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Relationship Between Diet Patterns, Sleep Quality, and Nutritional Status Towards Anemia Incidence in Pregnant Women in The Work Area of Pulosari Community Health Center, Koranji Village, Pandeglang Regency, Banten in 2023

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Abstract

Background: Pregnancy is a very important period for the formation of the quality of human resources in the future, because the child's growth and development will be very much determined by the conditions when the fetus is in the womb. This is related to nutritional problems in pregnant women. One of the most common nutritional disorders and a major nutritional problem in Indonesia is anemia. **Objective:** The relationship between diet, sleep quality, and nutritional status on the incidence of anemia in pregnant women in the work area of the Pulosari Health Center, Koranji Village, Pandegalng Regency, Banten in 2023. **Methodology:** This study used an observational research type with a cross-sectional design. The sample in this study was 61 respondents, all pregnant women. Sampling used an accidental research instrument technique for dietary pattern variables using a food record sheet, sleep quality using the PSQI instrument, and for nutritional status using a questionnaire sheet in calculating LILA Data were analyzed using univariate and bivariate analyses with the chi-square statistical test. **Results:** The results of a univariate analysis of diet, sleep quality, and nutritional status in pregnant women showed that the majority of pregnant women were not anemic, 72.1% of pregnant women who had moderate eating patterns were 34.4%, and 24.6% had poor eating patterns. The results of the bivariate analysis show that the p-value after it is carried out is 0.000, so that the comparison results obtained are 0.000 <0.05. The quality of sleep is good several 49 pregnant women (80.3%), while the

respondents who have not experienced a change or have less sleep quality by 12 pregnant women(19.7%). Analysis of nutritional status with a risk of 50.8% and nutritional status of pregnant women as normal as 49.2%. **Conclusions:** most pregnant women have good eating patterns, sleep quality, and nutritional status; most pregnant women experience no anemia; there is an influence of diet, sleep quality, and nutritional status on the incidence of anemia in pregnant women. It is expected that pregnant women can improve their diet, sleep quality, and nutritional status to prevent anemia.

Keywords: Diet, sleep quality, nutritional status, anemia, pregnant women

Introduction

Pregnant women are a group vulnerable to malnutrition. Inability to meet nutritional intake needs during pregnancy will cause Chronic Energy Deficiency (CED) and anemia, and increase the risk of illness and even death in pregnant women (Sri M et al, 2019). Prevalence of iron deficiency anemia in pregnant women in Indonesia. Based on basic health research in 2018, the prevalence of anemia in pregnant women increased by 11.8% from 2013 (37.1%) to 48.9%, with 95% of cases caused by iron deficiency. This condition states that anemia is quite high in Indonesia and shows a figure exceeding a serious public health problem, with an anemia prevalence limit of 40% (Ministry of Health of the Republic of Indonesia, 2018). According to data from the Pulosari Health Center, the incidence of anemia in pregnant women in 2023 was 123 people, from the target number of pregnant women in 2023 of 208 people

According to Handayani (2016), factors related to the incidence of anemia in pregnant women in addition to Fe consumption, nutritional status. When pregnant, a mother needs more balanced nutrition than before pregnancy, both sources of calories (carbohydrates and fat), protein, folic acid, VIT B12, iron, zinc, calcium, vitamin C, vitamin A, vitamin D, vitamin B6, vitamin E, including the fulfillment of nutritional content needed for the fetus including DHA, ganglioside (GA), folic acid, iron, EFA, FE, and choline. (Ministry of Health, 2015).

The main etiology of anemia in pregnant women is a lack of iron. Iron deficiency anemia, often referred to as Iron Nutritional Anemia (AGB), can occur because the body lacks iron, folic acid, and vitamin B12. Low iron availability and inadequate iron content are the causes of iron deficiency anemia (Kartika, 2012).

In addition to diet, several things affect the availability of iron, one of which is the way food is processed. The way food is processed can affect the bioavailability

(availability) of iron in food, for example, the washing method can remove iron from water. In addition, the heating process of food can also affect the content of substances in food (Mryana, Wulandari, & Padila, 2018)

The nutritional status of pregnant women is the fulfillment of nutrition for pregnant women, between the balance of nutritional needs and intake, which greatly affects the development of their fetus. If a mother's nutritional status is lacking, it will affect the body mass index and arm circumference of pregnant women during pregnancy process and the development of their fetus (Nofita & Darmawati, 2016).

Based on the results of a preliminary study conducted in the Pulosari Health Center Work Area, Pandeglang Regency in 2023, data was obtained in the form of the number of pregnant women in 2023, namely 208 people. Of that number, there were 123 pregnant women with anemia. Based on an initial survey in the Pulosari Health Center work area on June 20, 2023, 5 pregnant women who visited the Pulosari Health Center had Hb levels <11 gr/dl. The author conducted interviews regarding iron, folic acid, and vitamin B12 deficiencies in pregnant women. Based on the background above, the author is interested in researching "The Relationship Between Diet, Rest Patterns and Nutritional Status in Anemic Pregnant Women in the Pulosari Health Center Work Area, Koranji Village, Pandeglang Regency, Banten 2023."

Method

The method should be structured as follows:

1. *Research design*

This research design uses cross-sectional because the research data (independent variables and dependent variables) were measured at the same time/at the same time.

2. *Setting and samples*

The population in this study was all pregnant women, namely 154 people in the Pulosari Health Center UPT Work Area in June 2023. The sampling technique used in the study was the incidental technique, namely a sampling determination technique based on coincidence, namely anyone who coincidentally meets the researcher can be used as a sample, if it is considered that the person who was met coincidentally matches the data source (Sugiyono, 2018). The sample size taken in this study was 61 respondents.

3. Intervention (applies to experimental studies)

The independent variable (independent variable) in this study is diet, while the dependent variable (dependent variable) in this study is anemia in pregnant women in the Working Area of the Pulosari Health Center UPT, Koraniji Village, Pandeglang Regency, Banten in 2023. The instrument used is a food consumption survey sheet using the estimated food record method, which is a sheet for assessing nutritional status, which is converted into the nutrisurvey application and calculated using the Individual Nutrition Adequacy Figure formula and the percentage of consumption levels.

4. Measurement and data collection

Data collection tools in this study there are 2 types of questionnaires related to the study, namely: Pittsburgh Sleep Quality Index (PSQI) Questionnaire Pittsburgh Sleep Quality Index is a questionnaire that aims to determine a person's subjective sleep quality for the past 1 month, PSQI has 9 questions that form 7 assessment components, namely subjective sleep quality, sleep latency, sleep duration, daily sleep efficiency, sleep disorders, use of sleeping pills and dysfunction of daytime activities. The final assessment of the PSQI is obtained in the form of a Sleep Index, which is obtained by filling out the PSQI questionnaire with a certain weighting. Through this index, it can be seen how good a person's sleep quality is and vice versa. The final score of the PSQI questionnaire is, if the value is> 5 indicates poor sleep quality, and if the value is ≤ 5 indicates good sleep quality

5. Data analysis;

Data analysis in this study used a quantitative approach, namely univariate (descriptive) analysis and bivariate analysis.

6. Trustworthiness/rigor (applies to qualitative studies)

Respondents must meet the specified criteria. The informed consent sheet must be completed with the title of the research and the benefits of the research. If the respondent refuses, the researcher must not force and respect their rights. Anonymity, the researcher does not include the respondent's name to maintain the respondent's

confidentiality

Results

Univariate Analysis

Pregnant Women's Diet

Table 1: Frequency Distribution of Dietary Patterns for Anemia in Pregnant Women in the Working Area of the Pulosari Health Center UPT, Koranji Village, Pandeglang Regency, Banten in 2023

Dietary habit	Frequency (f)	Percentage (%)
Good	14	23
Medium	21	34,4
Lack	15	24,6
Deficit	11	18
Total	**61**	**100**

Based on the results of table 1, it is known that of the 61 respondents, 14 (23%) of pregnant women had a good diet, 21 (34.4%) had a moderate diet, 15 (24.6%) had a poor diet and 11 (18%) had a deficit diet.

Sleep Quality of Pregnant Women

Table 2: Frequency Distribution of Sleep Quality Patterns of Pregnant Women in the Working Area of Pulosari Health Center UPT, Koranji Village, Pandeglang Regency, Banten in 2023

Sleep Quality	Frequency (n)	Percentage (%)
Good	49	80,3
Lack	12	19,7
Total	**61**	**100**

Table 2 shows that of the 61 respondents, almost all had good sleep quality, namely 49 pregnant women (80.3%). In contrast, respondents who had not experienced any changes or had poor sleep quality were 12 pregnant women (19.7%).

Nutritional Status of Pregnant Women

Table 3: Frequency Distribution of Nutritional Status Quality of Pregnant Women in the Working Area of Pulosari Health Center UPT, Koranji Village, Pandeglang Regency, Banten in 2023

Nutritional Status of Pregnant Women	Frekuency (n)	Percentage (%)
Risk	31	50,8
Normal	30	49,2
Total	**61**	**100**

The results of the study in Table 3 show that the nutritional status of mothers was poor as many as 31 pregnant women (50.8%), and the nutritional status was good as many as

30 pregnant women (49.2%).

Occurrence of Anemia in Pregnant Women

Table 4: Frequency Distribution of Anemia Incidence in Pregnant Women in the Working Area of Pulosari Health Center UPT, Koranji Village, Pandeglang Regency, Banten in 2023

Diagnosis	Frequency(f)	Persentace (%)
No Anemia	44	72,1
Anemia	17	27,9
Total	61	100

Based on the results of Table 4, it is known that of the 61 respondents, 44 (72.1%) pregnant women were not anemic, and 17 (27.9%) pregnant women were anemic.

Bivariate Analysis

Relationship between Diet and Anemia Incidence

Table 5: Relationship between Diet and Anemia Incidence of Pregnant Women in the Working Area of Pulosari Health Center UPT, Koranji Village, Pandeglang Regency, Banten in 2023

Anemia Occurrence						Total		P value
		Anemia		No Anemia				
		F	%	f	%	f	%	
Dietary habit	Deficit	9	81,8	2	18,2	11	100	0,001
	Lack	6	40	9	60	15	100	
	Medium	1	4,8	20	95,2	21	100	
	Good	1	7,1	13	92,9	14	100	
Total		17	33,4	44	66,6	61	100	

Based on the results of Table 5, it is known that out of 61 respondents, pregnant women who are not anemic with a good diet are 13 people (92.9%), while those who are anemic are 1 person (7.1%). For pregnant women who are not anemic with a moderate diet are 20 people (95.2%), while those who are anemic are 1 person (4.8%). For pregnant women who are not anemic with a poor diet are 9 (60%), while those who are anemic are 6 people (40%) and for pregnant women who are not anemic with a deficit diet are 2 people (18.2%), while there are 9 people (81.8%) pregnant women who are anemic with a deficit diet. From the results of statistical tests using Chi Square calculation analysis, a p-value of 0.001 was obtained, where this value will be compared with the value of $\alpha = 0.05$ so that the comparison result is $0.001 < 0.05$ or it can be concluded that there is a significant relationship between diet and anemia in

pregnant women.

Relationship between Sleep Quality and Anemia Incidence

Table 6: Relationship between Sleep Quality and the Incidence of Anemia in Pregnant Women in the Working Area of Pulosari Health Center UPT, Koranji Village, Pandeglang Regency, Banten in 2023

Variable		Anemia Occurrence				Total		P value
		Anemia		No Anemia				
		f	%	f	%	f	%	
Sleep Quality	Not Good	10	83,3	2	16,7	12	100	0,001
	good	7	14,3	42	85,7	49	100	

Based on Table 6, shows that out of 61 respondents, pregnant women who are not anemic with poor sleep quality are 2 people (16.7%), while for good sleep quality, there are 42 people (85.7%). Pregnant women who are anemic with poor sleep quality are 10 people (83.3%), while for good sleep quality, there are 7 people (14.3%).

From the results of statistical tests using Chi Square calculation analysis, the p-value = 0.001 is obtained where the value will be compared with the value of α = 0.05 so that the comparison result is 0.001 <0.05 or it can be concluded that there is a significant relationship between sleep quality and anemia in pregnant women.

Relationship between Nutritional Status and Incidence of Anemia

Table 7: Relationship between Nutritional Status and the Incidence of Anemia in Pregnant Women in the Working Area of the Pulosari Health Center UPT, Koranji Village, Pandeglang Regency, Banten in 2023

Variable		Anemia Occurrence				Total		P value
		Anemia		No Anemia				
		f	%	f	%	f	%	
Nutritional Status	Risk	17	54,8	14	45.2	31	100	0,001
	Normal	0	0	30	100	30	100	
Total		17	27,4	44	72,6	61	100	

Based on Table 7 shows that out of 61 respondents, pregnant women who are not anemic with a nutritional risk status are 14 people (45.2%), while for normal nutritional status, there are 30 people (100%). There are no pregnant women who are anemic with normal nutritional status, while pregnant women who are anemic for nutritional risk status are 17 people (54.8%).

From the results of statistical tests using Chi Square calculation analysis, a p-value of

0.001 was obtained where this value will be compared with the value of $\alpha = 0.05$ so that the comparison result is 0.001 <0.05 or it can be concluded that there is a significant relationship between nutritional status and anemia in pregnant women.

Discussion

Relationship between Diet Patterns and the Incidence of Anemia in Pregnant Women in the Working Area of Pulosari Health Center, Koranji Village, Pandegalng Regency, Banten.

The current study showed that pregnant women who were not anemic with a good diet were 13 people (92.9%), while those with anemia were 1 person (7.1%). For pregnant women who were not anemic, a moderate diet was 20 people (95.2%), while those with anemia were 1 person (4.8%). For pregnant women who were not anemic with a poor diet were 9 (60%), while those with anemia were 6 people (40%) and for pregnant women who were not anemic with a deficit diet were 2 people (18.2%), while there were 9 people (81.8%) pregnant women who were anemic with a deficit diet. Based on the results of the food record, most pregnant women who had a good diet did not experience anemia, but from the results of the study some pregnant women had a good diet but experienced anemia. The pregnant woman who experienced anemia was 19 years old and did not consume pregnancy milk, and drank tea. This is in line with research by Dina Mariana (2018) that there were pregnant women who had a good diet but experienced anemia. This is because pregnant women who consume good diets can experience anemia because many factors affect not only their diet but some that affect it, namely not consuming iron tablets or a type of folic acid, not consuming pregnancy milk, being pregnant at a risky age, failure to absorb iron due to drinking tea or coffee. The results of this study are in line with those conducted by Meihartati et al., (2017) the more often pregnant women consume foods containing non-heme iron, the lower the incidence of anemia. Dietary patterns in pregnant women will affect the incidence of anemia, the better the diet of pregnant women, the lower the risk of anemia, conversely, a diet that is lacking in pregnant women in meeting the nutrients needed by mothers during pregnancy, the higher the incidence of anemia in pregnant women. Pregnant women must also consume a variety of foods because one food with another food has different nutritional content, if the food eaten during pregnancy varies, these nutritional

needs will be met according to the Adequate Nutritional Intake (AKG) of pregnant women, then the mother's diet will increase research, as well as other variables that have not been studied by researchers.

Relationship between Nutritional Status and the Incidence of Anemia in Pregnant Women in the Working Area of Pulosari Health Center, Koranji Village, Pandegalng Regency, Banten

Current respondent results, pregnant women who are not anemic with a nutritional risk status are 14 people (45.2%), while for normal nutritional status, there are 30 people (100%). There are no pregnant women who are anemic with normal nutritional status, while pregnant women who are anemic for nutritional risk status are 17 people (54.8%).

And found that there is a relationship between nutritional status and the incidence of anemia in pregnant women at the Mowila Health Center in 2020 (X2 = 8.766; p-value = 0.003). Pregnant women with poor nutritional status are at risk of experiencing anemia in their pregnancy by 3.658 times compared to pregnant women with good nutritional status (OR = 3.68; CI95% = 1.608-8.321).

The nutritional status of pregnant women is a state of balance in the body of pregnant women as a result of food intake and the use of nutrients by the body for survival in maintaining the function of its organs. One way to measure nutritional status in pregnant women is by examining the upper arm circumference (LILA). The results of a study conducted by Sunarti and Kartini (2019) showed that nutritional status factors affect the incidence of anemia in pregnant women. Pregnant women with poor nutritional status will be at 3.514 times greater risk of experiencing anemia compared to mothers with good nutritional status. The results of a similar study that also supported the study conducted by Dhini et al. (2019), stated that there was a relationship between nutritional status and the incidence of anemia in pregnant women (pvalue = 0.001). Where pregnant women with poor nutritional status are at 0.300 times greater risk of experiencing anemia than pregnant women with good nutritional status. Iron is one of the main points that helps the formation of red blood cells. Iron deficiency in pregnant women can interfere with energy metabolism so that it can cause a decrease in the ability of the body's organs to work. According to (Abrori et al., 2017) not all pregnant

women with poor nutritional status can experience anemia, this can be caused because even though the results of the mother's LILA measurement are <23.5 cm, the mother's nutritional needs, especially iron, are still met so that red blood cells can be produced sufficiently for the needs of the mother and fetus. However, the study's results still indicate that mothers with poor nutritional status are at a 2.667 times higher risk of experiencing anemia compared to pregnant women with good nutritional status. This shows that mothers still have a higher risk of experiencing anemia if their nutritional needs are not met according to their gestational age. Likewise, pregnant women with good nutritional status can still experience anemia during pregnancy. This can be caused by other risk factors such as pregnancy spacing, maternal age and parity (Abrori et al., 2017). It can be assumed that pregnant women who suffer from KEK are at risk of suffering from anemia. Pregnant women who suffer from KEK and anemia have a greater risk of illness, especially in the third trimester of pregnancy compared to normal pregnant women. Pregnant women with poor nutritional status will be at greater risk of experiencing anemia than women with good nutritional status. This is because one of the causes of anemia is iron deficiency due to unhealthy eating patterns and the regulation of the amount and type that is not in accordance with the balanced nutrition of pregnant women so that the mother experiences KEK or the mother's nutritional status is lacking. When pregnant women experience an increase in nutritional needs, especially iron, which is needed by the body. During pregnancy, the amount of blood in the mother's body increases up to 50% more than the body's normal condition. So the mother needs a lot of nutrients, especially iron which forms hemoglobin to compensate for the increase in blood volume. If the need for iron is not met, the formation of hemoglobin will not be met according to the mother's blood volume needs so that the mother experiences anemia.

Conclusion

From the results of the research that has been conducted, the following conclusions can be drawn:

a. The majority of respondents are pregnant women who have a moderate diet, as many as 21 people (34.4%),
b. The majority of respondents are pregnant women who have good sleep quality, as

many as 49 people (80.3%).

c. The majority of respondents are pregnant women who have a risk nutritional status, as many as 31 people (50.8%).
d. The majority of respondents are pregnant women who are not anemic as many as 44 (72.1%).
e. The results of this study show a significant relationship between diet, (0.001 <0.05) sleep quality (0.001 <0.05) and nutritional status (0.001 <0.05) and the incidence of anemia in pregnant women in the work area of the Pulosari Health Center, Koranji Village, Pandegalng Regency, Banten in 2023.

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The Relationship Between Parental Knowledge Levels and the Intensity of Giving Gadgets to Preschool-Aged Children.

