EMBRIO

P-ISSN : 2089-8789
E-ISSN : 2714-7886

JURNAL KEBIDANAN

Volume 15 , Number 2, November 2023

Unipa Surabaya

PUBLISHED BY:

PROGRAM STUDI S1 KEBIDANAN, FAKULTAS SAINS DAN KESEHATAN
UNIVERSITAS PGRI ADI BUANA SURABAYA , JAWA TIMUR-INDONESIA

sinta S3 Science and Technology Index · Google Scholar · Crossref · ROAD · GARUDA

EMBRIO JURNAL KEBIDANAN
p-ISSN: 2089-8789
e-ISSN: 2714-7886

Impact of COVID-19: Dietary Consumption Patterns and Family Nutritional Intake

Inna Sholicha Fitriani[*], *Aida Ratna Wijayanti*

Faculty of Health Sciences, University of Muhammadiyah Ponorogo, East Java, Indonesia

ARTICLE INFORMATION

Received: 28, February, 2023
Revised: 28, June, 2023
Accepted: 20, July, 2023

KEYWORD

Comsumption; Pattern; Nutritional

Pola; Konsumsi; Gizi

CORRESPONDING AUTHOR

Inna Sholicha Fitriani
Faculty of Health Sciences, University of Muhammadiyah Ponorogo, East Java, Indonesia
innasholicha@umpo.ac.id
+6285648611188

DOI

https://doi.org/10.36456/embrio.v15i2.7011

A B S T R A C T

The COVID-19 pandemic has caused various very drastic changes related to the nutritional and economic needs of families in Indonesia. The existence of differences in instant food consumption dominates to cause nutritional intake of nutrients that do not meet the body's needs. This research aims to identify patterns of food consumption and family nutritional intake. This research method uses a quantitative type and the design is survey analytics. The population was 500 people, because of the pandemic red zone area, a limited study sample of 30 respondents was taken with purposive sampling on the head of the family in Ronowijayan Siman Ponorogo. Food consumption patterns and nutritional intake were determined based on interviews with respondents using a 24-hour Recall questionnaire. The research data were analysed using Kendall-Tau with a value of α > a sig value of 0.05 > 0.010 so that it was stated to have a significant relationship with the value of the coefficient of very weak correlation of consumption patterns with family nutritional intake. Good consumption patterns and nutritional intake can strengthen immunity, indirectly reducing COVID-19 infection transmission for families.

Pandemi COVID-19 menjadikan berbagai perubahan yang sangat drastis terkait kebutuhan nutrisi dan ekonomi keluarga di Indonesia. Adanya perubahan konsumsi makanan instant mendominasi menjadi penyebab asupan gizi nutrisi tidak sesuai kebutuhan tubuh, Riset ini memiliki tujuan untuk mengidentifikasi bagaimana pola dari konsumsi makanan dan asupan gizi keluarga. Metode penelitian ini menggunakan jenis kuantitatif dan desainnya adalah analitik survey. Adapun populasi 500 orang, karena wilayah zona merah pandemi sampel penelitian terbatas 30 responden diambil dengan purposive sampling pada kepala keluarga di Ronowijayan Siman Ponorogo. Pola konsumsi makanan dan Asupan gizi ditentukan berdasarkan wawancara dengan responden menggunakan kuesioner Recall 24-jam, data penelitian di analisa menggunakan Kendall-Tau dengan nilai α > nilai sig yaitu 0,05 > 0,010 sehingga dinyatakan memiliki hubungan signifikans dengan nilai koefisien korelasi sangat lemah dari pola konsumsi dengan asupan gizi keluarga. Pola konsumsi dan asupan gizi yang baik dapat memperkuat imun yang secara tidak langsung dapat menekan angka kejadian penularan infeksi Covid-bagi keluarga.

Introduction

Food consumption patterns are food arrangements that include the type and amount of food ingredients on average per person per day (Mekonnen et al., 2021). Nutritional intake contains macronutrients, micronutrients, and energy, which is part of a food group (Al-Jawaldeh et al., 2020). Food consumption patterns and nutritional intake that are not in accordance with standards will lead to the prevalence of double-burden cases of malnutrition. Issues of consumption patterns and nutritional

status can occur due to various factors such as socioeconomic status, culture, food security, and community environment with wrong habit patterns (Khuri et al., 2022). A high prevalence of stunting, underweight, and anaemia was also attributed to these dietary patterns, especially among children. Additionally, a dual impact of malnutrition was identified both among and within investigations. The dietary intake and nutritional status of refugees are impacted by various factors that occurred both before and after their resettlement, as they make the transition to their host countries. A conceptual model summarizing and presenting these elements—pre-resettlement experiences, resources of the host country, socioeconomic status, acculturation, and food security—was undertaken. (Khamees et al., 2022).

