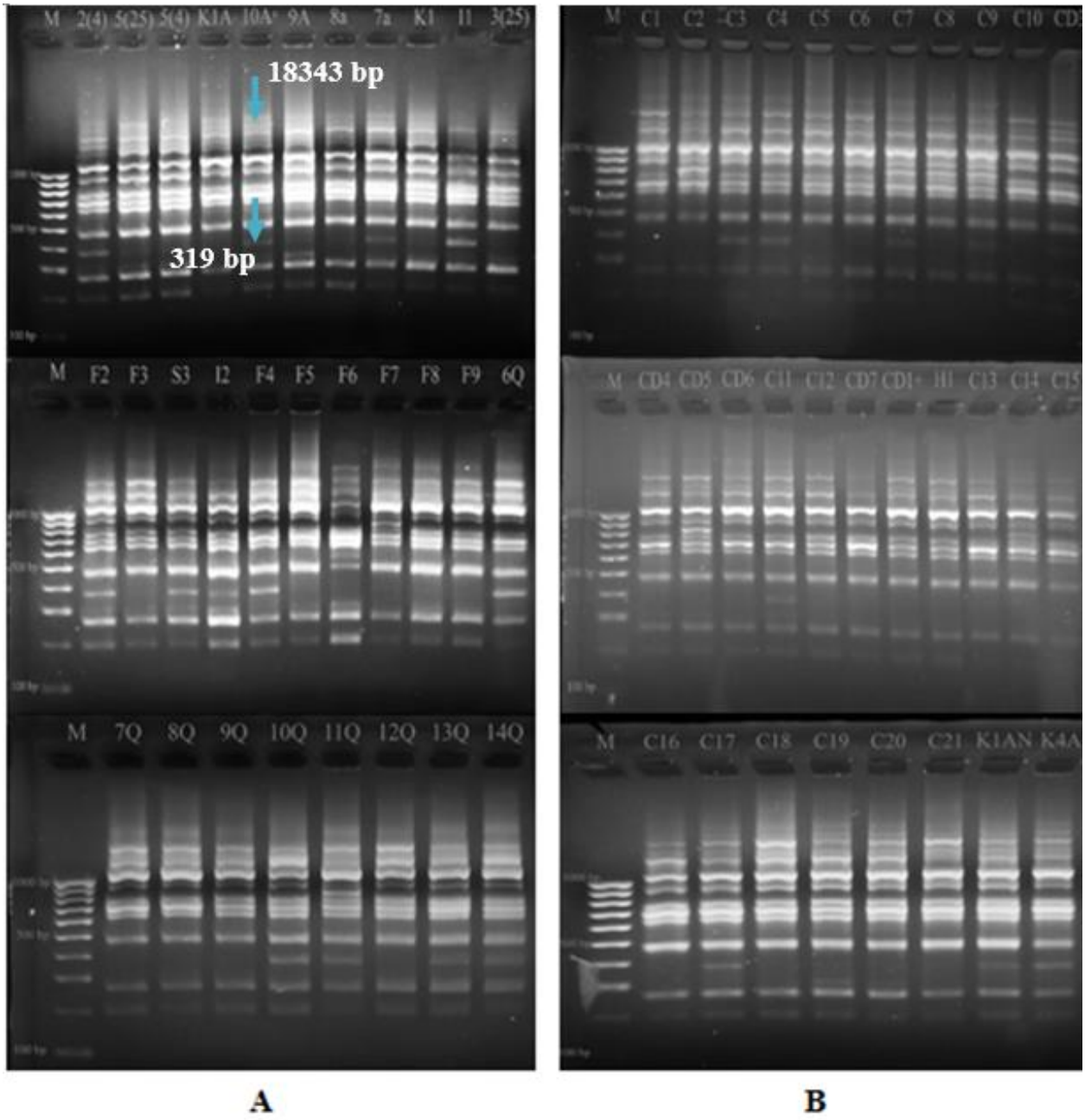

Figure 1. Appearance of PCR-RAPD electrophoresis results using primer A18. A. Negative sample (control). B. Positive Samples (T2DM). Agarose 2%. M: Marker 100 bp. Blue arrows indicate bands that are significantly different in individuals with T2DM and negative / control samples