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Abstract

The increasing use of gadgets among preschool-aged children has become a growing concern for parents and educators. This study examines the relationship between parental knowledge levels and the intensity of gadget usage given to preschool-aged children. A cross-sectional design was employed, involving 52 parents of preschool-aged children selected through purposive sampling in an urban community. Data were collected using structured questionnaires that assessed parental knowledge levels regarding gadget usage and the frequency with which gadgets were provided to their children. Parental knowledge was categorized as either "adequate" or "inadequate," while gadget usage intensity was measured based on daily screen time reported by the parents. Statistical analysis was performed using Spearman's rank correlation test to determine the association between the two variables. The results revealed a significant relationship between parental knowledge levels and the intensity of gadget usage ($p = 0.017$). Parents with inadequate knowledge were more likely to allow higher gadget usage among their children compared to those with adequate knowledge. These findings suggest that enhancing parental awareness and understanding of the potential risks associated with excessive gadget exposure is crucial in promoting healthier developmental environments for preschool-aged children. Future interventions should focus on educating parents about appropriate gadget use and alternative activities to minimize screen time and support optimal child development.

Keywords: parental knowledge, gadget usage, preschool children

Introduction

The development of information and communication technology has brought significant changes to human life, including parenting patterns. One increasingly widespread phenomenon is the use of gadgets by preschool-age children (2-5 years). Gadgets such as smartphones and tablets are practical tools to calm children, entertain them, or even serve as alternative learning media [1]. However, excessive use of gadgets

at an early age can hurt children's physical, cognitive, emotional, and social development [2].

According to the American Academy of Pediatrics (AAP), screen time in preschool children should be limited to one hour per day with high-quality content [3]. However, facts on the ground show that many preschool-age children spend more than this limit playing games, watching videos, or exploring applications on gadgets [4]. This is often caused by parents' lack of understanding about the impact of gadgets on children's development. Several studies report that parents tend to give gadgets to children as an easy way to divert attention or reduce stress in certain situations [5].

The level of parental knowledge plays an important role in determining the intensity of giving gadgets to children. Adequate knowledge about the benefits and risks of using gadgets can help parents make wiser decisions in managing children's screen time [6]. On the other hand, ignorance or misunderstanding about gadgets can lead to bad habits that can potentially be detrimental to children's development [7]. For example, some parents may not realize that excessive screen exposure can interfere with a child's ability to focus, communicate effectively, or even sleep well [8].

Previous research has shown a relationship between the level of parental knowledge and parenting behavior related to gadgets. A study by Smith et al. (2020) found that parents with low knowledge tend to give gadgets to their children more often than parents with high knowledge [9]. Similar findings were also reported by Lee and Park (2021), who showed that educating parents can increase their awareness about the healthier use of gadgets for children [10]. However, there is still little research that specifically examines this relationship in preschool children, especially in Indonesia.

In Indonesia, the trend of young children using gadgets is increasing as internet access becomes easier and more affordable. A survey conducted by the Ministry of Communication and Information (Kominfo) in 2022 shows that more than 60% of preschool children already have regular access to gadgets [11]. This phenomenon raises concerns because many parents do not fully understand the long-term consequences of exposure to gadgets in children, including prolonged fatigue.[12]. In this context, it is important to dig deeper into how parents' level of knowledge influences their decisions in giving gadgets to their children.

This study aims to identify the relationship between the level of parental knowledge and the intensity of giving gadgets to preschool children. It is hoped that the results of this research will provide new insights for parents, educators, and policymakers

about the importance of education regarding the use of gadgets in early childhood. Apart from that, these findings can also be used as a basis for designing intervention programs aimed at increasing parental awareness and reducing the risk of negative impacts of gadgets on children's development.

Method

This research was designed to examine the relationship between parents' level of knowledge and the intensity of giving gadgets to preschool children. This research uses a quantitative approach by *cross-sectional design*, which aims to describe the relationship of variables simultaneously at a certain time. This methodology was chosen because it is efficient and able to provide a direct picture of the relationship between two variables, namely the level of knowledge of parents as an independent variable and the intensity of giving gadgets to children as a dependent variable [13].

The population in this study were parents who had preschool-aged children (2-5 years) in an urban area in one of the sub-districts. Urban areas were chosen because access to gadgets tends to be higher than in rural areas [14]. The sampling technique uses a purposive sampling method, namely selecting respondents based on certain inclusion criteria. Inclusion criteria include: (1) parents who have children aged 2-5 years, (2) the child regularly uses gadgets at least once a day, and (3) parents who are willing to fill out the questionnaire completely. The number of samples was determined based on the minimum sample size formula for the Spearman statistical test, namely 52 respondents.

The main instrument in this research is a questionnaire, which consists of two parts. The first section contains demographic questions, such as parental age, gender, education level, occupation, and number of children. The second part consists of two measurement scales. The first scale is used to measure parents' level of knowledge about gadgets. This scale includes 20 statement items with answers of "True," "False," or "Don't Know." The correct answer was given a score of 1, while the wrong answer or don't know was given a score of 0. The total score was then categorized into two groups: "High Knowledge" (score ≥ 70%) and "Low Knowledge" (score < 70%) [15].

The second scale measures the intensity of giving gadgets to children. This instrument was adapted from a questionnaire developed by Nikken and Jansz (2014), which includes the frequency and duration of gadget use by children [7]. Respondents were asked to report how many hours, on average, their children used gadgets per day, as well as how many times they were given gadgets per week. This data was then categorized

into three groups: "Low" (<1 hour/day), "Medium" (1-2 hours/day), and "High" (>2 hours/day).

Data was collected through an online survey using the Google Forms platform. The survey was distributed via social media, parent community WhatsApp groups, and online discussion forums. Before filling out the questionnaire, respondents were provided with brief information about the purpose of the study and confirmation of consent to participate. The data collection process was carried out over a period of one month to ensure adequate representation of the target population. The data that has been collected is analyzed using the SPSS statistical application. Descriptive analysis was used to describe the characteristics of respondents, the level of parental knowledge, and the intensity of giving gadgets. Inferential analysis was carried out using Spearman's rho statistical test to assess the relationship between the level of parental knowledge and the intensity of giving gadgets. This test was chosen because the data on the level of knowledge and intensity of giving gadgets are ordinal. The level of statistical significance was set at $\alpha = 0.05$.

Results

Respondent Demographic Data

Table 1 Distribution of respondent demographic data (n=52)

No	General Data	Number (n)	Percentage (%)
1	**Age Range:**		
	< 21 Years	11	21.2
	21 - 35 Years	18	34.6
	> 35 Years	23	44.2
2	**Education**		
	Elementary/Junior School	19	36.5
	Senior High School	29	55.8
	College	4	7.7
3	**Work**		
	Not Working/Housewife	26	50
	Self-employed	16	30.8
	Private	7	13.4
	State Civil Apparatus	3	5.8
	Total	52	100

Table 1 provides a demographic description of the respondents in the study, which shows that the majority of respondents were over 35 years old (44.2%), had a high

school education (55.8%), and half of them did not work or acted as housewives (50%), with self-employment being the second largest occupational category (30.8%). Overall, the respondent population tends to be dominated by older adults with middle to lower educational backgrounds, and many are not active in the formal world of work, which can influence research variables such as the level of parental knowledge and the intensity of giving gadgets to preschool-aged children.

Research Variable Data

Table 2 Distribution of Respondents' level of knowledge

No	Knowledge Level	Frequency	Percentage (%)
1	Good	26	50,0
2	Enough	18	34,6
3	Not enough	8	15,4
	Amount	52	100%

Table 2 describes the level of knowledge of respondents regarding the research topic, which is divided into three categories: good, sufficient, and poor. A total of 26 respondents (50.0%) had a good level of knowledge, while 18 respondents (34.6%) were in the sufficient category, and 8 respondents (15.4%) were in the poor category. Overall, most respondents (84.6%) had good to fair knowledge, with only a small portion indicating poor knowledge. This shows that most respondents have an adequate understanding of the material studied, although there are still minority groups who need to increase their knowledge.

Table 3 Distribution of Gadget-Giving Intensity

No	Intensity of Giving *Gadget*	Frequency	Percentage (%)
1	High	16	30,8
2	Currently	22	42,3
3	Low	14	26,9
	Amount	52	100%

Table 3 describes the intensity of giving gadgets to preschool children by respondents, which is divided into three categories: high, medium, and low. A total of 16 respondents (30.8%) gave gadgets with high intensity, 22 respondents (42.3%) did so with medium intensity, and 14 respondents (26.9%) gave gadgets with low intensity. Overall, most respondents tend to give gadgets with medium intensity, followed by high and low intensity. This shows that although almost a third of respondents give gadgets

intensively, more than half are still in the moderate category regarding the frequency of giving gadgets to children.

Table 4 Cross Tabulation of Knowledge Level with Gadget Giving Intensity

Knowledge Level	Intensity of Giving *Gadget*			Total
	High	Currently	Low	
Good	6 11,5%	9 17,3%	11 21,2%	26 50,0%
Enough	6 11,5%	9 17,3%	3 5,8%	18 34,6%
Not enough	4 7,7%	4 7,7%	0 0%	8 15,4%
Total	16 30,8%	22 42,3%	14 26,9%	52 100%

In Table 4, the cross-tabulation data illustrates the relationship between the respondent's level of knowledge and the intensity of giving gadgets to children. From this data, it can be seen that respondents with a good level of knowledge tend to give gadgets equally in all intensity categories: 6 respondents (11.5%) in the high category, nine respondents (17.3%) in the medium category, and 11 respondents (21.2%) in the low category. This shows that even though they have good knowledge, some of them still provide gadgets with high intensity.

Respondents with a sufficient level of knowledge also showed a similar pattern, with a relatively even distribution: 6 respondents (11.5%) in the high category, nine respondents (17.3%) in the medium category, but only 3 respondents (5.8%) in the low category. This shows that sufficient knowledge does not always correlate with reducing the intensity of giving gadgets. Meanwhile, respondents with more or less knowledge levels gave gadgets with high intensity (4 respondents or 7.7%) and medium (4 respondents or 7.7%), and none gave gadgets with low intensity (0%). This shows that the lower the level of knowledge, the greater the tendency to provide gadgets with higher intensity.

Overall, these data show a tendency for a better level of knowledge to be associated with a more even distribution of intensity of gadget giving, while less knowledge tends to be correlated with more intense gadget giving. However, this pattern is not absolute because even respondents with good knowledge still give gadgets at a high intensity.

Discussion

The research results show a relationship between the level of parental knowledge and the intensity of giving gadgets to preschool children. Cross-tabulation data revealed that the majority of respondents with a good level of knowledge (50.0%) had a relatively even distribution in the gadget-giving intensity category, namely high (11.5%), medium (17.3%), and low (21.2%). Meanwhile, in the group with less knowledge (15.4%), there was a greater tendency to give gadgets with high intensity (7.7%) compared to low intensity (0%). These findings show that although parental knowledge influences decision-making about gadgets, other factors such as the social environment, family habits, or situational pressure influence this behavior [16].

Overall, the results of the Spearman statistical test show a significance value of $p = 0.017$, which shows a significant relationship between the level of parental knowledge and the intensity of giving gadgets. This is in line with the results of previous research, which states that parental knowledge plays an important role in regulating children's screen exposure [17]. However, the data distribution pattern in this study also shows that knowledge alone is not enough to completely change gadget-giving behavior, so additional interventions such as practical education or community support are needed.

According to the *Health Belief Model* (HBM), a person's decision to adopt healthy behavior is influenced by their perception of the risks and benefits of an action [18]. In children's use of gadgets, well-informed parents may better understand the negative impacts of excessive screen exposure, such as impaired language development, sleep problems, and potential digital addiction [19]. However, this theory also highlights that factors such as logistical barriers (e.g., busy parents) or external pressures (e.g., social norms) can weaken the intention to reduce gadget giving [20].

Apart from that, s*ocial cognitive theory* (SCT) explains that individual behavior is influenced by the interaction between personal factors (knowledge), environment (social norms), and behavior itself [21]. In this study, even though parents had good knowledge, some still gave them gadgets intensively because they might face environmental pressures, such as the need to calm their children when working or carrying out household activities. This shows that knowledge alone is not enough to change behavior without the support of a supportive environment.

Although this research shows a significant relationship between the level of knowledge and the intensity of giving gadgets, the results also show that many parents still give gadgets intensively even though they have good knowledge. In the author's

opinion, this phenomenon reflects modern challenges in parenting, where gadgets are often considered an instant solution to entertain or distract children [22]. Therefore, the educational approach to parents must not only focus on increasing knowledge but also provide practical alternatives to reduce dependence on gadgets.

For example, educational programs may include training on how to use the method of *positive parenting* to manage children's behavior without relying on gadgets [23]. Apart from that, parents can be invited to get to know alternative activities such as reading books together, playing traditional games, or doing physical activities that involve direct interaction with children [24][25]. In this way, parents not only know the negative impacts of gadgets but also have practical tools to implement healthier parenting behaviors.

These findings have important implications for stakeholders, including governments, educational institutions, and community organizations. First, the results of this research can be used as a basis for designing more holistic educational programs for parents, especially those with preschool-aged children. Second, these results also show the need for public campaigns that emphasize the importance of limiting screen time for children, as well as providing practical guidance for parents to manage gadgets wisely [26][27].

However, this study also has several limitations that need to be considered. C*ross-sectional* design only allows for identifying relationships at one particular time, so it cannot show cause-and-effect relationships. In addition, the data used is self-reported, which is susceptible to recall bias or a tendency to give answers that are considered more socially positive [28][29]. Therefore, further research with a longitudinal design and more objective data collection instruments is needed to strengthen these findings.

Limitation

This research has several limitations that need to be considered, including the design, which only measures variables at one particular time, so it cannot assess cause-and-effect relationships, uses self-report data (*self-reported*), which is susceptible to recall bias or social predisposition, as well as limited sample representation to an urban population with a relatively small sample size so the results may not be generalizable to a wider population. In addition, the instruments measuring the level of knowledge and intensity of gadget exposure have not been formally validated in this research and focus only on preschool-aged children without considering the long-term impact of gadget exposure on

children's development. To strengthen the findings, further research with longitudinal designs, larger samples, and more objective measurements is needed

Conclusion

This research shows that the level of parental knowledge is correlated with the intensity of giving gadgets to preschool children. However, knowledge alone is not enough to completely change gadget-giving behavior because other factors, such as situational pressure and social norms, also play a role. Based on these findings, it is recommended that educational programs focus not only on increasing knowledge but also on providing practical alternatives to reduce dependence on gadgets. With a more holistic approach, it is hoped that parents can make wiser decisions in regulating their children's use of gadgets.

Ethical Considerations

In this study, there were no ethical conflicts of interest

Acknowledgment

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Conflict of Interest

In this study, there was no conflict of interest

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The Influence of Education on The Knowledge and Attitudes of Teenage Girls About Early Pregnancy

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Abstract

Pregnancy is a time when a woman carries a fetus embryo in her body. Early pregnancy is a pregnancy that occurs at the age of less than 20 years. Data shows that teenage pregnancy is related to low levels of education and economic status. Lack of knowledge about reproductive health contributes to the high rate of unwanted pregnancies. This study aims to determine the effect of education on the knowledge and attitudes of teenage girls about early pregnancy at SMK Grafika De.sa Pute.ra South Jakarta. This study aims to determine the effect of education on the knowledge and attitudes of teenage girls about early pregnancy at SMK Grafika Desa Putera South Jakarta. The results of the study showed a significant influence on the knowledge and attitudes of adolescent girls after being given early pregnancy education with a Sig value <0.001. Providing education increases the knowledge and attitudes of adolescent girls about early pregnancy.

Keywords: Early pregnancy, reproductive health, education.

Introduction

Early pregnancy is a pregnancy that occurs in women under 20 years of age. Fe.nome.na this is not only a problem in the country, but also in the developed world. According to WHO (2022) re.maja me.is a phase. between childhood and de.wasa in the age between 10 and 19 years. Time is the time that is important in the level of human development kare.na in the pe.riode. This is a physical and psychological change (Freska, 2022).

Early pregnancy is a pregnancy that occurs in women under 20 years of age. Fe.nome.na this is not only a problem in the country, but also in the developed world. In 2021, pregnancy rates were higher than those in the country that were re.rpe.ndah education or economic status (WHO, 2023).

Knowledge and education factors have an impact on pregnancy re.maja se.be.sar 66.7%. The lack of knowledge and education that is necessary at the elementary level after school is broken can increase the likelihood of pregnancy in the middle of the year (Ayu et al., 2020). Nearly 650 million women alive today have been married before the age of 18, some even before the age of 10 (Puspasari & Pawitaningtyas, 2020).

BKKBN data (2022) shows that the birth rate from early pregnancy cases has increased from last year. History of pregnancy for 10-19 years old is 15% (SKI, 2023). And the proportion of children born alive less than 20 years old in Jakarta is 11.8% (BPS, 2023). Research conducted by Amdadi et al. (2021) in front of 30 female students at SMA Ne.ge.ri 1 Gowa showed that, the majority of subjects (53%) still have a lack of knowledge to face the risk of early pregnancy. In addition, the results of research conducted by Clare.t (2022) showed that 301 women in Sanggalangi District, North Toraja Regency showed that 24% of women had enough knowledge to face the impact of early pregnancy.

This research aims to explore the extent to which the education of young women in early pregnancy is affected by the risk of te.rse.but, such as how various factors affect the social environment and the role of women in the development of knowledge and attitudes. Based on the description of the background above, it can be formulated to address the problem of research, namely how does it affect the education of the young woman and the attitude of the young woman in early pregnancy at SMK Grafika Desa Pute, Jakarta, Selatan

Method

The design of the research used is one Pre test-post test design, namely research eksperiment which is carried out on one group only which is selected randomly and is not carried out to the stability and to the condition of the group before treatment. This design is measured by using pre-tests carried out during the treatment and post-tests carried out at least 1 week apart from the treatment Skema one.

Pre-test post-test design is shown as follows:

Tabel 1 Skema one grup pre test-post test design

Pre Test	Treatment	Post Test
T_1	X	T_2

T1: Pre Test carried out before the treatment is given

X: Treatment is given to female students using the PPT and Leaflet about Pregnancy

T2: Post-test carried out after the treatment is given.

The population in this study is all of the women's teenagers of SMK Grafika Village Putera South Jakarta, which is as many as 52 people. In this study, I would like to take a sample of my daughter's maja using a non-probability sampling technique with me. Total Sampling. The number of samples taken in this study was 51 people who were willing and 1 person who was not ready. Research activities will start from November 2024 to January 2025. In this research, the research carried out uses instruments in the form of PPT, leaflets and questionnaires. In this study, the Wilcoxon statistical test was used to see the effect of education on knowledge and attitudes about early pregnancy before and after the intervention.

Results

Respondent Demographic Data by Age

Age	Frequency	Percentage (%)
15	5	9,8%
16	24	47,1%
17	10	19,6%
18	10	19,6%
19	2	3,9%
Total	**51**	**100%**

Respondent Demographic Data by class

Class	Frequency	Percentage (%)
X	17	33,3%
XI	18	35,3%
XII	16	31,4%
Total	**51**	**100%**

Respondent Demographic Data Based on Parents' Last Education

Parents' Last Education	**Frequency**	**Persentage (%)**
Elementary school	2	3,8%
Junior high school	1	2,0%
Senior High School	30	58,8%
Diploma 4	1	2,0%
Bachelor	17	33,3%
Total	**51**	**100%**

Average knowledge of young women before and after the intervention

Variabel		N	Mean	SD	Min	Max
Knowledge	Pre Test	51	17,84	1,848	11	20
	Post Test	51	18,98	1,304	13	20

Average attitudes of young women before and after intervention

Variabel		N	Min	Max	Mean	SD
Attitude	Pretest	51	49	77	66,33	6,225
	Postest	51	50	80	72,41	7,867

Table of Normality Test Results of Knowledge Variables

	Sig.	Information
Pre-Test	< 0,001	Not normally distributed l
Post-Test	< 0,001	Not normally distributed

Table of Normality Test Results of Attitude Variables

	Sig.	Information
Pre-Test	0,200	Not normally distributed
Post-Test	< 0,001	Not normally distributed

The effect of education on knowledge before and after intervention

	Postest knowledge - Pretest knowledge
Z	-3,531
Asymp. Sig. (2-tailed)	< 0,001

The effect of education on Attitude before and after intervention

	Post-test attitude - Pre-test attitude
Z	-3,555
Asymp. Sig. (2-tailed)	<0,001

Discussion

The Effect of Education on Knowledge of Early Pregnancy

.Based on the results of the wilcoxon test, the Asymp value is known. Sig. < 0.001 which means that there is a significant influence between the value of knowledge of adolescent girls at SMK Grafika Desa Putera, South Jakarta before and after being given education about early pregnancy. The results of the study conducted by Patimah (2024) show that the results with the Wilcoxon test have a Sig.(2-tailed) p value of 0.000 < a significance level of 0.05, so the null hypothesis (H0) is rejected and the alternative hypothesis (Ha) is accepted. So that with the acceptance of the alternative hypothesis (Ha), it can be concluded that there is an effect of providing early marriage e-booklet education on the level of knowledge in young women at SMA Negeri 2 Mendo Barat.

Research conducted by Kedaton and Aniarti (2024), showed that there was a significant influence on the level of knowledge of adolescents before and after receiving learning video media education, as evidenced by the results of bivariate analysis using the wilcoxon test which produced a value of p=0.000 <0.050, showing that there was a significant influence of learning video media education on adolescents' knowledge and attitudes at SMK N 1 Kutasari.

According to the researchers' assumptions based on the results of this study and previous research, the researcher assumes that educational methods that are interesting, relevant, and appropriate to the needs of adolescents have a significant influence on improving their knowledge. Educational interventions delivered through various media,

provide consistent results in increasing adolescents' awareness and understanding of early pregnancy. Overall, the benefits of this study can improve the quality of reproductive health education for adolescents, have a positive impact on their well-being, and reduce the risk of early pregnancy through increased knowledge and healthier attitudes

The Influence of Education on Attitudes About Early Pregnancy

Based on the results of the Wilcoxon Test, it is known that the Asymp value. Sig. <0.001 which means that there is a significant influence between the attitude values of adolescent girls at SMK Grafika Desa Putera, South Jakarta before and after being given education about early pregnancy. The results of the study conducted by Patimah (2024) show that the results have a Sig. (2-tailed) p value of 0.001 < a significance level of 0.05, then the null hypothesis (H0) is rejected and the alternative hypothesis (Ha) is accepted. So that with the acceptance of the alternative hypothesis (Ha), it can be concluded that there is an effect of providing early marriage e-booklet education on attitudes in young women at SMA N 2 Mendo Barat.

Research conducted by Kedaton and Aniarti (2024), shows that there is a significant influence on the level of adolescents' attitudes before and after receiving learning video media education, as evidenced by the results of bivariate analysis using the Wilcoxon test which resulted in a value of p=0.000 <0.050, showing that there is a significant influence of learning video media education on adolescents' knowledge and attitudes at SMK N 1 Kutasari. The results of a study conducted by Wijayanti and Azizah (2023) show that there is an effect of health research using audiovisual on attitudes towards early pregnancy with an Asym value. Sig (p-value < 0.05) of 0.000 then the result is that Ho is accepted. This shows that there is a difference in attitude between pre-health education using audiovisual and post-health education. So it can be said that there is a difference between the attitude of pre-health education adolescents and post-health education about early pregnancy.

Based on these findings and existing research, researchers assume that the provision of education that is carried out using interesting media and in accordance with the needs of adolescents has a significant influence on changes in their attitudes. This change in attitude is expected to motivate adolescents to be more careful and wise in making decisions related to reproductive health, as well as avoid risky behaviors, such

as early pregnancy.

Conclusion

Based on the results of a study on the influence of education on the knowledge and attitudes of adolescent girls about early pregnancy at SMK Grafika Desa Putera, South Jakarta, it was found that the majority of respondents were 16 years old and came from grade XII. Before education, most of them had good knowledge and a positive attitude. After education, the respondents' knowledge and attitudes increased significantly, as evidenced by the increase in the average score of knowledge and attitude. This study shows that education can increase adolescents' knowledge and positive attitudes towards early pregnancy prevention.

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Analysis of Pesticide Exposure Can Increase the Risk of Low Birth Weight Incidence in Agricultural Areas

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Abstract

Pesticide exposure can have various negative impacts on pregnant women, especially for fetal development, so it can cause low birth weight. This study aims to analyze the literature findings over the past five years related to the relevance of pesticide exposure to the incidence of low birth weight in agricultural areas. This research method uses a literature review of 10 selected articles. The databases used were ScienceDirect, Google Scholar, and PubMed, with the keywords pesticides, low birth weight, and agriculture. A total of 10 articles were obtained, and they will go through the screening process through inclusion and exclusion criteria. The results showed that pregnant women in agricultural areas have a greater risk of being exposed to pesticides, which can have an impact on the growth and development of the fetus they are carrying. In addition, it can also cause a decrease in IGF1 levels, which can impact the incidence of LBW. Pregnant women can do prevention by minimizing the use of chemicals containing pesticides and using personal protective equipment. This study found that pesticide exposure can increase the risk of low birth weight incidence in agricultural areas, where most people, especially pregnant women in agricultural areas, feel the negative impact of pesticide exposure on the incidence of low birth weight.

Keywords: pesticide, low birth weight, agriculture

Introduction

Low birth weight (LBW), defined as a birth weight of less than 2500 grams irrespective of gestational age, remains a critical global health challenge, contributing significantly to neonatal mortality, morbidity, and long-term developmental disabilities[1]. LBW infants face heightened risks of respiratory distress, infections, and chronic conditions such as diabetes and cardiovascular diseases later in life[2]. These outcomes substantially burden healthcare systems and families, underscoring the urgency of addressing preventable risk factors[3]. Despite advancements in maternal care, LBW prevalence persists, particularly in regions where environmental and occupational hazards intersect with socioeconomic vulnerabilities[4].

The etiology of LBW is multifactorial, encompassing maternal, fetal, and environmental determinants[5]. Maternal factors include preexisting health conditions (hypertension, diabetes), inadequate prenatal care, malnutrition, substance abuse, and chromosomal abnormalities[6]. Sociodemographic variables such as young maternal age, low education, and poverty further exacerbate risks[7]. Fetal contributors, such as chromosomal anomalies, multiple gestations, and placental insufficiency, also play significant roles[8]. Meanwhile, environmental exposures—ranging from high-altitude hypoxia to chemical toxins—emerge as modifiable risk factors with far-reaching implications for public health interventions[9].

Among environmental hazards, pesticide exposure has garnered increasing attention due to its pervasive use in agriculture and documented toxicity[10]. Pesticides, including herbicides, insecticides, and fungicides, are widely used to protect crops but often contaminate air, soil, and water, affecting occupational and residential populations[11]. Agricultural workers, particularly in low- and middle-income countries, frequently face unsafe handling practices, inadequate protective equipment, and limited regulatory oversight, heightening their exposure risks[12]. Chronic or acute pesticide poisoning is linked to neurological, reproductive, and immunological disorders, with pregnant individuals and their fetuses being uniquely vulnerable[13].

The agricultural sector, a cornerstone of global food production, relies heavily on manual labor, with women constituting a significant proportion of the workforce[14]. Tasks such as weeding, pest inspection, irrigation, and harvesting often place women in direct contact with pesticide-treated crops[15]. Even when not directly involved in

spraying, women may encounter residues through equipment preparation, contaminated clothing, or proximity to sprayed fields[16]. These exposures can disrupt maternal-fetal health, potentially impairing placental function, fetal growth, and developmental trajectories, thereby increasing LBW incidence[17].

Pesticide exposure pathways in agricultural communities are diverse and interconnected. Occupational exposure occurs through dermal contact, inhalation, or accidental ingestion during mixing, application, or post-application activities[18]. Residential proximity to farms amplifies risks via drift contamination of homes, water sources, and food supplies[19]. Pregnant individuals in these settings may experience cumulative exposures across multiple pathways, compounding the threat to fetal development[20]. Epidemiological studies have associated prenatal pesticide exposure with intrauterine growth restriction, preterm birth, and LBW, though gaps remain in understanding dose-response relationships and mechanistic pathways[21].

Women's roles in agriculture and susceptibility to pesticide-related health impacts warrant targeted investigation. Physiological factors, such as increased body fat composition and hormonal fluctuations during pregnancy, may enhance pesticide absorption and retention[22]. Sociocultural norms often relegate women to tasks involving prolonged pesticide contact while limiting their access to safety training or protective resources[23]. These inequities, coupled with systemic barriers to healthcare, create a high-risk scenario for adverse birth outcomes. Addressing these disparities requires gender-sensitive policies and interventions to mitigate occupational hazards[24].

This study seeks to elucidate the relationship between pesticide exposure in agricultural settings and LBW incidence among infants. By examining maternal occupational histories, pesticide exposure levels, and birth outcomes in vulnerable communities, the research aims to inform evidence-based strategies for reducing environmental risks. Findings may guide policymakers in strengthening regulatory frameworks, promoting safer agricultural practices, and enhancing prenatal care protocols to safeguard maternal and child health in agrarian regions.

Method

The researcher will raise the topic of the relationship or association between agricultural and household pesticide exposure to the incidence of low birth weight in

agricultural areas. This research uses the literature review method by retrieving databases from trusted sources, namely ScienceDirect, Google Scholar, and Pub Med. The database search used three English keywords based on the theme or topic the researcher will use: pesticides, low birth weight, and agriculture.

In the search method, researchers filtered the articles used as sources. The first screening was done to limit the article's publication year. Researchers took databases published in the last five years. From the first screening, researchers found 84,079 articles from the three sources published over the last five years, leaving 19,349 articles that met the inclusion criteria published within the last five years.

Then, the second article filtering is done by selecting databases that can be accessed in full to make it easier for researchers to analyze the article. From the second screening results, researchers found 7,091 articles that could not be accessed in full, so researchers could only access 12,258 databases in full.

Researchers only selected databases that included research articles. So, filtering was carried out and found as many as 3,334 included in research articles and 8,924 articles that were not included in research articles. Because the database is still vast and not yet specific, researchers filter again to make it easier for researchers to analyze.

We screened articles from nursing and medical research for the last screening. The filtering results obtained 2,657 articles were excluded due to inappropriate sources. Furthermore, the researcher selected articles that discussed pesticide exposure to pregnant women, which had an impact on low birth weight conditions, and pesticide exposure, which had an impact on infant growth and development. We found 495 articles that did not meet the inclusion criteria from these exclusions. To maximize the analysis, we selected articles that conducted their research in agricultural areas and found 172 articles that did not fit. So, from several filters that researchers have carried out, the final result of the articles researchers take to analyze is 10.

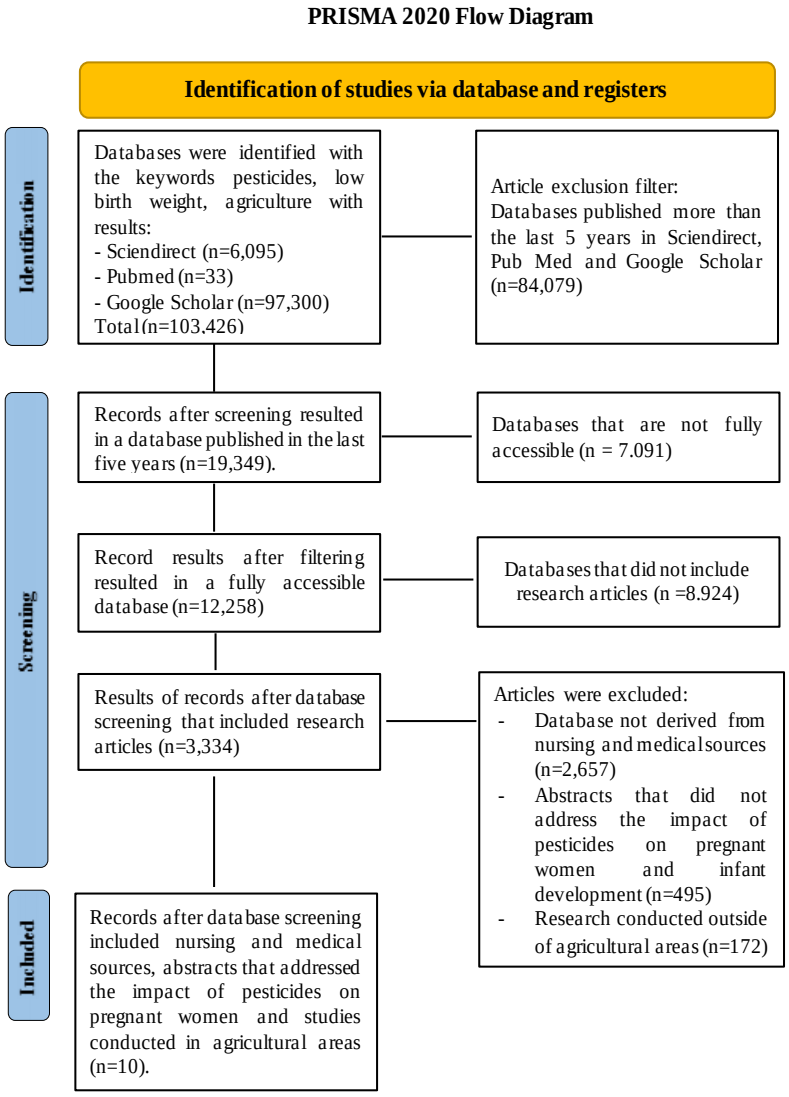

Figure 1. PRISMA 2020 Flow Diagram

Results

From the 10 databases selected, the researchers found databases conducted on pregnant women who live in agricultural areas that have a high risk of exposure to pesticides and pregnant women who often use pesticide-like chemicals in household activities that have an impact on the development of the unborn child. The study found in the database addresses how exposure to pesticides may raise the prevalence of low birth weight. As for the literature analysis, four databases discuss the triggering factors for birth weight: Journals 1, 2, 3, and 4. Then, there are two databases, namely journals 5 and 6, which discuss the relationship between IGF-1 levels and the incidence of LBW.

There are four databases, namely journals 7, 8, and 9, which focus on discussing the impact of pesticides on LBW and its prevention.

Table 1. Literature Analysis Results

ID No.	Author and Journal Identity	Journal Title	Objective	Population and Sample	Method	Summary of Results
A1	Author: Triyani, N., et al. Journal Identity: International Journal of English Literature and Social Sciences, 4(6), 1639–1642. 2019. 10.22161/ijels.46.1	Factors Associated with Low Birth Weight in Horticulture Area, Semarang District, Indonesia[25]	This is to prove that exposure to pesticides during pregnancy is a risk factor that contributes to the birth of babies with low birth weights in Bandungan Village, Semarang Regency.	The case and control groups totaled 104 mother-respondent samp les.	This study used a case-control design. The sampling technique used purposive sampling—data processing using the Chi-square test for continuity correction.	Agricultural activities such as pesticide spraying and pesticide use have been shown to pose a risk for LBW. Female farmers who sprayed pesticides had a 2 times greater risk of giving birth to LBW babies compared to female farmers who did not spray pesticides.
A2	Author: Rahmawati, I., et al. Journal Identity: Nursing and Health Sciences Journal (NHSJ), 1(3), 249–253. 2021. 10.53713/nhs.v1i3.85	The Effect of Hormonal Contraceptive on Low Birth Weight (LBW) Baby Delivery in Agronursing Area[26]	To find out how the relationship of hormonal contraceptive use can have an impact on the birth rate of babies with low birth weight.	This study involved 441 people.	Analysis of sample data in the study was carried out using sampling quotas. The characteristics of respondents are displayed in the form of univariate analysis. The analysis method is used to describe the characteristics that exist in respondents. Regression testing involves several other variables, such as parity, initial membrane rupture, and history of pre-eclampsia, to examine the validity of factors that can lead to low birth weight (LBW).	It was found that mothers who work in agricultural environments with limited economic and educational resources will be less concerned about the safety of using hormonal contraceptives. Low birth weight has a reasonably high incidence rate around agricultural areas. Another factor contributing to low birth weight is pesticide exposure by pregnant women in agricultural environments.
A3	Author: Lin, S., et al. Journal Identity: BMC Public Health, 22(1), 1–11. 2022. 10.1186/s12889-022-13604-z	Interactive Effect of Maternal Exposure to Chemical Fertilizer and Socioeconomic Status on The Risk of	To investigate how poor socioeconomic position and maternal exposure to chemical fertilizers during	In this investigation, cases from the Perinatal Health Care Surveillance System between 2007 and 2012 were selected,	Data were collected through face-to-face interviews using a structured questionnaire within 42 days after delivery.	The interactive analysis of this study suggests that high chemical fertilizer exposure and socioeconomic status disadvantage may amplify the risk of LBW. In Chinese research, farmers with low education levels