PCR-RAPD is the most widely used technique to detect polymorphisms in an organism, both intra and inter-species. This study had successfully detected polymorphisms in 60 samples and showed several characters that differentiate between T2DM and non T2DM sufferers. The difference laid in the bands 319 bp and 18434 bp (p-value <0.05). This difference was based on chi-square analysis using nominal data. The RAPD analysis depends on whether or not the band comes out when visualizing using the 2%

gel electrophoresis method. The clearer and more compact the resulting band, the more reliable and can be trusted.

DISCUSSION

In this study, the results were pretty different in the two bands produced. The 319 bp band showed a compact and clear character, while the 18434 bp band showed a faint band. Although the 18434 bp band had a higher significance value, it required a high enough carefulness to read the DNA band to analyze. Unlike the 18434 bp band, the 319 bp band showed a compact character so that it can be used to determine the tendency of T2DM in individuals. Band 319 in the individuals with T2DM and non T2DM showed a clear appearance. The other bands, 239 bp, 390 bp, 588 bp, and 686 bp, were seen in both groups. The appearance of the bands was so compact that they looked similar.

This paper strengthens previous research, which reported that three of 16 primers did not produce amplification patterns. Seven primers produced monomorphic bands. Meanwhile, A10, A18, C5, D20, R3, and R4 produced polymorphic DNA profiles – the most polymorphism was A18 (Zahid et al., 2011). This study also found a band that dominated the negative sample (control) and was not found in people with T2DM. However, statistical tests have not been carried out and only show polymorphisms. A statistical test showed the percentage and significant differences in the appearance of each band. The A18 primer clearly showed the difference in the 319 bp band, which had a compact position and could easily be distinguished from other bands because of its short size. Analysis of the same sample and using different primers (D20) also showed a significant difference in the 576 bp band (Mushlih et al., 2020). This information can explore a potential genetic marker in a society (Kumari & Thakur, 2014).

Genetic information about individuals with and potential T2DM is essential (Shields et al., 2010). This research is the basis for justifying someone who has the potential for DMT2. Further analysis should determine the genes involved based on the differences in the resulting bands. It is because T2DM is very dependent on race, ethnicity, nation, and population. Therefore, the potential T2DM can be different even though they have the same genotype in one gene. Analisis with a PCR-RAPD method can explore the whole genome and not focus on specific gene mutations

CONCLUSION

The results show significant differences between people with and without T2DM in several fragments, namely 319 bp and 18434 bp bands. The 319 bp band shows easier observation results and can predict potential T2DM. The 18434 bp band shows a relatively more difficult band because of its less obvious appearance and higher position. Further analysis of these fragments is necessary to determine the associated genes.

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Profile Of Leukocyte Count In Children With Typhoid Fever At The Dr. Tadjuddin Chalid Hospital, Makassar

Rivaldy Prayudha [1], *Najamuddin Andi Palancoi* [2], *Syatirah Jalaluddin* [3]

[1] *Doctor Professional Education, Faculty of Medicine and Health Sciences, Alauddin State Islamic University of Makassar, Indonesia*
[2, 3] *Biomedical Science, Faculty of Medicine and Health Sciences, Alauddin State Islamic University of Makassar, Indonesia*