		Low Birth Weight[27]	pregnancy interact to increase the risk of low birth weig ht.	comprising 179 LBW cases (birth weight <2500 g and gestational age 37 weeks) and 204 cases (birth weight 2500 g and gestational age 3 7 weeks).		tend to overuse chemical fertilizers, making them more vulnerable to chemical fertilizers.
A4	Author: Rahmawati, A., et al. Journal Identity: Proceedings of the 3rd Borobudur International Symposium on Humanities and Social Science 2021 (BIS-HSS 2021), 40–46. 2023. 10.2991/978-2-494069-49-7_8	The Relationship between Pesticide Exposure in Pregnant Women and the Incidence of LBW at the Sawangan 1 Public Health Centre, Magelang Regency[28]	To ascertain whether pregnant women's exposure to pesticides and low birth weight (LBW) prevalence are related.	According to this study, the population of Puskesmas Sawangan 1 Brebes Jawa Tengah is made up of all the parents who have lost a child in the last year of life.	Purposive sampling was used to choose samples from a total of 50 respondents. Employing the Chi-Square statistical test for data analysis.	The case group's exposure category outcomes were better than the control group's. There were 22 responders in the exposed category in the case group. Eleven respondents fell into the exposed category in the control group.
A5	Author: Widyawati, S., et al. Journal Identity: International Journal of Occupational and Environmental Medicine, 11(1), 15–23. 2020. 10.15171/ijoem.2020.1809	The Relationship between Pesticide Exposure and Umbilical Serum IGF-1 Levels and Low-birth Weight: A Case-control Study in Brebes, Indonesia[29]	To examine the relationship between low birth weight (LBW) occurrence and pesticide exposure during pregnancy (IGF-1 hormone disru ption).	Mothers who gave birth at Brebes Regional Hospital and Bhakti Asih Hospital in Brebes, Central Java, between January and May 2018.	Analyzing pesticide exposure by interviewing mothers with LBW babies. Two hospitals in Brebes provided LBW babies (less than 2,500 g) and normal-weight babies (more than 2,500 g) for the case-control research. Assaying serum IGF-1 with the ELISA technique.	Pregnancy-related exposure to harmful substances, like pesticides, lowers umbilical serum IGF-1 levels, which leads to LBW symptoms. Pregnancy-related pesticide exposure was significantly linked to lower levels of umbilical serum IGF-1 in LBW.
A6	Author: Kartini, A., et al. Journal Identity: International Journal of Occupational and Environmental Medicine, 10(1), 17–29. 2019. 10.15171/ijoem.2019.1428	Pesticide Exposure and Stunting among Children in Agriculture Areas[30]	To evaluate the relationship between pesticide exposure and stunting in children living in agricultural co mmunities.	The study was conducted in four primary schools in the Bulumba sub-district, with 112 pupils in the control group and 48 in the case group, all aged 8 to 12 year s.	The study measured pesticide exposure based on exposure history during pregnancy, infancy, and childhood. To assess stunting, the z-score of height for age was used along with levels of hormones TSH, IGF-1, hemoglobin, zinc, albumin, energy and protein, history of infection, low weight,	There was no significant change in features between the case and control groups, but one significant difference: the case group had lower IGF-1 levels. High pesticide exposure combined with low IGF-1 levels is linked to stunting in children, as are other independent risk factors.

					and maternal height.	
A7	Author: Matsuki, T., et al. Journal Identity: International Journal of Environmental Research and Public Health, 17(12), 1–19. 2020. 10.3390/ijerph17124608	Association between Prenatal Exposure to Household Pesticides and Neonatal Weight and Length Growth in the Japan Environment and Children's study[31]	The study aimed to examine the effects of prenatal pesticide exposure on body size and neonatal growth during the first month of life.	93.718 pairs of expectant mothers and their offspring from the Japan Environment and Children Study were included.	During the second and third trimesters, participants filled out questionnaires about their demographics and the frequency with which they used pesticides during pregnancy. ANCOVA was used to calculate birth weight and length based on pesticide levels.	The majority of pesticides have little effect on length or weight at birth. Although the effects are minor, a significant association was found between the use of fogging insecticides and low birth weight and between the frequency of exposure to certain pyrethroid-based pesticides and suppression of infant length growth. In addition, exposure to household insecticides before delivery, especially pyrethroid-containing mosquito coils, may impact fetal and newborn growth rates.
A8	Author: Soesanti, F., et al. Journal Identity: BMC Pregnancy and Childbirth, 20(1), 1–8. 2020. 10.1186/s12884-020-03162-w	The effect of non-organophosphate household pesticides exposure during pregnancy on infants birth sizes and growth rate: a cohort study[32]	To evaluate the relationship between exposure to non-organophosphate household pesticides to pregnancy and other health conditions around the agricultural environment.	The enrollment of participants was between June 2012 and January 2017. There were 284 participants in all for this study.	Mothers selected to be respondents will complete questionnaires about exposure to non-organophosphate household pesticides in the third trimester of pregnancy. The baby's weight and length will be measured consistently starting at birth, after which weight, height, and head circumference (HC) will be measured respectively at 7 days, 1, 2, 4, and 6 months of age.	In the third trimester of pregnancy, mothers answered a questionnaire on their exposure to non-organophosphate household insecticides. The newborn's weight, height, and head circumference (HC) were measured at birth, followed by seven days, one, two, four, and six months of age.
A9	Author: Jaacks, L. et al. Journal Identity: Environment International, 133, 1–9. 2019. 10.1016/j.envint.2019.105243	Association of prenatal Pesticide Exposures with adverse pregnancy outcomes and stunting in rural Bangladesh[33]	To measure the levels of pesticide biomarkers in urine during <16 weeks of pregnancy and correlate them with stunting, low birth weight, small for gestational age, premature birth, and stunting in children aged	The population of this study was 1,613 diads of mothers (aged 18-40 years) in rural Bangladesh, and a sample of 289 diad mothers that met the study's criteria were found.	In this study, eight pesticide biomarkers were examined in urine samples. Children's index is measured anthropometrically at birth and about a year and a half. A set of appropriate minimum adjustments is identified using a directed acyclic graph. Relative risk (RR) is calculated using log-binomial regression	The study found that exposure to pesticides in pregnant women increases the risk of having a baby with a low birth weight, which is a risk factor for stunting. Pregnant women with the highest levels of 4-nitrophenol are more likely to give birth to children who are less weighty for their age.

			1-2 years.		with a 95% confidence interval.	
A10	Author: Lubis, F. H. Journal Identity: Jurnal Kesmas Dan Gizi (Jkg), 3(1), 39–47. 2020. 10.35451/jkg.v3i1.477	Analisis Faktor Risiko Paparan Pestisida Pada Kehamilan Dengan Kejadian Berat Badan Lahir Rendah (BBLR) di Kota Padangsidimpuan Tahun 2019[34]	To determine risk factors for pesticide exposure and the incidence of low birth weight diseases.	The research sample was divided into 25 people from the case group and 25 from the control group.	This study used interviews and observation as its method. Moreover, it employs univariate and bivariate analysis in data analysis.	The findings from this study reveal that exposure to pesticides has been identified as a contributing factor to the low incidence of birth severity in the field, which can be supported by work related to the pesticide of pregnant women, the lack of complete personal protective equipment (PPE) during field activities, and the storage of the pest.

Discussion

Agronursing, an interdisciplinary field merging agricultural health and nursing science, focuses on addressing the unique health challenges farming communities face, particularly those linked to occupational and environmental hazards[35]. Agronursing integrates healthcare principles with agricultural safety; agronursing emphasizes preventing, managing, and mitigating health risks associated with farming activities, including pesticide exposure[36]. In agricultural regions, pesticides are extensively used to protect crops, yet their toxic residues often contaminate air, soil, and water, creating pervasive exposure risks[37]. Pregnant individuals engaged in farming activities—such as handling crops, preparing pesticides, or residing near treated fields—are particularly vulnerable to chronic or acute exposure. These chemicals can disrupt maternal physiological processes, impair placental function, and induce oxidative stress or inflammation, all linked to intrauterine growth restriction and low birth weight (LBW)[38]. Agronursing bridges agricultural practices with public health priorities by identifying these pathways and advocating for interventions to protect maternal-fetal health[39].

Agronursing professionals are pivotal in mitigating pesticide-related risks through education, advocacy, and preventive care. By assessing occupational and environmental hazards in farming communities, they design interventions to reduce exposure among

pregnant women. This includes promoting safe handling practices, advocating for protective equipment, and raising awareness about the dangers of pesticide drift and contaminated food/water sources[37]. Additionally, agronursing integrates prenatal care with agricultural health monitoring, enabling early detection of exposure-related complications[38]. Such efforts are critical in resource-limited settings where regulatory frameworks may be weak and healthcare access is limited. By fostering collaboration between healthcare providers, agricultural stakeholders, and policymakers, agronursing reduces LBW incidence and safeguards future generations' health in agrarian populations[39].

a. Factors of Low Birth Weight in Agriculture Areas

When producing food, pesticides are essential for the quality of agricultural output, but farmers often ignore safety advice to remain safe. Do not use personal protection equipment can have adverse effects such as blisters, rashes, blindness, nausea, dizziness, diarrhea, and even death. In addition, low birth weight and initial delivery are two effects of using unfavorable pesticides on female farmers. According to a study by Triyani et al. (2019)**,** fetal condition (multiple pregnancies, chromosomal disorders, polyhydramnios), environmental factors (exposure to toxic substances), and history of maternal disease during pregnancy (hypertension, heart, lungs, and infectious diseases), all can contribute to low birth weight (LBW). Women's participation in agricultural arrangements, including tasks such as mixing and spraying pesticides. It has been determined that using and spraying pesticides is one of the agricultural practices that increases the risk of LBW. Compared to women who do not spray pesticides, female farmers are at risk of giving birth to children with low birth weight.

Another factor that leads to BBW is ignorance. According to a study by Rahmawati et al. (2021), mothers who work in the context of agriculture with inadequate economic and education resources tend to be less concerned about safety using hormonal birth control. Low socioeconomic status can also increase the prevalence of LBW. According to research by Lin et al. (2022), low-income developing countries have a higher BBW frequency and are more likely to use chemical fertilizers such as pesticides. This claim is supported by research by Rahmawati et al. (2023), who found a strong correlation between LBW events and exposure to pregnant women against pesticides in agricultural areas.

b. Relationship between IGF-1 Serum Level and Low Birth Weight

Production and secretion of growth hormone-1 (IGF-1), such as insulin, can be disrupted by exposure to hazardous chemicals, such as pesticides. The most important hormone for fetal development, especially in the last stage of pregnancy, is IGF-1. IGF-1 impacts fetal development during pregnancy by affecting the placenta and metabolism. Low levels of IGF-1 in the mother's blood can affect the baby's health, increasing the likelihood of low birth weight and even benefiting offspring. This is caused by the role of IGF-1 in metabolism, mitogenesis, and cell differentiation, which includes controlling and promoting trophoblast cell growth, which causes placenta. This situation is consistent with research by Widyawati et al. (2020), which shows that mothers previously exposed to pesticides have IGF-1 levels 3.6 times lower than mothers who have not experienced pesticides. Low birth weight newborns can result from the mother's low IGF-1 levels. Different studies have found that children who are exposed to pesticides and have low IGF-1 levels are more likely to experience stunting[30].

c. Pesticide Exposure's Effect on the Prevalence of Low Birth Weight

Using liquid insecticides, plantation herbicides, and insect repellent insecticides has a bad impact on pregnant women and the fetus. These chemicals are not only used in areas of agricultural activity but these materials are often used to clean the house from insects. Exposure of pregnant women to chemicals has been shown to result in shorter infant body length than pregnant women with minimal exposure to pesticides. In addition to body length, exposure to chemicals such as pesticides and insecticides and exposure to similar substances also impact the incidence of low birth weight[31]. This is consistent with studies by Soesanti et al. (2020) that show low birth weight is associated with non-organophosphate pesticides, with smaller birth head circumferences than babies born to moms who receive less exposure to pesticide chemicals. Extended exposure to pesticides during pregnancy can hurt fetus growth, which can disrupt the child's development[33].

Therefore, pregnant women must be aware of exposure to the use of pesticides

to protect and prevent their fetuses from being born with low birth weight conditions. Pregnant women can do prevention by minimizing the use of chemicals containing pesticides in house cleaning activities and staying away from areas of agricultural activities that use pesticides. If pregnant women are trapped in conditions of pesticide exposure, pregnant women must use personal protective equipment such as wearing long sleeves, long pants, cloth masks, cloth gloves, and head coverings[34].

Conclusion

The agricultural industry is one of the most labor-intensive for men and women. Millions of people who work in agriculture are noted to suffer from pesticide poisoning every year, and thousands of farmers and agricultural workers are poisoned by pesticides every day. Women are among the most vulnerable to the harmful effects of pesticide exposure in the body since they work in agriculture; this can disrupt fetal growth and development when the mother is carrying the fetus and result in low birth weight (LBW) newborns. We found a strong correlation between pesticide exposure and low birth weight events in agricultural areas, where most people, especially pregnant women, experience the harmful effects of pesticide exposure in the prevalence of low birth weight.

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Conflict of Interest

None

Author contribution

All authors contributed to completing this research

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Dried Date Juice on Hemoglobin and Blood Glucose Levels in Pregnant Women at The Community Health Centre in Bogor Region

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Abstract

Background: The second highest MMR in Indonesia in 2023 was due to obstetric haemorrhage, which accounted for 17.16% of the total MMR of 4,129. One of the factors causing obstetric haemorrhage is anaemia. In 2023, the Indonesian Health Service Office reported that the proportion of anaemia in pregnant women in Indonesia was 27.7%, and in West Java in 2023 it was 10.44%. One of the non-pharmacological therapies to help overcome anaemia is the administration of date juice. **Purpose**: This study aims to determine the effect of date juice administration on haemoglobin levels and blood glucose levels in pregnant women with anaemia. **Method**: This type of research is a pre-experimental one-group pretest-posttest design. The population is pregnant women in the third trimester with anaemia. The sample in this study consisted of 20 people who were then given treatment. The sampling technique used purposive sampling. Bivariate analysis used the Wilcoxon test and Paired sample t test. **Result**: The results showed an increase in the average haemoglobin level before (10.11 g/dL) and after (11.60 g/dL) the providing of date juice. Meanwhile, the average blood glucose level before (96.30 mg/dL) and after (96.65 mg/dL) showed a slight increase. The results of the Wolcoxon test on haemoglobin levels showed a p value = 0.000, so there is a significant effect of date juice administration on haemoglobin levels. Meanwhile, from the results of the paired sample t test on blood glucose levels, the p value = 0.953, so there is no effect of date juice administration on blood glucose levels in pregnant women in the third trimester with anaemia. **Conclusion**: There is an effect of date juice on increasing haemoglobin levels and no effect on blood glucose levels in pregnant women in their third trimester with anaemia.

Keywords : Anemia, blood glucose, date juice, hemoglobin, TTD

Introduction

The second highest maternal mortality rate (MMR) in Indonesia in 2023 was caused by obstetric hemorrhage, accounting for 17.16% of a total of 4,129 maternal deaths. The percentage of obstetric hemorrhage cases in West Java in 2023 was 19.07%. One of the factors contributing to obstetric hemorrhage is anemia. The WHO estimates that 37% of pregnant women worldwide suffer from anemia and states that anemia increases the risk of infections, poor pregnancy outcomes, and mortality.

In 2023, the Indonesian Health Ministry reported that the proportion of anemia among pregnant women in Indonesia was 27.7%, with West Java reporting a rate of 10.44%. One non-pharmacological therapy to help inrease anemia is the providing of date Juice. However, the carbohydrate content in dates is quite high, consisting of glucose (fructose) at 67.97 g per 100 g, meaning about 68% of date Juice contains glucose.

A study mentioned that frequently consuming foods with high glucose content can affect blood glucose levels, potentially leading to hyperglycemia. Therefore, the researchers were interested in conducting a study on the effect of date Juice on hemoglobin levels and blood glucose levels in pregnant women with anemia.

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Method

This type of research is a pre-experimental one-group pretest-posttest design. The population consists of third-trimester pregnant women with anemia in the Bogor Regency Public Health Center area. The sample in this study includes 20 individuals who were then given treatment. The sampling technique used is purposive sampling. The intervention given to the respondents was the provision of date juice three times 15 ml daily for 14 days.

This research data analysis uses the SPSS application. The bivariate analysis in this study aims to obtain results on the differences in mean hemoglobin and blood glucose levels before and after the intervention. To determine the significance of the intervention's effect on hemoglobin levels, the Wilcoxon test is used. Meanwhile, the bivariate analysis of blood glucose levels before and after the intervention will utilize the paired t-test to ascertain the effect of date Juice on blood glucose levels in third-

trimester pregnant women with anemia.

This research has passed the research ethics clearance test. Researchers collected data directly from respondents and the results of the study have been defended in a court session in front of examiners at the Faculty of Health Sciences Midwifery Study Program, National University.

Results

Table 1
Mean Hemoglobin Levels Before and After Providing of Date Juice

Variabel	N	Mean	Min	Max	SD
Hb Pretest	20	10,11	9,1	10,5	0,41
Hb Posttest	20	11,6	10,1	13,2	0,85

The table above shows that the average Hb level before the intervention of date Juice providing was 10.11 g/dL with a standard deviation of 0.41 g/dL, and after the providing of date Juice, the average Hb level increased to 11.47 g/dL with a standard deviation of 0.85 g/dL.

Table 2
Mean Blood Glucose Levels Before and After Providing of Date Juice

Variabel	N	Mean	Min	Max	SD
GDS Pretest	20	96,3	68	122	16,05
GDS Posttest	20	96,65	72	131	14,97

The analysis based on the table above states that the average Blood Glucose Level (GDS) before the administration of date Juice was 96.30 mg/dL with a standard deviation of 16.05 mg/dL, and after the administration of date Juice, the average GDS did not show a significant increase, rising to 96.65 mg/dL with a standard deviation of 14.97 mg/dL.

Table 3
Normality Test of Hb Data Before and After Providing of Date Juice

Variabel	df	Shapiro Wilk Sig.	α	Keterangan
Hb Pretest	20	0,007	0,05	Tidak Normal
Hb Posttest	20	0,646	0,05	Normal

The results of the normality test for both variables in the table above, using the Shapiro-Wilk test, showed a Sig. value for the pretest Hb level of 0.007, indicating that the Hb data before the providing of date Juice is not normally distributed, as the criterion for normal distribution in the Shapiro-Wilk test is a significance level > α (0.05). For the posttest Hb level, the Sig. value was 0.646, indicating that the Hb data after the providing of date Juice is normally distributed. Since the pretest Hb data is not normally distributed, hypothesis testing was performed using the Wilcoxon test.

Table 4
Normality Test of GDS Data Before and After Providing of Date Juice

Variabel	df	Shapiro Wilk Sig.	α	Keterangan
GDS Pretest	20	0,349	0,05	Normal
GDS Posttest	20	0,256	0,05	Normal

The table above shows the results of the normality test for GDS data using the Shapiro-Wilk test, with a Sig. value for the pretest GDS of 0.349 > 0.05, indicating that the GDS data before the providing of date Juice is normally distributed. For the posttest GDS, the Sig. value was 0.256 > 0.05, indicating that the GDS data after the administration of date Juice is also normally distributed. To test the hypothesis, the test used is the paired sample t-test.

Table 5
The Effect of Date Juice Providing on Hemoglobin Levels

Variabel	N	Negatif Rank (N)	Positif Rank (N)	Ties	Positif Mean Rank	Z	Asym. Sig (2-tailed)

Hb Posttest - Hb Pretest	20	0	20	0	10,5	-3,922	0

The results of the statistical test using the Wilcoxon test in the table above show that the calculated Z value is -3.922, which is smaller than the Z table value (-1.96), indicating that there is a significant difference between hemoglobin levels before and after the providing of date Juice. The negative value indicates that the posttest Hb level is higher than the pretest Hb level. The significance value (p-value) of 0.000 is less than 0.05, thus the statistical test results indicate that the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted. Therefore, it can be concluded that there is an effect of date Juice providing on increasing hemoglobin levels in third-trimester pregnant women with anemia in the Bogor Regency Public Health Center area.

Table 6
The Effect of Date Juice Providing on Blood Glucose Levels

Variabel	Selisih Mean	p-Value	N
GDS Pretest	0,35	0,953	20
GDS Posttest			

Based on the results of the paired sample t-test in the table above, the difference in mean values between the pretest and posttest GDS measurements is 0.35 mg/dL, and the p-value of 0.953 is greater than alpha (0.05). Therefore, the statistical test results indicate that the null hypothesis (Ho) is accepted and the alternative hypothesis (Ha) is rejected. It can be concluded that there is no significant difference between the Blood Glucose Level (GDS) in the pretest and posttest, meaning that there is no effect of date Juice administration on the Blood Glucose Level in third-trimester pregnant women with anemia in the Bogor Regency Public Health Center area.