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CORRESPONDENCE

E-mail: rivaldyprayudhaadirachman@gmail.com
No. Tlp : +6282328888097

A B S T R A C T

Typhoid fever is one of the endemic diseases in Indonesia caused by Salmonella typhi bacteria. A hematological examination to support medical diagnosis is complete blood count – a decrease in the number of leukocytes is often found. This study was conducted to determine the number of leukocytes in patients with typhoid fever in children. This paper aims to analyze the number of leukocytes based on age, gender, hospital length of stay, and type of antibiotic. It was a descriptive method with a cross-sectional design. The sample was all typhoid fever patients aged 1-18 years hospitalized at the dr Tadjuddin Chalid hospital, Makassar, and 75 respondents by total sampling. Data collection was carried out using secondary data from medical records of patients from January to December 2018. The data analysis used the chi-square and Spearman test. It revealed that 28% of respondents had leukopenia, 54.7% had normal leukocytes, and 17.3% had leukocytosis. Leukopenia was mostly in respondents aged 7-12 years (34.4%), males (34.1%), hospital length of stay less than seven days (26.5%), and administered with ceftriaxone (26%). The chi-square analysis results between leukocyte count and age, gender, hospital length of stay, also type of antibiotic consecutively obtained p=0.064, 0.317, 0.414, 0.923 (p>0.05). Most children with typhoid fever have a normal leukocyte. However, the leukocyte count does not correlate with age, gender, hospital length of stay, and type of antibiotic.

INTRODUCTION

One of the endemic diseases in Indonesia is typhoid fever. This disease is listed in Law number 6 of 1962 concerning outbreaks and is included in the group of easily transmitted diseases (Setiati et al., 2014). The World Health Organization (WHO, 2017) estimates that typhoid fever cases reach 11-18 million cases and 128,000-190,200 deaths annually due to typhoid fever. Its incidence in rural areas Indonesia is 358 / 100,000 population/year, while in urban areas, it is 760/100,000 population/year or around 600,000 and 1.5 million cases per year, evenly distributed throughout the province (Soedarmo & Garna , 2010). Reports received from the Disease Control and Environmental Health Office of South Sulawesi Province in 2014 recorded 23,271 cases of typhoid fever South Sulawesi Health Office (2015) Report from the Disease Prevention and Control of the Makassar City Department of Health Office (2019), the incidence of typhoid fever was 5,404 cases in 2016, 5,937 in 2017, 6,579 in 2018. So that in the last three years, there was an increased incidence of typhoid fever in Makassar City (Dinas Kesehatan, 2019). Typhoid fever diagnosis can be determined through clinical, microbiological, and serological diagnosis (Widoyo, 2008). A hematological examination to support medical diagnosis is complete blood count – a decreased leukocyte levels are often found (Mandal, 2008). In addition, there are abnormalities in leukocyte levels, both

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leukopenia, and leukocytosis. Leukopenia, common in typhoid fever, is a decrease in the number of white blood cells.

Handojo's research (2004) stated that at the end of the second week of the phagocytosis process, Salmonella typhi bacteria were not in the blood. However, it is still present in the spinal cord. So that the blood formation process, especially leukocytes, can be disrupted (Baratawidjaja, G. K dan Rengganis, 2012). In a study by Nafiah, 2017), a patient's leukocyte levels tended to be normal and below normal limits because Salmonella typhi bacteria can cause a blockage in hematopoiesis (blood formation) in the spinal cord. In general, the production of leukocytes will increase as a defense against infections. However, leukocyte levels can be affected due to the bacteria that live in the spinal cord. Based on the description and background of the problem above, this study aims to determine the profile of the leukocyte count in children with typhoid fever at the Dr. Tadjuddin Chalid Hospital, Makassar. This paper is expected to provide an overview of leukocyte levels in children with typhoid fever.

METHOD

It was a descriptive method with a cross-sectional design. The sample was all typhoid fever patients aged 1-18 years hospitalized at the Dr. Tadjuddin Chalid hospital, Makassar, and 75 respondents by total sampling. This research has obtained ethical clearance from Alauddin State Islamic University of Makassar with the registration number 2002E029. Data collection was carried out using secondary data from medical records of patients from January to December 2018. The Independent variable was the number of leukocytes, while the dependent variables were age, gender, hospital length of stay, and type of antibiotic. The data analysis used the chi-square test to evaluate the correlation between both variables. In addition, the Spearman test analyzed whether the correlation was unidirectional or not.

RESULT

The results of the medical record document analysis were presented in the table. After processing the data, the following research results were:

Table 1. Characteristic of Respondent

Variable	Category	Frequency	Percentage (%)
Age	1 – 6 years	20	26.7
	7 – 12 years	32	42.7
	13 – 18 years	23	30.7
Gender	Male	44	58.7
	Female	31	41.3
Hospital Length of Stay	< 7 days	68	90.7
	> 7 days	7	9.3
Type of Antibiotics	Ceftriaxone	50	66.7
	Cefoperazone	17	22.7
	Cefixime	8	10.7
Total		75	100

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Table 1 shows that most respondents are 7-12 years old (42.7%), male (58.7%), hospitalized less than seven days (97.3%), and administered with ceftriaxone (66.7%).

Tabel 2. The Number of Leukocytes in Children with Thypoid Fever

The Number of Leukocytes	Frequency	Percentage (%)
Leukopenia	21	28
Normal	41	54,7
Leukocytosis	13	17,3
Total	75	100

Table 2 describes that the number of leukocytes from 75 children with typhoid fever; 21 have leukopenia (28%), 41 have normal leukocytes (54%), and 13 have leukocytosis (17.3%).

Table 3. The correlation between the number of leukocytes and age

Age	The Number of Leukocytes			Total	p
	Leukopenia	Normal	Leukositosis		
1 – 6 years	2	2	6	20	0.064
7 – 12 years	11	19	2	32	
13 – 18 years	8	10	5	23	
Total	21	41	13	75	

Table 3 explains that of the 20 respondents in the 1-6 year age group, two respondents have leukopenia (10%), 12 have normal leukocytes (60%), and 6 have leukocytosis (30%). Of the 32 respondents in the 7-12 year age group, 11 have leukopenia (34.4%), 19 have normal leukocytes (59.4%), and 2 have leukocytosis (6.3%). Of the 23 respondents in the 13-18 years age group, there are 8 respondents with leukopenia (34.8%), 10 with normal leukocytes (43.5%), and 5 with leukocytosis (21.7%). The data analysis using the chi-square test obtains p=0.064 (p>0.05), which means no significant correlation between age and the number of leukocytes in typhoid fever patients.

Table 4. The correlation between the number of leukocytes and gender

Gender	The Number of Leukocytes			Total	p
	Leukopenia	Normal	Leukositosis		
Male	15	23	6	44	0.317
Female	6	18	7	31	
Total	21	41	13	75	

Table 4 shows that of the 44 males, 15 respondents have leukopenia, 23 have normal leukocytes, and 6 have leukocytosis. Meanwhile, of the 31 females, 6 respondents have leukopenia (19.4%), 18 have normal leukocytes (58.1%), and 7 have leukocytosis (22.6%). The chi-square test is 0.317 (p>0.05). Thus, there is no significant correlation between the number of leukocytes and gender in typhoid fever patients.

Table 5. The correlation between the number of leukocytes and hospital length of stay

Hospital Length of Stay	The Number of Leukocyte			Total	p
	Leukopenia	Normal	Leukositosis		
< 7 days	18	37	13	68	0.414
> 7 days	3	4	0	7	
Total	21	41	13	75	

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Table 5 represents that of 68 people with hospital length of stay less than seven days, 18 respondents have leukopenia (26.5%), 37 have normal leukocytes (54.4%), and 13 have leukocytosis (19.1%). Of the 7 people with hospital length of stay more than seven days, 3 have leukopenia (42.9%), and 4 have normal leukocytes (57.1%). The chi-square analysis is 0.414 (p> 0.05). Thus, there is no significant correlation between the number of leukocytes and hospital length of stay in typhoid fever patients.