Discussion

1. The Effect of Date Extract Providing on Hemoglobin Levels

Based on the research results, it was found that there is a significant effect of date extract providing on the increase in hemoglobin levels (p-value 0.000) in third-

trimester pregnant women with anemia. This is consistent with the study conducted by Widowati et al. (2019) titled "The Effect of Date Extract Administration on the Increase of Hemoglobin Levels in Pregnant Women," which showed a significant effect of date extract administration on increasing hemoglobin levels in second-trimester pregnant women with anemia.

Hemoglobin, which is found in erythrocytes, functions as an oxygen-carrying pigment and gives red color to red blood cells. Hemoglobin consists of two main components: heme and globin. As a protein in the blood, hemoglobin can also reflect the iron levels present in the bloodstream. The primary role of the heme group is to act as an oxygen-binding protein that supports muscle contraction, maintains intracellular oxygen levels during muscle activity, and facilitates the diffusion of oxygen from capillaries to tissues with high oxygen consumption, such as the heart tissue rich in mitochondria. Hemoglobin plays a role in transporting O2 and CO2. To ensure that the structure and function of hemoglobin operate effectively, several requirements must be met, including adequate iron intake (Wibowo et al., 2021).

Date extract contains 0.9 mg of iron per 100 g, which functions as a component for forming hemoglobin in red blood cells. This is beneficial for the formation of hemoglobin, which plays a crucial role as an oxygen binder for energy oxidation processes. In the long term, this iron intake is beneficial for erythropoiesis (Hardiansyah et al., 2011). This is supported by research conducted by Pulungan (2021) titled "Dates as an Alternative to Increase Hemoglobin Levels in Pregnant Women with Anemia," which showed that hemoglobin levels increased by 1.16 g/dL (12.78%) in pregnant women with anemia who were given iron tablets and date extract, compared to those who were given iron tablets alone, which showed an increase of only 0.5 g/dL (5.19%). Thus, this study indicates that date extract can be used as an additional option alongside iron tablets for pregnant women with anemia to enhance their hemoglobin levels.

Other nutritional components of dates, according to a post on nilaigizi.com, indicate that per 100 g of dates, there is 0.4 mg of vitamin C. Vitamin C (Ascorbic Acid) can form a chelate with iron (Fe3+) in the stomach at low pH, allowing iron to be absorbed in a basic environment in the duodenum. Therefore, vitamin C can help maximize iron absorption (Wibowo et al., 2021). The researchers assume that the vitamin C contained in date extract can aid in the absorption of iron sourced from the

dates themselves and from the iron tablets consumed regularly over 14 days, thereby positively influencing the increase in hemoglobin levels in third-trimester pregnant women with anemia. Additionally, although the intervention of date extract provided has not met the nutritional needs of pregnant women, other factors that may influence the increase in hemoglobin in this study include the daily nutritional intake consumed by each respondent to meet their nutritional adequacy during pregnancy.

2. The Effect of Date Extract Providing on Blood Glucose Levels

The carbohydrate content in dates is quite high, consisting of glucose (fructose) at 67.97 g per 100 g, or about 68% of date extract contains glucose (Hardiansyah et al., 2011). The results of the paired sample t-test performed by the researchers on blood glucose levels before and after the administration of date extract in third-trimester pregnant women with anemia showed that there was no significant difference (p-value 0.953) between the pretest and posttest Blood Glucose Levels (GDS), indicating that there is no effect of date extract providing on the Blood Glucose Levels of anemic third-trimester pregnant women in the Bogor Regency Public Health Center area.

These findings are not in line with the study conducted by Mulmuliana and Rachmawati (2022), which stated that 85.0% of respondents who frequently consumed foods with a high glycemic index experienced type II diabetes mellitus. In contrast, 66.7% of those who never consumed high glycemic index foods did not experience type II diabetes mellitus in the Mutiara Public Health Center area, Pidie District.

The researchers assume that the lack of a significant effect of date extract on blood glucose levels is because, although date extract has a high glycemic index, the amount of carbohydrates consumed does not exceed the recommended carbohydrate and calorie intake for pregnant women. According to PMK No. 28 of 2019, the daily carbohydrate requirement for pregnant women is 385-700 g, while the date extract intervention provided was 3 x 15 ml per day, or 45 ml per day, which the researchers estimate contains approximately 28.44 g of carbohydrates, based on the study by Hardiansyah et al. (2011), which states that per 100 g of date extract contains 63.2 g of carbohydrates. Similarly, the calorie intake from 45 ml of date extract is estimated to be around 116.1 kcal, referring to Hardiansyah et al. (2011), where per 100 g of date extract contains 258 kcal. Thus, the calorie intake does not exceed the daily

recommended intake for pregnant women, which is 2430 – 2550 kcal (Kemkes RI, 2019).

However, based on the analysis results, there was an increase in the average blood glucose levels before and after the providing of date extract. Therefore, it is necessary to check blood glucose levels before administering date extract to pregnant women. An increase in blood glucose levels in pregnant women is associated with an increased risk of complications during pregnancy, the delivery process, and pregnancy outcomes, both for the mother and the newborn. If the blood glucose level exceeds 130 mg/dL, further diagnostic procedures should be performed (PERKENI, 2021). It is essential to check the blood glucose levels before administering date extract to pregnant women to prevent the risk of hyperglycemia.

Limitation

In conducting this study, there were limitations in the research process that might affect the results of the study, such as the intervention of giving date juice was carried out by the respondents themselves at the respondents' homes so that the researchers did not directly control how the respondents drank date juice during the study and the researchers did not control other nutritional intake consumed by the respondents during the study.

Conclusion

There is an effect of date extract providing on hemoglobin levels before and after providing in third-trimester pregnant women with anemia, and there is no effect of date extract prociding on blood glucose levels before and after administration in third-trimester pregnant women with anemia in the Bogor Regency Public Health Center area. It is hoped that this research can contribute to addressing anemia with non-pharmacological therapy, specifically through the providing of date extract to increase hemoglobin levels and to understand the effect of date extract on blood glucose levels in pregnant women with anemia, as an effort to improve the health of pregnant women, particularly those with anemia. It is necessary to check blood glucose levels before administering date extract to pregnant women to prevent the risk of hyperglycemia.

Ethical Considerations

Declared to be ethically appropriate in accordance to 7 (seven) WHO 2011 Standards, 1) Social Values, 2) Scientific Values, 3) Equitable Assessment and Benefits, 4) Risks, 5) Persuasion/Exploitation, 6) Confidentiality and Privacy, and 7) Informed Concent, referring to the 2016 CIOMS Guidelines. This is as indicated by the fulfillment of the indicators of each standard.

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Conflict of Interest

The researcher has no conflict of interest between the authors.

Author contribution

In this study the role of authors one and two as supervisors. The third author as an intervention provider, data collection to data processing.

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Exclusive Breastfeeding Promotion on Young Breastfeed Mother

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Abstract

Background: Infants receiving exclusive breastfeeding have a lower risk of excessive weight or obesity and a lower risk of long-term diseases. The success of breastfeeding is influenced by the mother's readiness, both physically and mentally. In DKI Jakarta, according to SSGI, the percentage of exclusive breastfeeding coverage is 45.9%. The highest coverage of exclusive breastfeeding in the DKI Jakarta Province is in South Jakarta at 79.16%, while the lowest is in East Jakarta at 47.25%.
Purpose: This research aims to analyze the need for exclusive breastfeeding education in among breastfeeding mother
Method: This research used a qualitative method with a phenomenological approach. The research design involves in-depth interviews to gather further information about the knowledge of mothers in providing exclusive breastfeeding, their attitudes, and family support for the breastfeeding process.
Results: Informants have knowledge about exclusive breastfeeding, but most informants do not know until how many months exclusive breastfeeding should be given. The informants' knowledge about the benefits of colostrum is very limited, indicating a need for deeper education on colostrum and exclusive breastfeeding knowledge.
Conclusion: The lack of knowledge among mothers about exclusive breastfeeding, and most breastfeeding mothers face common challenges during the breastfeeding process.

Keywords: breastfeed mother, exclusive breastfeeding, mother knowledge.

Introduction

Breast milk ‘Air Susu Ibu’ (ASI) is the best first food for babies that is natural. ASI contains various nutrients that are needed when babies grow and develop. The nutrients in ASI are needed by babies to grow and develop optimally. The high risk of infant mortality can be caused by poor nutritional status that is not given exclusive ASI, which has an impact on the health and survival of babies.[1] Low ASI intake causes the baby's nutritional needs to become unbalanced. The imbalance in fulfilling nutrition in babies will have a negative impact on the quality of human resources which can be seen from the inhibition of optimal baby growth.[2]

Exclusive breastfeeding for 0-6 months has a lot of benefits for babies up to adulthood. Babies who receive exclusive breastfeeding have a lower risk of being overweight or obese, and a lower risk of developing long-term diseases.[3] By giving exclusive breastfeeding to babies in the first hour after birth and skin-to-skin contact between mother and baby are important factors in the early stages of breastfeeding, which keeps the baby warm and the baby gets colostrum. Breastfeeding not only has long-term and short-term health benefits for babies and mothers, but also has economic and ecological benefits. Breastfeeding has been recognized as the best process for supplying ideal nutrition for optimal growth and development of babies.[4]

Breastfeeding has health benefits for both mother and baby in both the short and long term. Studies have shown that breastfeeding protects mothers from infectious diseases in infants, obesity in childhood and adulthood, and breast and ovarian cancers. Breastfeeding also supports mothers and children to be closer to each other and reduces the cost of medical care for society. Exclusive breastfeeding for six months is the best choice for infant feeding. The risk of childhood obesity is associated with early introduction before 4 months of age.[5]

The success of breastfeeding is influenced by the mother's readiness, both physically and mentally. Basically, the mother's readiness to give birth and breastfeed is greatly influenced by the mother's knowledge of the benefits of breast milk.[6] This is in accordance with the Thought and Feeling Theory put forward by WHO that what causes a person to behave in a certain way is due to two main reasons, namely thoughts and

feelings consisting of knowledge, perceptions, attitudes, beliefs, important people as references, resources and culture.[7] WHO and UNICEF provide steps to start and achieve exclusive breastfeeding, namely breastfeeding the baby immediately after birth.[8] Exclusive breastfeeding means breast milk without other food or drink, even just water. There are two breastfeeding methods, namely the unscheduled breastfeeding method (on-demand), following the baby's needs whenever he feels hungry (breastfeeding on-demand). Breastfeeding mothers can use a breast pump or the hand-expressing method to express breast milk.[9]

Knowledge can occur after someone senses a particular object. When a mother has little knowledge about the benefits of breast milk, especially related to the health of the baby, the mother is more susceptible to being influenced by information or pressure from various sources that encourage the use of formula milk.[2] Extensive knowledge indicates how easy or difficult it is for the mother to understand information about exclusive breastfeeding. The mother's knowledge and positive attitude play a key role in the process of exclusive breastfeeding practices.

It is important for mothers to have knowledge related to breastfeeding. This is influenced by factors of education, work, and knowledge possessed by the mother.[10] Knowledge and attitudes can be used to estimate the mother's desire to provide nutrition to the baby, caused by breastfeeding behavior related to lack of knowledge, trust or understanding and the wrong attitude of a mother regarding breastfeeding can be a factor for the mother not to provide exclusive breastfeeding to her baby.[11] The higher the education of a mother, the broader the knowledge and insight. In relation to exclusive breastfeeding, if the mother has broad insight, then the knowledge of exclusive breastfeeding for babies will be better. From the results of a preliminary study that has been conducted by interviewing one of the nurses in the postpartum polyclinic, it can be concluded that low maternal education affects knowledge and attitudes in providing exclusive breastfeeding, and most mothers who have just breastfed do not know about it.

Method

1. *Research design*

   This study used a qualitative method by using a phenomenological approach. This research design conducted in-depth interviews to gather further information on mothers' knowledge and attitudes in providing exclusive breastfeeding and family support for the breastfeeding process. This can provide implicit information on knowledge, attitudes, family support, and educational needs required by mothers providing exclusive breastfeeding.

2. *Setting and samples*

   The sampling technique in this study was purposive sampling. This study involved 37 young mothers breastfeeding at the Pasar Rebo Community Health Center who met the inclusion and exclusion criteria as follows: inclusion criteria 1) Mothers who are breastfeeding babies aged 0-6 months; 2) Mothers who have just given birth to their first child; 3) Mothers who have given birth to their first child who are currently undergoing check-ups and immunizations at the Pasar Rebo Community Health Center; 4) Young breastfeeding mothers aged 18-26 years; exclusion criteria 1) Mothers who have previous breastfeeding experience; 2) Mothers who are checking up at the Pasar Rebo Community Health Center but are not the first-born. The time for this research is from August 2023 to January 2024.

3. *Measurement and data collection*

   Research instruments are methods or tools to collect data in research work. Questionnaire with checklist method functions as a measuring tool in this research. The research instrument to measure the influence of bibliotherapy on preschool children was conducted before and after treatment with the bibliotherapy method. The questionnaire used in this research is a questionnaire designed by the researcher himself. This validity test was conducted on 20 respondents of pre-school children in the Tanjung Barat area of Jakarta Selatan. Based on results the validity and reliability test in this research, all valid statements are proven by significance values greater than 0.468 and reliability value was 0.952. The researcher conducted a pre and post-test to find out the ability to prevent dental caries in preschool children by filling questionnaire about children's ability to brush their teeth as many as 11 items

statement. If the respondent answers "yes" and "true" gets a score of 1, if the respondent answers "no" and "false" gets a score of 0.

4. *Data analysis;*

Qualitative data analysis includes:

1) Data Reduction

Summarizing, selecting the main points, and focusing on the important things, looking for themes from appropriate patterns. Reduced data will provide a clear picture and make it easier for researchers to conduct further data collection.

2) Data Display

After the data is reduced, the next stage is to present the data or display the data. In qualitative research, data presentation can be done in the form of brief descriptions, charts, relationships between categories, flowcharts, and the like.

3) Drawing Conclusions

Drawing conclusions is the final action after displaying the data. The initial conclusions made are only temporary and will change if strong evidence is found in the next data collection stage. However, if the conclusions made in the early stages are supported by valid and consistent evidence during the data collection process, then the conclusions made become credible and trustworthy.

Results

Based on data analysis in this study, the following results are known:

Table 1
Characteristics of Participants

Informan Code	Age (y.o)	Educational Background	Occupation
If 1	25	Senior High School	Housewife
If 2	26	Bachelor	Housewife
If 3	24	Senior High School	Housewife
If 4	20	Senior High School	Housewife
If 5	23	Senior High School	Housewife
If 6	22	Senior High School	Housewife
If 7	21	Senior High School	Housewife
If 8	22	Senior High School	Employee
If 9	26	Senior High School	Employee
If 10	18	Senior High School	Housewife

Notes. y.o. = years old.

Based on Table 1, characteristic of respondents based on educational background shows that most of the respondents are senior high school, namely 9 respondents and most of the respondents' occupations are a housewife as many as 8 respondents.

There are four themes that describe the phenomenon of young mothers' knowledge in the process of providing exclusive breastfeeding to babies aged 0-6 months as shown in Figure 1.

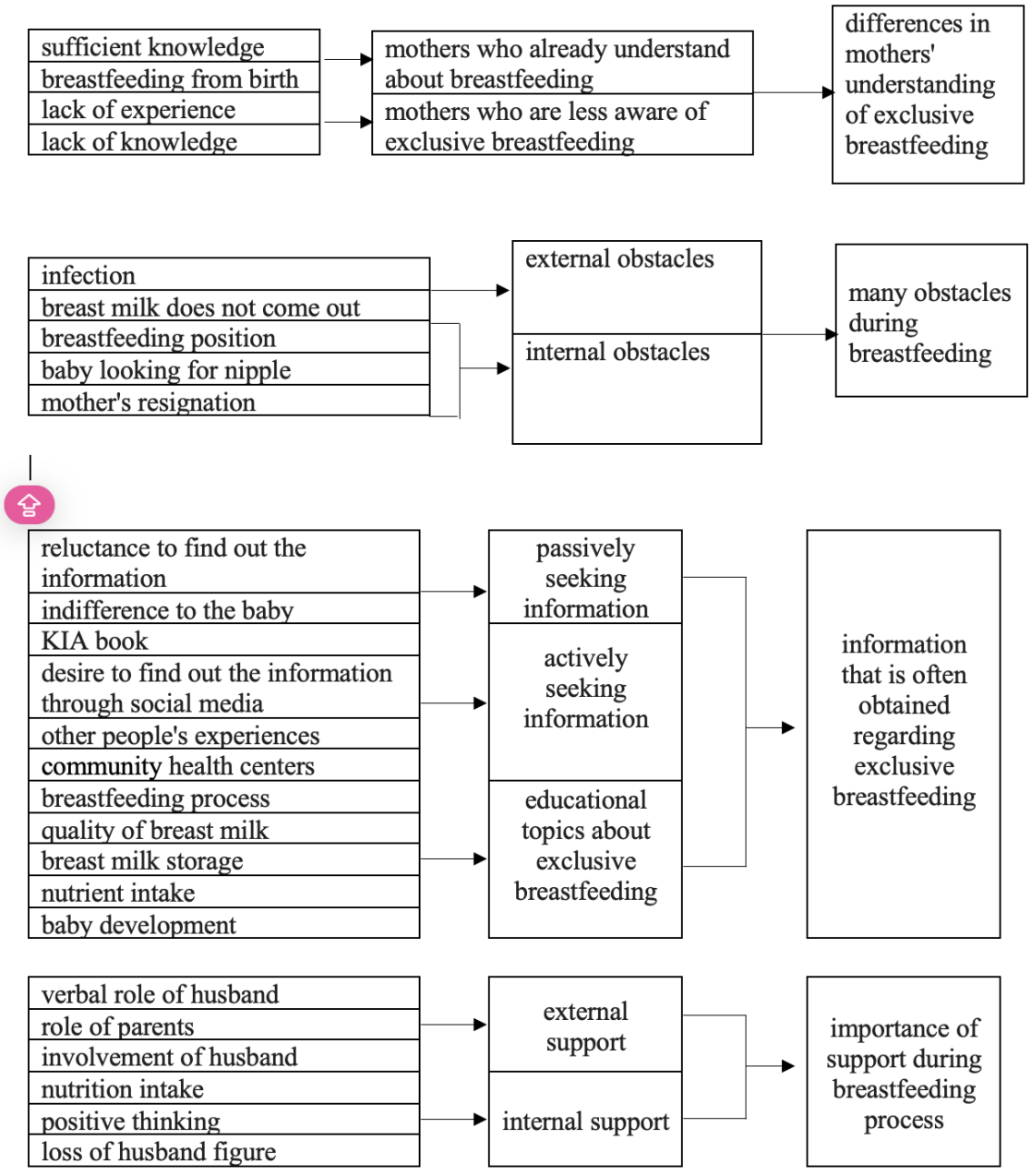

Figure 1. The Process of Theme Formation in This Research

1. There are differences in mothers' understanding of exclusive breastfeeding

Lack of maternal knowledge about exclusive breastfeeding can be caused by maternal education and family support. Mothers who have extensive knowledge will implement exclusive breastfeeding for their babies from birth to 6 months of age. Possible causes of lack of maternal knowledge about exclusive breastfeeding are formed from 1 sub-theme, namely Differences in Mothers' Understanding of Exclusive Breastfeeding.