Table 6. The correlation between the number of leukocytes and type of antibiotic

Type of Antibiotic	The Number of Leukocyte			Total	p
	Leukopenia	Normal	Leukositosis		
Ceftriaxone	13	27	10	50	0.923
Cefoperazone	5	10	2	17	
Cefixime	3	4	2	8	
Total	21	41	13	75	

Table 6 revealed that of the 50 respondents with ceftriaxone administration, 13 respondents have leukopenia (26%), 27 have normal leukocytes (54%), and 10 have leukocytosis (20%). Of the 17 people with cefoperazone administration, 5 have leukopenia (29.4%), 10 have normal leukocytes (58.8%), and 2 have leukocytosis (11.8%). Of the 8 respondents with cefixime administration, 3 have leukopenia (37.5%), 4 have normal leukocytes (50%), and 1 has leukocytosis (12.5%). The data analysis using the chi-square test obtains p= 0.923 (p> 0.05). Thus, there is no significant correlation between the types of antibiotics and the leukocyte count in typhoid fever patients.

DISCUSSION

Research conducted at the dr. Tadjuddin Chalid Hospital, Makassar City in 2018. Out of 75 typhoid fever children, most of them had normal leukocyte count (54.7%). This result is in line with a study conducted by Nazilah & Suryanto (2013) The study reported that most of 88 typhoid fever patients had normal leukocyte counts (82.6%). However, this study is not in line with Gayatri (2017) which showed that the number of leukocytes in most typhoid fever children was leukopenia. This study showed a low to normal leukocyte count due to several factors related to the duration of fever and toxicity induced by bone marrow depression by endotoxin and endogenous mediators. Variations of endotoxins levels in typhoid fever patients may cause the results of the hematologic examination to vary. Bone marrow suppression or bone marrow depression is an important mechanism in producing hematologic changes (Arifin et al., 2009)

The typhoid fever incidence in this study was mostly in school-age children, closely related to hygiene factors. It is in line with Rustam (2010) research that stated that individuals with typhoid fever were mostly 7-18 years old compared to those aged <7 years. A normal leukocyte count is caused by a course of the disease and less severe degrees of disease. It is known that S. Tyhphi infection can cause bone marrow depression which can lead to leukopenia in long-standing infections (Azin et al., 2012)

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Most respondents in this paper were males. Rachman (2017) research in 158 typhoid fever children showed that most of them were male (57.6%), while 42.4% were female. Males tend to have activities outside the home more often than females, so that it is easier to get S.Typhi infection through the environment (Sholikhah & Sustini, 2013). Gender affects health status because certain diseases only occur in men or women (Wijaya, 2015)

The hospital length of stay in most respondents was less than seven days. It is in line with Virdania's research (2018) in 131 typhoid fever patients. The study showed that 63.6% of them had short hospital lengths of stay. Patient adherence affects the success of treatment. Providing information about drugs and how to use them is a management of effective and safe drug therapy (Hussar, 2008). Typhoid fever management requires antibiotics to eradicate the S. typhi bacteria. Certain types of antibiotics influence the hospital length of stay in typhoid fever patients (Sidabutar & Satari, 2010).

The most frequent antibiotics administration in this research was Ceftriaxone. It is in line with the theory that aplastic anemia is an adverse event of several antibiotics. Other adverse events can also inhibit the formation of blood cells after the therapy (Tandi, 2017). Certain types of antibiotics can also cause bone marrow depression, interfering with forming blood cells (Rampengan, 2013). From the results of the above analysis, it can be said that there was no correlation between antibiotics administration and the number of leukocytes in typhoid fever children. In this study, various antibiotics administration in typhoid fever children gave different results due to the many factors that can influence antibiotic use in the hospital. The study did not use the chloramphenicol type of antibiotic. Chloramphenicol has a side effect of bone marrow depression (Tandi, 2017).

CONCLUSION

Most typhoid fever children have a normal leukocyte count, but few of them have leukopenia. Leukopenia is mostly in respondents aged 7-12 years, males, hospital length of stay less than seven days, and administered with ceftriaxone. However, the leukocyte count does not correlate with age, gender, hospital length of stay, and type of antibiotic.

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An Educational Video For Earthquake Disaster Preparedness In Students At St. Aloysius Weetabula Christian Middle School, Southwest Sumba

Wahyu Dini Metrikayanto [1], *Valabia Gonsalves* [2]

[1, 2] *Tribhuwana Tunggadewi University, Malang, Indonesia*

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CORRESPONDENCE

E-mail: wmetrik@yahoo.com

No. Tlp : + 6285233216317

A B S T R A C T

The earthquake has an impact on dangers and threats or losses to society. Efforts are needed to prevent and minimize the impact of earthquakes. This study aims to determine the effect of an educational video on earthquake disaster preparedness in students. It used the One-Group Pre-Post Test Design. It was conducted at St. Aloysius Weetebula Christian Middle School, Southwest Sumba, on February 25 - March 6, 2020. There were 338 population and 327 samples by simple random sampling. The variable independent was the educational video, while the dependent variable was the earthquake disaster preparedness. The questionnaire as a research instrument consisted of preparedness indicators. The data analysis utilized a marginal homogeneity test with a significance level (α) less than 0.05. The results showed that most respondents had a poor preparedness level before being provided with an educational video (59.9%). Meanwhile, they had high preparedness level after an intervention (54.1%). The result of the marginal homogeneity test showed p=0.000. In conclusion, an educational video affects earthquake disaster preparedness in middle school students. The use of video media in education could improve earthquake disaster preparedness.

INTRODUCTION

Natural disasters in Indonesia that often occur include volcanic eruptions, landslides, and floods. However, earthquakes are considered one of the biggest disasters in Indonesia that have a devastating impact. Earthquakes can cause damage because they have very strong vibrational properties and propagate in all directions so that all objects on the earth's surface also vibrate (Netrisa et al., 2018). Indonesia is ranked 4th globally as a country with many earthquakes. It has 1,312 events, especially in East Nusa Tenggara Province with 712 incidences, particularly in the Southwest Sumba Regency with 264 earthquakes (BNPB, 2017).

Earthquake disasters can impact hazards and threats or losses to society – its levels consist of small, medium, and large levels. It causes death, collapsing houses, damaging toll roads, and so on (Netrisa et al., 2018).. It can cause death, serious and minor injuries, as well as environmental damage. Therefore, preventive steps are needed to handle an earthquake disaster to minimize losses arising from an earthquake. Minimizing risks or losses due to earthquake disasters for humans requires knowledge, understanding, preparedness, and skills to prevent, detect, and anticipate various disasters, especially in earthquake-prone areas (Maryani, 2016).

Earthquake disaster preparedness can be obtained through a learning process both formally and informally. Learning in society can be carried out through informal education by independent learning activities.

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Learning about disaster phenomena can be obtained through experience, family, health education, print, and video media on earthquake disaster preparedness, also training for the community on dealing with disasters from related institutions (Pawirodikromo, 2012).

Preparedness education by video media is very effective and efficient because most people already have electronic devices to play videos anytime and anywhere (Nurjanah, 2011). Previous research conducted by Dien et al., (2015) proved an effect of health education on earthquake preparedness at Kakaskasen Christian Middle School in Tomohon City. Furthermore, Emami (2015) research reported the effectiveness of earthquake preparedness education on students' knowledge at Muhammadiyah Elementary School of Trisigan, Bantul. In addition, Mongkau (2018) research proved the effect of health education on earthquake preparedness. A preliminary study on April 12, 2019, at St Aloysius Weetabula Christian Middle School, Southwest Sumba, with one of the teachers stated that an earthquake resulted in cracking school walls and collapsing several roofs in 2018. So, the ruins hit students and teachers during the learning process. Based on this background, this study aims to determine the effect of educational video on earthquake disaster preparedness in students at St. Aloysius Weetabula Christian Middle School, Southwest Sumba.

METHOD

This study used One-Group Pre-Post Test Design. It was conducted at St. Aloysius Weetebula Christian Middle School, Southwest Sumba, on February 25 - March 6, 2020. There were 338 population and 327 samples by simple random sampling. Inclusion criteria were willing to be a respondent and presented throughout the research process. The variable independent was the educational video, while the dependent variable was the earthquake disaster preparedness. The questionnaire as a research instrument consisted of preparedness indicators, including knowledge, attitudes and practice, school policies, preparedness planning, and resource mobilization. Earthquake disaster preparedness can be divided into three categories high (score of 80 - 100%), moderate (score 60-79%), and low (score <60%) (Nurchayat, 2014). The data analysis utilized a marginal homogeneity test with a significance level (α) less than 0.05.