There are 2 informants who have sufficient knowledge about exclusive breastfeeding, as stated by:

"First breastfeeding at 6 months" (If 5)

"Direct breastfeeding for 2 years, without mixing it with other formulas"

(If 9)

Meanwhile, other complaints said they did not really understand exclusive breastfeeding. As stated by:

"No, because it's the first time. Hmm so I don't really understand" (If 4)

"Mmm, I was told that breastfeed baby until the age of 2 years" (If 1)

2. There are many obstacles during breastfeeding

Obstacles that often occur during the breastfeeding process come from incorrect breastfeeding placement, which can cause swelling, abrasions in the nipple area and can cause fever when the mother is breastfeeding. In addition, obstacles that occur in breastfeeding mothers are that the baby does not want to breastfeed directly so that a breast pump must be used.

As stated by:

“Breast milk is dry, at the beginning after giving birth. Oh yes, it is sore, because breast milk is dry, the baby often sucks on the nipple, so that makes the nipple sore” (If 2).

“If now the child has difficulty breastfeeding directly, so it becomes a bottle. So, it is pumped, so it is difficult for him to breastfeed directly, he doesn't want to” (If 9).

In addition, there are 2 informants who said that breastfeeding can cause sore and swollen nipples, which can cause fever, dizziness and chills. as stated by:

“Fever, dizziness, chills” (If 4)

“Mmm sore nipples, hmm swollen, that's all” (If 7)

3. The information that is often obtained regarding exclusive breastfeeding

There are several informants who seek information through social media or books about exclusive breastfeeding or the correct way to breastfeed, but there is one informant who has never sought information about exclusive breastfeeding. Seeking information is not only from social media, but can be done by attending several counseling sessions about exclusive breastfeeding held at health centers or around the environment. In addition, informants at the Pasar Rebo Community Health Center need education that is currently needed by breastfeeding mothers, namely the correct way to breastfeed, if the correct way to breastfeed is the possibility of sore and swollen nipples is very small. Then the food intake for mothers so that breast milk remains smooth and abundant, food intake for breastfeeding mothers is very important to pay attention to because the food consumed by the mother affects the health and nutrition received by the baby through breast milk (ASI) and how to store expressed breast milk.

In addition, informants who actively seek information about exclusive breastfeeding as stated by:

"I don't think so, but yesterday I also searched on TikTok for the correct way to breastfeed, but I couldn't do it either" (If 9)

"Hmmm, yesterday I got it from what my sister said" (If 1)

Other informants said that the information needed during the breastfeeding process is about exclusive breastfeeding, the process of keeping breast milk flowing smoothly, and baby development during breastfeeding. As stated by:

"The right way to breastfeed, adjust the position" (If 2)

"Hmm, if the breast milk comes out in a flood, it's better to store it or throw it away" (If 7)

4. The importance of support during breastfeeding process

Family and husband support in the breastfeeding process is very necessary, because family and husband support can determine a major impact on the success or failure of breastfeeding, husband support can provide positive impacts such as increasing self-confidence and providing high motivation so that mothers can provide exclusive breastfeeding. One possible factor in not providing exclusive breastfeeding is the lack of support from family or husband.

Internal factors and external factors as stated by:

“Helps stay up late at night, wakes up to give milk to baby” (If 8)

“Yah, yah, support, so that we are what is called enthusiasm to give breast milk to the child” (If 3)

In addition, there are 3 other informants who get internal factors, as stated by:

“Got it. Hmm.. Be enthusiastic. Keep up the enthusiasm, give support. The point is, don't think negatively like that” (If 1).

“No, because I'm also divorced from my husband” (If 10)

“Really support. Nutritious food, attention, and what else. Anything that makes my mood up and also the nutrition is also maintained, vegetables are also looked for like that” (If 5)

Discussion

Basically, the problems obtained regarding mothers' knowledge about exclusive breastfeeding and obstacles during the breastfeeding process, it is known that some mothers need to be given health education about exclusive breastfeeding and the breastfeeding process in order to improve mothers' knowledge in providing breast milk and can solve problems that often occur during the breastfeeding process. The researcher assumes from the results of the research that has been conducted that the failure of mothers in providing exclusive breastfeeding is influenced by the lack of knowledge of mothers about exclusive breastfeeding. Mothers who have extensive knowledge about exclusive breastfeeding will implement exclusive breastfeeding for their babies from birth to six months without being given water or other formula milk. This can happen due to age factors and the mother's experience of breastfeeding from other people regarding exclusive breastfeeding.

An effective way to increase knowledge is to attend counseling or seminars, search for information on social media, and through other media such as booklets, pamphlets, and brochures. Education is one of the processes of providing information to someone so that they understand and increase their knowledge. Effective education needs to be accompanied by the use of media. Media is a useful communication tool to facilitate the provision of information.

Breast milk is the main source of nutrition for babies during the first six months of life, without being given additional food or replacing it with other drinks, such as formula milk.[3] Exclusive breastfeeding is given for 6 months provides health benefits for babies into adulthood. The success of providing exclusive breastfeeding is closely related to several factors that have been explained. Research analysis shows that mothers want to provide exclusive breastfeeding to their babies, but due to several things it becomes non-exclusive because breast milk does not come out when they first give birth, the breasts are sore and swollen so that it can cause the mother to feel unwell, and breast milk production is low.

The effect of exclusive breastfeeding education on the knowledge and attitudes of breastfeeding mothers using booklet media.[12] The results of this study showed that providing this education was effective in improving the ability of breastfeeding mothers in terms of knowledge and attitudes of mothers in breastfeeding with 26 participants and an average pretest result of 50.73% and the results after being given education were 76.38%.[12]

From the results of the research conducted by the researcher, it can be concluded that the role of health workers in the Pasar Rebo Community Health Center Work Area has provided knowledge to breastfeeding mothers who are visiting or giving birth at the Pasar Rebo Community Health Center. As stated by the head of administration, the health center has provided health education about World Breastfeeding Week in collaboration with the local integrated health post, usually carried out simultaneously in each health center and sub-district. The education discusses exclusive breastfeeding. Based on the results of the research that has been conducted, only a few mothers apply health knowledge about exclusive breastfeeding to their babies.

Limitation

During conducting this research, the researcher realizes that there are limitations of the researcher such as: need to conduct qualitative research on multiparous mothers and their closest families.

Conclusion

The results of the exploration of young mothers' experiences in providing exclusive breastfeeding are differences in mothers' understanding of exclusive breastfeeding, many obstacles during breastfeeding, and information that is often obtained regarding exclusive breastfeeding. Further researchers can conduct research on the experience of understanding multiparous mothers and their families, internal and external obstacles, the need for information, and various kinds of support needed during the breastfeeding process.

Ethical Considerations

This research had an approval from the health research ethics committee.

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Conflict of Interest

There is no conflict of interest among authors.

Author Contribution

We encourage authors to provide statements outlining their individual contributions or roles to the manuscript.

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Analysis of Factors Related to Diabetic Ulcer Patients' Anxiety at Pasar Rebo Community Health Center East Jakarta

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Abstract

Background: Diabetes Mellitus is one of the leading causes of death in the world. In Indonesia, the number of DM sufferers reaches 19.47 million, with a prevalence of 10.6%. One of the serious complications of DM is diabetic ulcers. This condition not only causes perceptual disorders but also has psychological impacts, such as anxiety, that can worsen the patient's condition. **Objective:** To analyze factors related to anxiety in diabetic ulcer patients at the Pasar Rebo Health Center, East Jakarta. **Methodology:** The research design used quantitative with a cross-sectional approach. The research sample consisted of 40 respondents with diabetic ulcers who were treated at the Pasar Rebo Health Center. Data were collected using a questionnaire and analyzed using the Chi-Square test to determine the relationship between perception, environmental, and economic factors with patient anxiety. **Results:** The results of the study showed a significant relationship with the Chi-Square test and obtained data on perception factors with anxiety (p-value 0.04 <0.05) environmental factors with gold (p-value 0.008 <0.05), economic factors with anxiety (p-value 0.01 <0.05) in diabetic ulcer patients at the Pasar Rebo Health Center, East Jakarta. **Conclusion:** There is an influence between perception factors, environmental factors, and economic factors with anxiety in diabetic ulcer patients at the Pasar Rebo Health Center, East Jakarta. **Suggestion:** This study is expected to be a study material and library for further research on psychosocial factors that influence anxiety in diabetic ulcer patients.

Keywords: Economy, Anxiety, Environment, Perception, Diabetic Ulcer

Introduction

Diabetes Mellitus (DM) is a non-communicable disease that is a global health problem. The American Diabetes Association (ADA) (2023) estimates that more than 422 million people worldwide suffer from DM, with a death toll reaching 1.5 million each year. This disease can cause various serious complications, one of which is diabetic ulcers, which contribute to increased morbidity and mortality. Diabetic ulcers are chronic wounds that are difficult to heal due to metabolic and vascular disorders in people with DM. This complication not only causes physical problems but also has a psychological impact on patients, such as anxiety and stress, which can worsen their health conditions. In Indonesia, the number of DM sufferers continues to increase. Data from the International Diabetes Federation (IDF) (2021) shows that Indonesia is ranked fifth with the highest number of DM sufferers in the world, reaching 19.47 million people in 2021. The increase in the number of DM sufferers is also directly proportional to the increase in cases of diabetic ulcers, which can lead to amputation if not treated properly. In addition to physical impacts, diabetic ulcer sufferers often experience psychological disorders, such as anxiety, due to changes in physical condition, limited activity, and social and economic pressures.

Anxiety is an appropriate reaction to something that is considered threatening, but anxiety becomes unnatural if the reaction and its emergence are inappropriate, both in intensity and level of symptoms. Anxiety is experienced by everyone in their life journey. Anxiety is a common thing for individuals, especially when they feel stressed in their lives. Anxiety can arise on its own or appear combined with symptoms of various other emotional disorders (Nugraha, 2020).

In addition to perception factors, environmental and economic factors also play a role in increasing anxiety in diabetic ulcer patients. Patients who do not have sufficient social support, such as from family or community, tend to experience higher anxiety because they feel alone in dealing with their illness (Nabillah, 2021). An environment that is less supportive, both emotionally and practically, can worsen the patient's psychological condition (Anggraini, 2023). Economic factors are also one of the aspects that contribute to anxiety, considering the relatively high cost of diabetic ulcer treatment and can burden patients and their families, especially if patients do not have access to adequate health services (Oktorina, 2022).

Based on a preliminary study at the Pasar Rebo Health Center, East Jakarta, it was found that many diabetic ulcer patients experience anxiety influenced by several factors, such as perceptions of the disease, their social environment, and their economic conditions. Negative perceptions of the disease can increase anxiety because patients feel they have lost control over their health condition. In addition, an unsupportive environment, such as lack of family support or social stigma, can also worsen patient anxiety. Economic factors are also one of the aspects that contribute to anxiety, considering the relatively high cost of diabetic ulcer treatment and can burden patients and their families.

In the context of nursing, understanding the factors that influence anxiety in diabetic ulcer patients is very important in order to provide appropriate interventions to improve the patient's quality of life. Therefore, this study aims to analyze the influence of perception, environmental, and economic factors on the anxiety of diabetic ulcer patients at Pasar Rebo Health Center, East Jakarta.

Method

This study used a cross-sectional design with a quantitative approach. The study sample was diabetic ulcer patients at the Pasar Rebo Health Center who were selected using a total sampling method of 40 respondents. Data were collected through a questionnaire that measured perception, environmental, and economic factors on patient anxiety. Data analysis was carried out using the Chi-Square test. The independent variable of this study was animated video health education. The dependent variables in the following research were perception factors, environmental factors, and economic factors. The instruments used in this study were questionnaires of perception factors, environmental factors, and economic factors that had been tested for validity and reliability, consisting of 10 statement items for each questionnaire. The questionnaire used in the dependent variable Anxiety was the DASS 21 (Depression Anxiety Stress Scale) questionnaire, consisting of 21 questions.

Results

Table 1. Frequency Distribution of Respondent Characteristics at Pasar Rebo Health Center, East Jakarta

No	Respondent Characteristics	Frequency (n)	Percentage (%)
1	Age		
	21-31	3	7,5
	32-42	5	12,5
	43-53	13	32,5
	54-64	15	37,5
	>65	4	10,0
2	Gender		
	Women	23	57,5
	Men	17	42,5
3	Work		
	Self-Employed	6	15,0
	Private Employee	6	15,0
	Teacher	3	7,5
	Housewife	13	32,5
	Retiree	12	30,0
	Total	40	100

Based on table 1 above, the results of the frequency distribution of respondents based on the age of respondents at the Pasar Rebo Health Center, East Jakarta. It is known that the age of 21-31 years there are 3 respondents (7.5%), the age of 32-42 years there are 5 respondents (12.5%), the age of 43-53 years there are 13 respondents (32.5%), the age of 54-64 years there are 15 respondents (37.5%) and there are ages >65 years there are 4 respondents (10%) of the total respondents there are 40 Patients (100.0%).

The results of the frequency distribution of respondents based on the gender of respondents at the Pasar Rebo Health Center, East Jakarta. Based on the gender of respondents, the results obtained were that the respondents who were female numbered 23 respondents (57.5%), while the male gender was 17 respondents (42.5%) of the total respondents, there were 40 Patients (100.0%).

The results of the frequency distribution based on the type of work of respondents at the Pasar Rebo Health Center, East Jakarta. It was found that 6 people worked as self-employed (15%), respondents who worked as private employees were 6 people (15%), respondents who worked as teachers were 3 people (7.5%), respondents who were housewives were 13 people (32.5%), and respondents who were retired were 12 people (30%).

Table 2
The relationship between perception factors, environmental factors, and economic factors on anxiety levels in diabetic ulcer patients at the Pasar Rebo Community Health Center, East Jakarta.

Variable	Anxiety		Ulcer Patients		Diabetic		Total		*P-value*
	High		Medium		Low				
	n	%	n	%	n	%	n	%	
Perception Factor									
Good	3	37,5	2	25,0	3	37,5	8	100	
Enough	4	28,6	10	71,4	0	0,0	14	100	0,04
Less	9	50,0	5	27,8	4	22,2	18	100	
Environmental Factors									
Good	4	28,6	9	64,3	1	7,1	14	100	
Enough	11	61,1	2	11,1	5	27,8	18	100	0,008
Less	1	12,5	6	75,0	1	12,5	8	100	
Economic Factors									
Good	0	0,0	3	75,0	1	25,0	4	100	
Enough	2	15,4	6	46,2	5	38,5	13	100	0,01
Less	14	60,9	8	34,8	1	4,3	23	100	

Anxiety is one of the psychological conditions often experienced by diabetic ulcer patients. Based on the results of the analysis in the table, it was found that perception, environment, and economic factors have a significant relationship to the level of patient anxiety.

The perception factor shows that patients with a poor understanding of their condition tend to experience higher anxiety (50%). Meanwhile, patients with sufficient perception experience more moderate anxiety (71.4%). These results indicate that a good understanding of the disease can help reduce anxiety levels. Statistical analysis confirmed this relationship with a value (p-value 0.04), which indicates a significant relationship between perception and anxiety factors.

Furthermore, environmental factors also have a significant effect on patient anxiety (p-value 0.008). Patients who have a good environment tend to experience moderate anxiety (64.3%), while patients with sufficient environments experience more high anxiety (61.1%). This indicates that good environmental support, both from family and social, can help reduce patient anxiety in dealing with their illness.

Economic factors also play an important role in patient anxiety levels (p-value 0.01). Patients with poor economic conditions tend to experience high anxiety (60.9%), while patients with sufficient economic conditions tend to experience moderate anxiety

(46.2%). This suggests that better economic conditions can provide better access to health care and support, which can ultimately help reduce patient anxiety levels. From these results, it can be concluded that psychosocial factors, such as perception, environment, and economy, play an important role in determining the level of anxiety in diabetic ulcer patients. Therefore, a holistic approach is needed in patient care, not only from the medical aspect but also from the psychosocial aspect, to improve their quality of life.

Discussion

1. Perception Factors Towards Anxiety of Diabetic Ulcer Patients

Based on the results of the study, it shows that the perception factor has a significant effect on the level of anxiety of diabetic ulcer patients at the Pasar Rebo Health Center. Based on the data, respondents with less perception factors experienced high stress as many as 21 patients (52.5%).

This study is in line with the study by Manungkalit (2022), which used the Chi-Square test on 100 respondents at the Sidoarjo Wound House. The study obtained a p-value of 0.077 ($p \leq 0.05$), so it can be interpreted that there is a relationship between perception factors and anxiety in diabetic ulcer patients.

Strengthened by research conducted by Purwanti 2020, in 77 patients with the purposive sampling method and the Chi Square Test, a significant relationship was obtained between perception factors and anxiety in diabetic ulcer patients. This study obtained a p-value of 0.017 ($p \leq 0.05$).

The perception of people around diabetic ulcer patients regarding their body condition can affect their self-acceptance, which ultimately contributes to the level of anxiety they experience. The reactions of others, both verbally and nonverbally, can shape diabetic ulcer patients' assessments of themselves. This affects their perception of the condition they are experiencing, which ultimately impacts their body image. Negative reactions from the surrounding environment can make patients feel ignored during social interactions or feel disliked because of the wounds on their bodies (Luthfiani, 2021).

2. Environmental Factors on Anxiety in Diabetic Ulcer Patients

Based on the results of the study, it shows that environmental factors have been proven to influence anxiety in diabetic ulcer patients at the Pasar Rebo Health Center. From the results of the research data, it was found that environmental factors that influence anxiety in diabetic ulcer patients showed that the majority of respondents, namely 18 people (45%), were categorized as having a fairly supportive environment.

This study is in line with Aqila's study (2023), which used the Chi-Square test on 40 respondents at the Sultan Agung Islamic Hospital in Semarang. The study obtained a p-value of 0.003 ($p \leq 0.05$), so it can be interpreted that there is a relationship between environmental factors in diabetic ulcer patients.

Research (Adri, 2020) supports this study; in 76 respondents with diabetic ulcers, it was found that they had a fairly supportive environment or could cause moderate anxiety in patients. The study obtained a P Value of 0.011 ($p \leq 0.05$), so it can be interpreted that there is a relationship between environmental factors and anxiety in diabetic ulcer patients. Environmental factors refer to external conditions that can affect the level of anxiety and health of patients with diabetic foot ulcers. The environmental factors that influence the anxiety of diabetic ulcer patients include access to health services, environmental cleanliness, and social support. Studies show that a supportive environment, such as access to good medical care and adequate social support, can help reduce anxiety levels and accelerate wound healing. Conversely, poor environmental factors, such as lack of cleanliness, can worsen diabetic ulcer conditions and increase patient stress levels. (Jalilian, 2020).

3. Economic Factors on Anxiety of Diabetic Ulcer Patients

The results of the analysis using the Chi-Square test of the relationship between economic factors and stress in diabetic ulcer patients showed a p-value of 0.01 ($p < 0.05$) so H0 was rejected and Ha was accepted or there was a significant relationship between economic factors and anxiety in diabetic ulcer patients at the Pasar Rebo Health Center, East Jakarta.

This study is in line with Umi's (2024) study which used the Chi-Square test on 53 respondents at the Bhyangkara Level I Hospital, Pusdokkes Polri. The study

obtained a p-value of 0.021 (p ≤ 0.05), so it can be interpreted that there is a relationship between anxiety and economic factors in diabetic ulcer patients.

Research (Oktorina, 2022) supports this study in 35 samples of diabetic ulcer respondents who experienced low economic status, which caused anxiety in the respondents. In this study, the p-value was 0.028 (p ≤ 0.05), so it can be interpreted that there is a relationship between economic factors and anxiety in diabetic ulcer patients. This economic factor plays an important role in determining diabetic ulcer prevention behavior because it affects how active a person is in accessing and utilizing health services for prevention. Diabetic ulcer treatment requires relatively high costs. Financial limitations can hinder patients' ability to properly care for their feet and undergo routine medical examinations, which are often only done when there are complaints or complications. In addition, low utilization of health facilities is also a factor causing diabetic ulcers in individuals with limited economic conditions (Oktorina, 2022)

Conclusion

1. The majority of diabetic ulcer patients at Pasar Rebo Health Center experienced anxiety in the sufficient category (45%) from a total of 40 respondents.
2. Perception factors were dominated by the less category (52.5%), environmental factors were dominated by the sufficient category (45%), and economic factors were dominated by the less category (50%).
3. There was a significant relationship between perception factors (p = 0.04), environmental factors (p = 0.008), and economic factors (p = 0.01) with anxiety in diabetic ulcer patients.

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Factors Influencing the Choice of Female Sterilization at Menteng Mitra Afia Hospital Jakarta

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Abstract

Maternal Mortality Rate (MMR) is defined and calculated as the number of maternal deaths divided by the number of person-years lived by women of reproductive age in a population. Family Planning is a programme to reduce the MMR, one of which is female sterilization. This study aims to determine the factors related to the Choice of Female Sterilization at Menteng Mitra Afia Hospital in the case group and control group. The method of this research is analytical observational research using a case-control design. The sample in this study consisted of 78 long-term family planning acceptors, comprised of 39 case groups and 39 control groups. The sampling technique uses a purposive sampling technique. The research instrument consisted of a questionnaire regarding maternal knowledge and husband's support. This questionnaire has been tested for validity and reliability with Cronbach's alpha coefficient values of 0.775 (knowledge) and 0.835 (husband's support). Data were analyzed using the chi-square test to determine the effect between the case and control groups. The research results show that there is a relationship between the variables age, parity, and knowledge ($p<0.05$). As for the variables of female sterilization indication and husband's support, there was no significant relationship with the choice of female sterilization contraception (Female Surgical Method) at Menteng Mitra Afia Hospital, Jakarta ($p>0.05$).

Keywords: Family Planning, Female Sterilization, Maternal Mortality Rate

Introduction

Maternal Mortality Rate (MMR) is defined as the number of maternal deaths divided by the number of person-years lived by women of reproductive age in a population. MMR includes the risk of maternal death per pregnancy and the fertility rate in the population. (World Health Organization (WHO) et al., 2023). According to the 2023 Indonesian Health Survey, from 2022 to 2023, there was an increase in the number of maternal deaths from 4,005 to 4,129 (Ministry of Health of the Republic of Indonesia, 2024). The direct causes of maternal mortality in Indonesia are dominated by maternal health during pregnancy and childbirth, while the indirect causes are influenced by "4T" or the so-called "four too", namely too old to get pregnant, too young to get pregnant, too many children, and too close a birth spacing of less than two years. (Ulfa et al., 2024)

In the Indonesian Health Profile 2023, it is stated that efforts to accelerate the reduction of MMR are carried out one of them with family planning services. (Ministry of Health of the Republic of Indonesia, 2024). Family planning is one of the strategies to support the acceleration of maternal mortality reduction through: (1) Regulating the time, distance and number of pregnancies; (2) Preventing or minimizing the possibility of a pregnant woman experiencing complications that endanger the life or fetus during pregnancy, childbirth and postpartum; (3) Preventing the death of a woman who experiences complications during pregnancy, childbirth and postpartum. (Ministry of Health of the Republic of Indonesia, 2024).

Data on the number of couples of reproductive age participating in family planning in DKI Jakarta Province based on contraceptive methods according to data in the Indonesian health profile in 2023, namely the most couples of reproductive age using injectable family planning (19.3%), followed by IUD (13.6%), implants (6.3%), condoms (4.6%), female sterilization/tubectomy (3.8%), male sterilization/vasectomy (0.75%), and MAL (0.43%). (Ministry of Health of the Republic of Indonesia, 2024).

Based on data at Menteng Mitra Afia Hospital Jakarta, it was recorded that there were 96 women of reproductive age with a distribution in 2023-2024, woman sterilization acceptor data of 56 acceptors and 40 IUD acceptors.

Long-term contraceptive methods and sterilization are government efforts to reduce population growth. The problem of population growth that has increased requires an effort from the community and the government. To reduce the rate of

population growth, the government implements various development programs, one of which is Family Planning for Fertile Age Couples. (Triyanto et al., 2018). Long-term contraceptive methods consist of several contraceptives, including IUD (Intrauterine Contraceptive Device) and an implant.

Female sterilization/tubectomy is the most common method for women aged 35 years and above. (Mahadevappa et al., 2016). Female sterilization can be performed in several ways, such as minilaparotomy and laparoscopy. The advantages of female sterilization are that it is very effective in stopping pregnancy, does not affect breastfeeding, does not depend on coitus factors, has no long-term side effects, does not need to worry about getting pregnant or worrying about contraception again, users do not need to do or remember anything after the procedure is performed, and there is no change in sexual function. Meanwhile, male sterilization/vasectomy is the act of cutting and tying the vas (ductus) deferens without using a scalpel, to achieve azoospermia. (Indonesian Ministry of Health, 2021)

Method

This type of research is analytical research by analyzes the data that has been obtained. The research approach uses an observational approach. Analytical observation is a survey or research that explores how and why a health phenomenon occurs and analyzes the dynamics of the correlation between phenomena and risk factors, and effect factors. The research design is cross-case control, which is a study of the relationship between the causes of events and events retrospectively.

The population is all objects/subjects observed for research. (The population of this study was WUS who used the Long-Term Contraceptive Method at Menteng Mitra Afia Hospital, Jakarta, which was 96 women of reproductive age who used long-term contraception since 2023-2024. The sample in this study was 39 people, with a sample size ratio between cases: control = 1: 1, where the sample consisted of 39 respondents as a case group (female sterilization acceptors) and 39 respondents as a control group (non- female sterilization acceptors), so that the total sample size was 78 samples. This study was conducted at Menteng Mitra Afia Hospital, Jakarta, from December 2024 to February 2025.

Results

Table 1
Frequency Distribution of Respondents at Menteng Mitra Afia Hospital Jakarta

Variables	Frequency	Percentage (%)
Contraception Choice		
Female Sterilization	39	50
Non-Female Sterilization	39	50
Total	**78**	**100**
Age		
≥ 35 years old	44	56,4
< 35 years old	34	43,6
Total	**78**	**100**
Parity		
> 2 times	57	73,1
≤ 2 times	21	26,9
Total	**78**	**100**
Female Sterilization Indication		
Medical	23	29,5
Non-Medical	55	70,5
Total	**78**	**100**
Knowledge		
Good	61	78,2
Poor	17	21,8
Total	**78**	**100**
Husband's Support		
Support	56	71,8
Less Support	22	28,2
Total	**78**	**100**

The results showed that out of 78 respondents, the majority were ≥ 35 years old (56,4%), respondents with parity > 2 times (73,1%), chose female sterilization with non-medical indications (70,5%), had good knowledge (78,2%), and with husband support (71,8%).

Table 2
Relationship between Age and The Choice of Female Sterilization Contraseption at Menteng Mitra Afia Hospital Jakarta

Age	Female Sterilization Choice				Total		OR	*p-value*
	Female Sterilization		Non- Female Sterilization					
	N	%	N	%	n	%		
≥ 35 years old	38	97,4	6	15,4	44	56,4		
< 35 years old	1	2,6	33	84,6	34	43,6	29,364	0,00
Total	39	100	39	100	78	100		

Table 3
Relationship between Parity and The Choice of Female Sterilization Contraseption at Menteng Mitra Afia Hospital Jakarta

Parity	Female Sterilization Choice				Total		OR	*p-value*
	Female Sterilization		Non- Female Sterilization					
	N	%	N	%	n	%		
> 2 times	38	97,4	19	48,7	57	73,1	40,000	0,00
≤ 2 times	1	2,6	20	51,3	21	26,9		
Total	39	100	39	100	78	100		

Table 4
Relationship between Female Sterilization Indication and The Choice of Female Sterilization Contraseption at Menteng Mitra Afia Hospital Jakarta

Female Sterilization Indication	Female Sterilization Choice				Total		OR	*p-value*
	Female Sterilization		Non- Female Sterilization					
	N	%	N	%	n	%		
Medical	13	33,3	10	25,6	23	29,5	1,450	0,620
Non-Medical	26	66,7	29	74,4	55	70,5		
Total	39	100	39	100	78	100		

Table 5
Relationship between Knowledge and The Choice of Female Sterilization Contraseption at Menteng Mitra Afia Hospital Jakarta

Knowledge	Female Sterilization Choice				Total		OR	*p-value*
	Female Sterilization		Non- Female Sterilization					
	N	%	N	%	n	%		
Good	37	94,9	24	61,5	61	78,2	11,563	0,001
Less Knowledge	2	5,1	15	38,5	17	21,8		
Total	39	100	39	100	78	100		

Table 6
Relationship between Husband's Support and The Choice of Female Sterilization Contraseption at Menteng Mitra Afia Hospital Jakarta

Husband's Support	Female Sterilization Choice				Total		OR	*p-value*
	Female Sterilization		Non- Female Sterilization					
	N	%	N	%	n	%		
Support	27	69,2	23	59	50	64,1	1,565	0,479
Less Support	12	30,8	16	41	28	35,9		
Total	39	100	39	100	78	100		

Discussion

Relationship between Age and The Choice of Female Sterilization at Menteng Mitra Afia Hospital Jakarta

Based on the results of the analysis in this study, it is known that the p-value is 0.00 ($p < 0.05$), so there is a relationship between age and the choice of female sterilization at Menteng Mitra Afia Hospital Jakarta. While the OR test results

amounted to 29.364, then respondents aged ≥ 35 years had a 29.364 times better chance of using female sterilization compared to respondents aged < 35 years.

The results of this study are supported by research conducted by Dg Salimung (2019) which states that the statistical test results obtained p value = 0.000 at α 0.05 (0.000 <0.05), so it can be concluded that there is a relationship between age and the selection of tubectomy contraceptives. (Dg Salimung, 2019). This study is not in line with research conducted by Istri & Efi (2020) which states that most respondents are women of reproductive age > 30 years. The statistical test results obtained a value of p = 0.732, there is no relationship between age and the selection of tubectomy contraception in women of reproductive age.(Utami & Trimuryani, 2020).

Age is one of the factors that influence a person in choosing contraception. Age plays an important role in decision making to determine which contraceptive to use. The age that is not risky to use contraception is 20-35 years old because this is the period in which the organs, reproductive function and hormonal system of a woman are mature enough to have children. Meanwhile, the age of more than 35 years is the phase of ending pregnancy, which is the phase of not wanting to get pregnant again, needed if the woman no longer wants to have children. (Indriani Djusair et al., 2022). According to the researcher's assumption, the older a woman is, the more likely she is to choose female sterilization contraception due to the many complications of pregnancy and childbirth that occur and women aged ≥ 35 years have a higher risk than women aged < 35 years.

Relationship between Parity and The Choice of Female Sterilization at Menteng Mitra Afia Hospital Jakarta

Based on the results of the analysis in this study, it is known that the p-value is 0.00 (p < 0.05), so there is a relationship between parity and the choice of female sterilization at Menteng Mitra Afia Hospital Jakarta. While the OR test results of 40.000 showed that respondents with parity > 2 times had a 40 times better chance of using female sterilization than respondents with parity ≤ 2 times.

This study supports research conducted by Mustika, Ismiati, & Gladeva (2024) with the results of p=0.002 (p value <0.005) which means that there is a relationship between parity and the selection of female sterilization contraception at Dompu Regional

Hospital in 2022. (Lestari et al., 2024)

Parity refers to the number of children one has. Women with more than two children or women who have ≤ 2 children, the age of the smallest child must be at least 2 years old. (Indonesian Ministry of Health, 2021). Parity affects the respondent's willingness to use a particular type of contraceptive. This is because the greater the parity of the respondent, the more his life needs. If the respondent is a family that is less economically established, this can certainly be a problem if parity is not controlled. (Mellya, 2020). According to the researcher's assumption based on research, theory, and related studies, most women with parity > 2 times choose to use female sterilization contraception because having many children will increase the burden of living costs and education costs. If there are more children, the education provided and the lifestyle given to each child will not be maximized so that social problems such as poverty will continue. In addition, giving birth and becoming pregnant more than twice has higher risks such as complications in pregnancy and childbirth.

Relationship between Female Indication Sterilization and The Choice of Female Sterilization at Menteng Mitra Afia Hospital Jakarta

Based on the results of the analysis in this study, it is known that the p-value is 0.620 (p> 0.05), so there is no relationship between female sterilization indications and the choice of female sterilization indication at Menteng Mitra Afia Hospital Jakarta. The OR test result is 1.450, so respondents with non-medical indications have a 1.450 times better chance of using non-female sterilization contraception than respondents with non-medical indications.

Based on data from medical records at Menteng Mitra Afia Hopsital, out of 13 female sterilization acceptors due to medical indications, caused by various medical histories and/or current diseases, the most indications were due to a history of previous childbirth with sectio caesarea ≥ 2 times, followed by hypertension, obesity, hepatitis B patients, uterine myoma, syphilis, severe anemia as much as, and a history of Ectopic Pregnancy. While the medical indications for non-female sterilization acceptors listed that the most medical indications were caused by Hemorrhoid Grade-IV, followed by IDT (Internal Delivery Time) ≤ 18 months, Hypertension in Pregnancy, acute bronchitis, effective hallucination disorder, teenager pregnancy, stroma nodusa, and Gestational

Diabetes Mellitus.

This study is in line with research conducted by Rita & Idawati (2021) which states that there is no relationship between disease history and the use of tubectomy contraception in the Maternity Room of Tgk Chik Ditiro Hospital. In the study, the researchers noted that the sample in the study was still small enough to be able to provide significant results. (Mirdahni & Idawati, 2021). Research by Hartanto (2012) in Rita & Idawati (2021) states that the presence of a history of illness causes a person to choose to use tubectomy contraception, this is due to the fact that if a person becomes pregnant and gives birth, it can endanger a person's life.

According to Darwis (2016) in Permanent Contraception: A Manual for Health Practitioners, the medical indications for the use of female sterilization are couples who have reached the ideal number of children, women with high health risks if they become pregnant again (e.g., heart disease, severe hypertension, chronic diabetes mellitus), and women with a history of serious pregnancy complications. According to the researcher, based on supporting theories, previous research, and data from this study, complications or comorbidities can be very risky if pregnant or giving birth again. A history of these diseases can cause serious complications for both mother and baby at some point. In addition, hormonal changes can also worsen the mother's condition, so it is better to do female sterilization to minimize or prevent the mother's condition from getting worse.

Relationship between Knowledge and The Choice of Female Sterilization at Menteng Mitra Afia Hospital Jakarta

Based on the results of the analysis in this study, it is known that the p-value is 0.001 ($p < 0.05$), so there is a relationship between knowledge and the choice of female sterilization contraception at Menteng Mitra Afia Hospital Jakarta. While the OR test results amounted to 11.563, then respondents with good knowledge had a 11.563 times better chance of using MOW than respondents with less knowledge.

This study supports research conducted by Hardianto (2019) with the results of $p = 0.024$ (p value <0.05) which means that there is a relationship between knowledge and the selection of tubectomy contraception at Sawerigading General Hospital, Palopo City. (Dg Salimung, 2019). Another study that is not in line with this research is research by Istri and Efi (2020) which states that the statistical test results obtained a

value of p = 0.086> 0.05 which means that there is no relationship between knowledge and the selection of tubectomy contraception in women of childbearing age. (Utami & Trimuryani, 2020).

The level of knowledge about female sterilization greatly influences the decision to use. Good knowledge includes an understanding of the procedure, benefits, risks, and permanence of female sterilization. Studies show that women with better knowledge tend to be more confident in choosing female sterilization (Darwis, 2016). If the mother's knowledge about female sterilization contraceptives is good, the mother will be easier and more rational in deciding to use female sterilization contraception (Jannah & Safitri, 2024). According to Notoatmodjo in Kristy (2020), knowledge or cognitive is very important for the formation of a person's action (over behavior). From experience and research, behavior based on knowledge will be better than behavior that is not based on knowledge. (Mellya, 2020)

According to the researcher's assumption based on research, theory, and related research, most women who use female sterilization contraception have good knowledge about female sterilization contraception due to the education provided by doctors and health workers before deciding to use female sterilization contraception or also their awareness of their own health so that they learn about female sterilization contraception from various sources. With a good knowledge base, acceptors will more easily decide what is better for them and their families.

Relationship between Husband's Support and The Choice of Female Sterilization at Menteng Mitra Afia Hospital Jakarta

Based on the results of the analysis in this study, it is known that the p-value is 0.479 (p> 0.05), so there is no relationship between husband support and the selection of female sterilization contraception at Menteng Mitra Afia Hospital Jakarta. While the OR test results of 1.565 indicate that respondents with supportive husband support have a 1.565 times better chance of using female sterilization than respondents with less supportive husband support to use female sterilization.

This study supports research conducted by Lestari, Yusniarita, and Patroni (2015) with the results of the p value = 0.06> 0.05, meaning that there is no relationship between husband support and the selection of female sterilization contraceptives.

According to BKKBN (2007) in Astuti and Ester (2018), the implementation of family planning programs in Indonesia must pay attention to reproductive rights, women's empowerment and gender equality by the agreement made at the population and development conference. Socialization of reproductive rights and gender equality is an activity that is always a concern and improvement in the implementation of program services, as well as in health and family planning and reproductive health service efforts. (Astuti Widia Ningrum & Easter, 2018). According to the researcher's assumption based on research, theory, and related research, husband's support for the use of female sterilization contraception is very important because it is related to the mother's mentality in the future. Couples of childbearing age must support each other plus also have the same knowledge so that the husband can support the use of female sterilization for his wife for her health. Meanwhile, some husbands who did not support their wives' decision to use contraception were due to their lack of knowledge and awareness of their wives' health.

Conclusion

Based on the acquisition of data analysis that has been done before, it can be concluded that the proportion of MOW contraceptive selection (Female Operation Method) at RSU Menteng Mitra Afia Jakarta based on the sample and the overall population is 0.41%. The frequency distribution of age, parity, indications of MOW, knowledge, and husband's support for the selection of MOW contraception (Female Operation Method) at RSU Menteng Mitra Afia Jakarta in this study were 39 respondents. There is a relationship between age, parity, and knowledge on the selection of MOW contraception (Female Operation Method) at RSU Menteng Mitra Afia Jakarta ($p<0.05$). While the indication of MOW and husband's support did not have a significant relationship with the selection of MOW contraception (Female Operation Method) at RSU Menteng Mitra Afia Jakarta ($p>0.05$).