RESULT

Characteristics of respondents in this study included age, gender, and education levels as follows:

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Table 1. Characteristics of Respondents

Variable	Category	Frequency	Percentage(%)
Age	13 years old	23	7.0
	14 years old	104	31.8
	15 years old	101	30.9
	16 years old	99	30.3
Gender	Male	105	32.1
	Female	222	67.9
Educational levels	Seventh (7^{th}) grade	127	38.8
	Eighth (8^{th}) grade	100	30.6
	Ninth (9^{th}) grade	100	30.6
Total		327	100

Table 1 shows that most respondents are 14 years old (31.8%), female (67.9%), and in the Seventh (7^{th}) grade (38.8%).

Table 2. Earthquake Disaster Preparedness Before Being Provided with Educational Video

Preparedness Levels	Frequency	Percentage (%)
High	0	0
Moderate	131	40.1
Low	196	59.9
Total	327	100

Table 2 describes that earthquake disaster preparedness before being provided with educational video has low levels or score less than 60% in most respondents (59.9%).

Table 3. Earthquake Disaster Preparedness After Being Provided With Educational Video

Preparedness Levels	Frequency	Percentage (%)
High	177	54.1
Moderate	149	45.6
Low	1	0.3
Total	327	100

Table 3 explains that earthquake disaster preparedness after being provided with educational video has high levels or score from 80% to 100% in most respondents (54.1%).

Table 4. The Effects of an Educational Video on Earthquake Disaster Preparedness

Preparedness Level		After			Total	P
		High	Moderate	Low		
Before	High	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.000
	Moderate	83 (25.4%)	48 (14.7%)	0 (0.0%)	131 (40.1%)	
	Low	94 (28.7%)	101 (30.9%)	1 (0.3%)	196 (59.9 %)	
Total		177 (54.1 %)	149 (45.6 %)	1 (0.3 %)	327 (100%)	

Table 4 reveals that the Marginal homogeneity test obtains p-value = 0.000 (α<0.05). So that H_1 is accepted. Thus, an educational video affects earthquake disaster preparedness in middle school students at St. Aloysius Weetebula Christian Middle School, Southwest Sumba.

DISCUSSION

Earthquake Disaster Preparedness before being provided with educational video

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Earthquake disaster preparedness before being provided with educational video had low levels in most respondents. It can be seen from the indicators in the questionnaire, which consisted of knowledge and attitudes towards earthquake disaster policies and guidelines, disaster emergency response systems, and resource mobilization. Knowledge and attitudes on earthquake disasters are the main factors in preparedness. According to (Hidayati, 2008) policies, guidelines, and a disaster emergency response system are carried out immediately during the disaster to deal with the bad impacts caused. They include activities to rescue and evacuate victims also property, basic needs fulfillment, protection, refugees management, rescue, and infrastructure and facilities recovery (Law Number 24 of 2007). Early warning is a series of activities to provide quick warning to the community, particularly students at St. Aloysius Weetebula Christian Middle School, about the possibility of a disaster occurring by an authorized institution.

According to Law Number 24 of 2007, resource mobilization is the available resources, including human resources (HR), funding, and essential infrastructure for emergencies. It can support or otherwise become an obstacle in natural disaster preparedness. Therefore, resource mobilization is a crucial factor (Hidayati, 2008).

Most respondents in this study were 14 years old. This age includes the adolescence phase – the transition between childhood and adulthood. During this period, the child experiences growth, physical and psychological development. They are not children - in body shape, way of thinking, or action - nor not adults with mature thinking. Age can influence knowledge and attitude in earthquake preparedness. Most respondents in this paper were female. There is an interesting difference in earthquake preparedness between females and males. Females tend to be more sensitive in dealing with a particular problem.

Earthquake Disaster Preparedness After Being Provided With Educational Video

There was an increased level in earthquake disaster preparedness after being provided with an educational video. Students had a better understanding of how to take proper shelter and evacuation in the earthquake disaster. Disaster preparedness can be improved through disaster management training. According to the Ministry of Health (2013), there are eleven training methods: question and answer lectures, group discussions, small study groups, role play, case studies, brainstorming, demonstrations, assignments, games, simulations, and field practice. Disaster management training builds disaster preparedness in students. As a result, they have a safe and healthy culture, risk awareness, and a well-established plan (before, during, and after a disaster). Furthermore, they are ready to respond in times of emergencies and disasters.

Health education is a component of health and medical programs, consisting of planned efforts to change behavior in individuals, families, and communities in thinking, behaving, and acting. Its goals are helping

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treatment, rehabilitation, disease prevention, and promoting a healthy life (Nursyam, 2011). Indicators of preparedness before a disaster include: knowing disaster preparedness, understanding building construction (resistant to shocks or not), comprehending the location of residence (prone to earthquake or not). In addition, its indicators during a disaster include: take shelter under a table, avoid earthquake-prone buildings, follow the instructions of assisting officers, avoid crossing roads, following the direction of the evacuation route to the gathering points. Furthermore, its indicators after a disaster include: assemble at the gathering points and waiting for help from the medical team.

Effect of Educational Video on Earthquake Disaster Preparedness in Students at St. Aloysius Weetebula Christian Middle School, Southwest Sumba

The Marginal homogeneity test obtains p= 0.000 ($\alpha<0.05$). So that H1 is accepted. Thus, there was an effect of an educational video on Earthquake Disaster Preparedness in Students at St. Aloysius Weetebula Christian Middle School, Southwest Sumba. Knowledge, attitudes and practice, school policies, preparedness planning, and resource mobilization influence preparedness. Therefore, providing education about earthquakes increases the preparedness of students to face these disasters.

This study is in line with Wulandari (2018) research it reported that educational videos positively impact students in increasing preparedness to face earthquakes. In addition, a theory explains that good knowledge in preparedness will form good practice or attitude (Supriyono, 2014). Knowledge has an important role in changing and strengthening predispose, support, and drive factors in behavior, resulting in positive behavior. In addition, knowledge is also a cause of individual behavior (Maulana, 2009). Knowledge regarding disaster preparedness can be reflected in understanding the environmental conditions. The definition of environmental conditions is the likelihood of a disaster occurring in the area, and its impacts, particularly in the school building vulnerability.

Students should comprehend the action when a disaster occurs and respond to disasters quickly and appropriately (Nurchayat, 2014). As a part of the community, students have a big role in disaster preparedness in the school. Preparedness education on students must be given early to build a safe culture and resilience to disasters (Daud et al., 2015). According to Notoatmodjo (2015), age, education, experience, information, and facilities can affect preparedness. This paper indicated that education could affect disaster preparedness, particularly in middle school students. In line with Afandi (2014) research, it showed that training with simulation methods effectively increased students' knowledge of earthquake disaster mitigation at Muhammadiyah 1 Surakarta Senior High School. In addition, (Hely, 2013) reported that disaster management training had a significant effect on the health workers' preparedness at the Bunda Thamrin Hospital in Medan. Sari (2014) investigated the effect of disaster simulations on preparedness in grade 7'th students at Gantiwarno State Madrasah Tsanawiyah, Klaten. Research revealed that earthquake

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disaster preparedness before the simulation was in the ready category and after the simulation was very ready. Thus, there was an increase in the preparedness level.

CONCLUSION

In conclusion, most respondents have a poor preparedness level before being provided with an educational video, while they have high preparedness level after an intervention. Thus, an educational video affects earthquake disaster preparedness in middle school students at St. Aloysius Weetebula Christian Middle School, Southwest Sumba. Management of educational institutions should install evacuation directions in strategic areas and provide educational videos to students at the beginning of the academic year.

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