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Qualitative Study: Culture of Post-Partnership Care in The Outer Baduy Tribe in Kanekes Village, Leuwidamar District, Lebak Regency, Banten Province

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Abstract

Background: Maternal and child health problems are inseparable from socio-cultural and environmental factors in the community where they live. Whether we realize it or not, traditional beliefs and knowledge factors, such as concepts regarding various taboos, causal relationships, concepts about healthy and sick, and habits, sometimes have a positive or negative impact on maternal and child health (MCH). **Objective:** The aim is to analyze health behavior during the postpartum period, both those that conflict with or do not conflict with health in the Outer Baduy Tribe in Kanekes Village, Leuwidamar District, Lebak Regency, Banten Province. **Methodology:** This study uses a qualitative phenomenological method through a triangulation approach. It took data from 10 informants (6 key informants and 4 supporting informants), and saturation was achieved when no new information was obtained on the same question. Data collection could be stopped, and the number of informants was not increased. Data analysis in this study used the Colaizzi nine-step technique. **Results:** The results of the study showed that the culture of postpartum care in the Outer Baduy tribe is contrary to health, namely not being allowed to take a nap, the culture of nyanda for 7 days, the prohibition of consuming eggs and sea fish during the postpartum period, the use of octopus for 1-3 months and cleaning the vagina from back to front. Treatments that do not conflict are the mobilization process, urination and defecation, the breastfeeding process, and breast care. **Conclusions:** Postpartum care in the Outer Baduy tribe still includes treatments that are contrary to health, but some treatments are by evidence-based obstetrics. It is recommended for health service officers to make it easier to determine a more appropriate approach strategy to change community health behavior towards healthy behavior.

Keywords: Postpartum Mothers of the Outer Baduy Tribe, Culture of Care

Introduction

The postpartum period, or puerperium, begins 2 hours after the birth of the placenta and lasts up to 6 weeks (42 days) after that. In Latin, the specific time after giving birth is called puerperium, namely the word puer, which means baby and parous giving birth (Pitriani, 2014).

The Baduy tribe is located in Kanekes Village on Mount Kendeng, which is part of the forest. This area is included in Banten Province, precisely in Lebak Regency, Leuidamar District. The Sundanese indigenous community group consists of the Outer Baduy Tribe and the Inner Baduy Tribe, both of which live in Kanekes Village, Leuwidamar District, Banten Province. The Baduy tribe has inhabited the village for a long time. The Baduy community is a group of people who adhere to the customs of their ancestors from generation to generation. (Heriawan, 2018)

Baduy is divided into two, namely Outer Baduy and Inner Baduy. Baduy Luar are people who have left the customs and territory of Baduy Dalam. Baduy Dalam is part of the entire Baduy Tribe. Unlike Baduy Luar, Baduy Dalam residents still adhere to the customs of their ancestors. They are one of the tribes that implement isolation from the outside world. (Heriawan, 2018).

The customary rule that Baduy people are not allowed to pursue formal education is one of the factors that causes their short teenage life span. Adolescence ends when they enter marriage. The age of marriage for most Baduy women starts at the age of 15 years and above, although there are always extreme cases, namely being married at the age of 13 years. (Adi et al, 2014)

A set of dominant cultural elements that are the background to high or low maternal and infant mortality in an area, as follows; (1) Belief system, namely all aspects related to belief or religion; (2) Knowledge system, namely the ability of the community obtained through the learning process from family and tradition, including those related to care and treatment for pregnant women and babies; (3) Kinship system, namely a social organization that has been passed down from generation to generation and still applies today, including marriage rules; (4) Livelihood system, namely how the community obtains food sources including agriculture, animal husbandry, fisheries, plantations, crafts, and so on. (BPPD Banten Province, 2019)

Equal distribution of village health posts and midwives is an intervention

carried out to provide closer access to health services due to geographical distances, and the provision of village ambulances as a means of transportation. Utilizing community resources or institutions is one of the interventions carried out to increase family and community participation, so that families and communities have plans to deal with pregnancy and childbirth. The health office also implements various programs that have a direct impact on reducing MMR through training to improve the skills of officers in managing emergency cases. (Batubara, 2012)

There is a tradition carried out by postpartum mothers, namely, not being allowed to take a nap because they are afraid that white blood will rise to the eyes. Scientifically, no research proves that not taking a nap will increase white blood to the eyes. This habit is considered detrimental because it limits the comfort of postpartum mothers, and based on the results of journal searches, postpartum mothers need mobilization to smooth blood vessels, which can also be facilitated by doing postpartum gymnastics (Rahmilasari et al, 2020).

Related to research on Cultural Practices of Pregnancy, Childbirth and Postpartum Care in the Inner Baduy Ethnic Group. The postpartum period is very short for Baduy ethnic mothers; the duration of the postpartum period is between 3 to 7 days. if there is a postpartum mother whose postpartum period is more than 7 days, suffering from a certain disease. Although the blood only comes out for 7 days, for 40 days the wife is not allowed to gather with her husband (Adi et al, 2014).

In addition, the culture of the community is related to health problems, especially postpartum care, Researchers are interested in studying the culture of postpartum care in the Outer Baduy tribe in Kanekes Village

Method

1. Research design

This study uses a qualitative phenomenological method through a triangulation approach. Phenomenological studies help researchers understand a person's life experiences and interactions with their surroundings (Morse, 1999).

2. Setting and samples

State The population in this study were postpartum mothers (1-40 days) and postpartum mothers' families in the Baduy Luar tribe, Kanekes Village, consisting of

three villages, namely Cihulu, Kadu Ketug, and Cipondok. The number of informants used as samples in qualitative research is largely determined by the repetition of information or data saturation. The number of participants in this qualitative study was 10 informants (with key informants and supporting informants), but if saturation has been reached, where no new information is obtained on the same question, data collection can be stopped, and the number of informants is not increased. (Creswell, 2012). In this study, data was taken based on the number of 10 informants (6 postpartum mothers and 4 postpartum mothers' families), with saturation having been achieved where no new information is obtained on the same question, data collection can be stopped, and the number of informants is not increased. With informant criteria: The original Outer Baduy community, postpartum mothers (1-40 days) and the postpartum mothers' families who care for them.

3. *Measurement and data collection*

Data collection tools in this qualitative research consist of interview guides, voice recorders, writing instruments and field notes to be used during observation. In this research process, researchers use the immersion principle, namely positioning themselves as if they were part of the observed phenomenon.

4. *Data analysis;*

Qualitative research data analysis aims to organize data into a more structured form and gain meaning from the data that has been obtained. Qualitative research often combines data analysis and data collection simultaneously, not waiting for all data to be collected first, so that the search for important themes and concepts occurs after the data is obtained. Data analysis techniques in qualitative research are directed to answer the formulation of research problems (Polit & Beck, 2012).

Results

Based on data from Kanekes village, the population in December 2021 was 11,759 people, consisting of 5,902 men and 5,858 women. based on the village midwife, postpartum mothers consisted of 6 people from 3 villages. The presentation of the results of data analysis in this study includes the culture of postpartum care according to the Outer Baduy tribe.

Table 1
Informant Initials

Code	Informant Initials	Age
I.1	Mrs. M (20 days postpartum mother)	25 years old
I.2	Mrs O (family of postpartum mothers)	54 years old
I.3	Mrs. S (19 days postpartum mother)	27 years old
I.4	Mrs. R (16 days postpartum mother)	22 years old
I.5	Mrs. S (family of postpartum mothers)	60 years old
I.6	Mrs. J (9 days postpartum mother)	20 years old
I.7	Mrs. S (family of postpartum mothers)	23 years old
I.8	Mrs. S (32 days postpartum mother)	24 years old
I.9	Mrs. A (13 days postpartum mother)	21 years old
I.10	Miss. J (family of postpartum mothers)	24 years old

Mobilization and Rest

The majority of respondents believe that they should not take a nap because it usually causes illness. The informant goes to bed early at night but often wakes up in the middle of the night because the baby is thirsty. Out of 10 informants, 4 informants believe that they still practice the nyanda culture, which is a sleeping position that involves leaning on a pile of pillows and holding the legs up using wood/stones so that they do not change position for 7 days. They believe that if they do not nyanda their bodies will swell up due to the dirty blood not coming out.

Nutrition

All informants have a prohibition against consuming spicy and sour foods because they can cause bland breast milk. They also have foods to avoid during the postpartum period, such as salted fish, eggs, tuna, and other sea fish, except freshwater fish, these foods are considered to cause itching during the postpartum period. The recommended food to consume is sambal pepeuh, a chili sauce made from turmeric, which is efficacious for the health of postpartum mothers and can also facilitate breast milk for mothers whose breast milk is not smooth. There are also herbal medicines that must be

drunk during the postpartum period, namely kencur, ginger, cecendet roots, nutmeg, cape sabiloto leaves, capituher leaves, nutmeg, which are boiled and drunk every morning and evening. This concoction is used by postpartum mothers to treat internal wounds due to childbirth.

Urination and defecation

All informants do not have the habit of holding in their urinate and defecate because holding it in can cause illness. After giving birth, if they want to urinate and defecate, they should go straight to the bathroom if they are not strong enough to walk to the bed to urinate and defecate. Informants with difficulty defecating will be advised to consume a lot of ripe papaya to facilitate defecation.

Self-care

Every morning, you have to take a shower and wash your hair for 7 days, it is considered to purify yourself. The use of gurita cloth for at least 40 days aims to restore the stomach so that it is not sagging and like before pregnancy, the use of this gurita cloth is worn all day long, only removed when you want to take a shower, even when sleeping, they wear this, for wound care they do not use anything, they only clean from back to back using clean water.

Breast-feed

All informants breastfed their babies after the delivery process. The majority of respondents started breastfeeding their babies on the first day after giving birth when breastfeeding the areola entered the baby's mouth. If there was no breast milk, all informants answered not to give anything to the baby, at most the mother should eat a lot of katuk leaves and young papaya in vegetable form so that breast milk comes out immediately.

Breast care

All informants also carried out breast care, the majority of informants carried out breast care, one of which was cleaning the breasts before breastfeeding, if the breasts were swollen or sore, what was done was compressing the breasts using warm water and

applying breast milk to the sore nipples.

Before breastfeeding, the breasts are cleaned using a clean cloth dipped in warm water to clean the breasts and nipples. If there are any abrasions or swelling while breastfeeding, compress the breasts with warm water. If it does not heal, seek treatment at the health center.

Discussion

Mobilization and Rest

All informants after giving birth, had mobilized as early as possible because according to them, sleeping alone is not good for health. And after one week of doing housework, but not heavy work, for 40 days. This is by the statement (Dewi, 2011) which states that early mobilization is to encourage mothers to get out of bed as soon as possible and guide them to walk or sit as soon as possible. And all informants think that they should not take a nap because it usually causes jaundice, this is not by the statement (Nuursafa, 2021). Postpartum mothers need enough rest, the sleep rest needed by postpartum mothers is around 8 hours at night and 1 hour during the day. The first three days can be difficult for mothers due to the accumulation of fatigue due to the labor process and the pain that occurs in the perineal wound. Theoretically, sleep patterns will return to close to normal within 2 to 3 weeks after delivery. Statement (Maritalia, 2012)

From 10 informants, there were also 4 informants who argued that they still practiced the nyanda culture, namely a sleeping position that leans on a pile of pillows and the legs are supported using wood/stones so as not to change the nyanda position for 7 days, they argued that if they did not nyanda their bodies would swell due to their dirty blood not coming out. This is not in accordance with the statement (Midwifebieehafshawaty, 2013) practices that carry the risk of infection, one of which is nyanda (after giving birth, the mother sits in a leaning position and her legs are straightened forward for hours which can cause bleeding and swelling).

The researcher's assumption regarding early mobilization in postpartum mothers is in accordance with the midwifery theory, they have implemented the health education given by midwives, in the postpartum cultural rest pattern, this is not in accordance with the midwifery theory because postpartum mothers in the Baduy tribe are not allowed to sleep because this habit has been passed down from generation to generation in the

Baduy tribe. In addition to the postpartum mother's rest pattern, some of the Baduy tribe still practice the culture of leaning back with their legs straightened for at least 7 days. According to researchers, this is not by midwifery theory because they are obedient to their parents so they still apply this culture of leaning back. The researcher's recommendation for health workers, especially village midwives, to carry out a more appropriate approach strategy to change community health behavior towards healthy behavior and improve health status. By doing this, it will help them determine what needs to be changed and what needs to be preserved in improving their health status.

Nutrition

All informants have a prohibition against consuming spicy and sour foods, they think it causes breast milk to become bland because of the effects of mothers consuming sour and spicy foods. The results of the researcher's search cannot be proven in obstetric theory, they did not find any supporting journals about spicy and sour foods related to lactation with breast milk. Other existing studies even show that the fat composition in breast milk one month after delivery is not related to the mother's body composition, and appears to be weakly correlated with the mother's fat intake. (Rahmilasari, et al., 2020)

The recommended food to consume is pepeuh chili sauce, which is believed to increase breast milk production, namely chili sauce made from. This is by the statement (Citra et al, 2021). Jamu is a traditional herbal medicine made by pounding and boiling water. This herbal medicine is believed to be able to facilitate breast milk production. There is also herbal medicine that must be drunk during the postpartum period, namely herbal medicine made from kencur, ginger, cecendet roots, nutmeg, cape sabiloto leaves, which are boiled and drunk every morning and evening. This concoction is used by postpartum mothers to treat internal wounds due to childbirth. This is by the statement (Pratiknjo, 2020) The function of the herbal drink is efficacious for cleaning the uterus, cleaning dirty blood, restoring the mother's immune system after giving birth, strengthening the womb, facilitating blood stimulation and increasing breast milk, helping to maintain immunity, relieve pain, and increase appetite. Based on the researcher's assumption regarding the nutrition of postpartum mothers, there are food taboos such as eggs and fish, but postpartum mothers are still allowed to eat freshwater fish even though they

have been given health education by health workers, they still carry out these prohibitions because their culture regarding sea fish and eggs can cause allergies. So our health workers need to provide health education regarding nutrition.

Urination and defecation

In this urination and defecation, there is no culture related to urinating and defecating because when they want to defecate and urinate, they immediately release it without holding it in because it can cause disease. This is in accordance with the statement (Nuursafa, 2021. In the fourth stage of labor, urine monitoring is carried out for 2 hours, every 15 minutes in the first hour and every 30 minutes in the following hour.

Informants who have difficulty defecating will be advised to consume a lot of ripe papaya to facilitate defecation. This is in accordance with the statement (Budianto, 2020) Papaya plants (Carica papaya L.) produce papain and chymopapain, both of which are important proteolytic enzymes in the industrial, pharmaceutical and medical worlds found in the white sap produced by the fruit. These two compounds are widely known to be useful for digestive disorders and the digestive tract.

The researcher's assumption that there are no problems with urination and defecation is that everything is in accordance with the theory, because there is no culture that conflicts with health and is done in accordance with proper postpartum care. Recommendations for health workers to continue to improve public health behavior towards healthy behavior and improving public health status.

Self-care

All informants performed self-care in ways that have become habits or traditions in the outer Baduy culture, namely: every morning you have to take a shower and wash your hair for 7 days, which is considered to purify yourself, this is in accordance with the statement (Hamilton, 1992). The mother's personal hygiene helps reduce sources of infection and increases the mother's sense of comfort. According to the statement (Rahmilasari et al, 2020), the use of a corset is detrimental, because some of the mother's skin usually becomes allergic due to the accumulation of sweat and fabric materials that are not suitable for the mother's skin. The use of corsets that are too strong also causes discomfort to the mother, because it inhibits the mother's breathing

and movement patterns. Different from the opinion (Rahayu, 2018). If bengkung or corset is used according to the correct procedure, it will not endanger the health of the postpartum mother. Even the results of uterine involution in this study for mothers who used bengkung and mothers who used gurita also did not give worse results when compared to mothers who did not use bengkung or gurita at all. And based on the results of research and observations for 14 days on mothers who use bengkung and gurita, researchers did not find any significant obstacles or even could interfere with the health conditions of postpartum mothers or their babies.

For wound care, they do not use anything, just clean it using clean water, clean it from back to front. This is not in accordance with the statement (Budianto, 2020) To maintain vaginal cleanliness during the postpartum period, it can be done by flushing the mouth of the vagina with clean water every time you finish urinating or defecating. Wash from front to back until there is no remaining dirt stuck around the vagina, be it urine or feces that contain microorganisms and can cause infection in stitches.

Based on the researcher's assumption, there are still some self-care that are not by midwifery theory, namely the use of gurita/stagen because based on interviews with postpartum mothers in the Baduy tribe, they use it for the same period, which is 40 days, some are up to 30 months, besides that, when sleeping, it is still used and opened only when bathing, there are informants who say that sometimes it is uncomfortable because it is stuffy and itchy. After all, it is damp, but they still use it because it is a hereditary habit, so this interferes with the comfort of postpartum mothers. In vaginal care, it is not by the existing theory because their cleaning method (wiping) is still wrong from back to front even though the village midwife has provided counseling regarding postpartum care that is by midwifery science, but after going home they do not apply it so that health workers need to provide counseling to families who care for the postpartum mother.

Breast care

All informants also do breast care, the majority of informants do breast care, one of which is cleaning the breasts before breastfeeding, if the breasts are swollen or sore what is done is compressing the breasts using warm water and applying breast milk to the sore nipples. This is in accordance with the statement (Mardiatun, 2013). Breast care

is an action to care for the breasts, especially during the postpartum period (breast feeding period) to facilitate the release of breast milk. Postpartum breast care is a continuation of breast care during pregnancy. Implementation of postpartum breast care begins as early as possible, namely 1-2 days after the baby is born. Breast care is done twice a day. The benefits are: facilitating the reflex of breast milk release, stimulating breast milk production, preventing breast congestion and reducing the risk of injury during breastfeeding. The researcher's assumptions on breast care are correct and by midwifery theory so that recommendations for health workers continue to improve public health behavior towards healthy behavior and improving public health status.

Limitation

The distance of the research location is quite far from the researcher's residence, making it difficult to reach if conducting long-term research and observations are carried out simultaneously during the interview.

Conclusion

The results of the study showed that some postpartum care did not comply with the theory and evidence-based midwifery such as not being allowed to take a nap, the culture of nyanda for 7 days, the prohibition of consuming eggs and sea fish during the postpartum period, the use of octopus for 40 days and cleaning the vagina from back to front.

From the culture of postpartum care, some comply with the theory of evidence-based midwifery, such as the process of mobilization, urination and defecation, the process of breastfeeding, and breast care.

Ethical Considerations

Researchers also give participants the freedom to withdraw from the study. Then, the selection of interview locations is offered to participants. This is a form of respect for the rights of participants and for the sake of comfort in the interview process so that participants can tell their experiences calmly. Fulfilling the principle of anonymity, it is obligatory not to publish the identity of the informant by replacing the informant's name with the informant code, namely I.1, I.2 and so on. (Kumalasari, 2018)

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