People in Indonesia have adopted a variety of drastically altered lifestyles as a result of the COVID-19 pandemic. The majority of people have to spend more time at home and experience changes in food consumption patterns that are more junk food and instant because it is easy to store in the refrigerator and the long-lasting impact of social restrictions that trigger reduced quality nutritional intake (Unicef et al., 2021). Changes in health conditions make people consume more supplements than natural foods, which worsens the quality of family food (Kristiandi et al., 2021). In this case, of course, food consumption patterns that do not meet nutritional standards can affect the quality of a person's nutrition with family members, where cases like this are the effects of a pandemic (O'Connell et al., 2022). People who become inactive in behaving in fulfilling daily needs have bad habits in accessing fresh and nutritious food. They tend to have new habits in consuming carbohydrates, sugar intake, and snacks (Khamees et al., 2022).

According to World Bank estimates, Indonesia is projected to have a poverty rate ranging between 8.2% and 11.6% in 2020, depending on the severity of the impact of COVID-19 on the economy and the scope of government social assistance programs. Ponorogo is one of the many areas also seriously affected by the COVID-19 outbreak. Based on news and facts on the ground, the affected communities in question are those who have not been covered in assistance programs such as the *Hope Family Program*, as well as *Cashless Food Assistance* for around 15,000 people (Nugraha et al., 2020). Four per cent of families with children have difficulty meeting their nutritional needs, with many consuming lesser portions than usual. (Unicef, 2021).

Indonesia is part of a country that has had three burdens of malnutrition since before the emergence of the pandemic, and even during the pandemic, this problem is part of the main case and has an increasing value of problems from nutritional intake and fulfilment patterns of food consumption, namely cases of underweight and obesity, which is where this case most occurs in toddlers who have an unbalanced height with less weight. In 2019, the World Health Organization explained that Indonesia also has a prevalence of malnutrition of 3.90%, malnutrition of 13.80% and nutrition of more than 3.10% of the number of toddlers, as many as 23,604,923 people (WHO, 2019). Based on Indonesian data from 7 million children with stunting cases. Currently, Indonesia is part of the 5th country in the world with stunting cases. There are more than 2 million children with malnutrition status due to thinness, besides

that almost half of the total pregnant women have cases of anaemia due to nutritional intake and consumption of foods that do not have enough vitamins and minerals (Unicef, 2020).

In addition to nutritional cases in toddlers, nutritional problems in adolescents also have a fairly high percentage, namely 32%, with 3-4 out of 10 Indonesian adolescents experiencing Iron Nutrition Anemia. Iron Nutrition Anemia occurs due to insufficient nutritional intake, especially iron and protein micronutrients. Iron Nutrition Anemia due to a lack of iron micronutrients (Fe) and a lack of protein intake (Mukti et al., 2021). This is reinforced by Dewi (2020), that almost half of the respondents aged 20-22 years rarely consume nutritious food, almost half of the respondents consume nutritious food, and almost half of 108 respondents rarely consume fruit and vegetables every day (Dewi et al., 2020).

Social restrictions that occur in the community during the pandemic have an impact on changing lifestyles and patterns, especially in efforts to procure and provide foodstuffs and consumption patterns. Before the pandemic, people preferred real food ingredients that could be processed immediately because the nutritional levels were still intact, not from processed foodstuffs. But there was a change currently, prefer food that is biased to be stored for a long time and ready-to-eat real food because of limited activities, besides that, it also prefers fast food and processed food such as packaged snacks, packaged foods, packaged drinks in bottles or cans (AIMI, 2020). The implementation of Work from Home (WFH) also has an unhealthy impact on changes in efforts to select food types. Workers who have limitations in preparing food prefer to consume foods that are easier to cook or that are directly eaten easily, namely packaged foods or frozen foods that only need to be heated. The phenomenon of frozen and fast food is indeed increasing because it can last longer and can be processed anytime and anywhere. In addition, this type of food product has different variations and innovations (Fajar, 2020). Part of the changes are the impact of COVID-19 on nutritional intake due to disruptions that occur in the implementation of programs from the government, namely nutrition and health services, for example, Posyandu (Integrated Service Post) activities, where the government reduces Posyandu activities during its operating hours and is even partially closed during the Covid-19 pandemic. Posyandu has become an important part of supplementary feeding programs (for example, fortified biscuits) and dietary supplements for toddlers as well as pregnant women and lactating mothers (Arif et al., 2020). Such activities are one of the government's efforts to fulfil food consumption patterns and nutritional intake even though it can indirectly meet (Zulfa, 2023). Dietary consumption patterns affect nutritional status and health. Good consumption patterns will improve the health status of both individuals and communities. Conversely, poor consumption patterns are risk factors for various nutritional problems such as being underweight, overweight, wasting, obesity, and stunting (Safitri et al., 2017).

The Ponorogo Regency area itself has not had significant data on food consumption patterns and nutritional intake in families during the pandemic. Therefore, there is a need for research related to this phenomenon. In this case, as an urgency from the impact of the Covid-19 pandemic, especially in the Ponorogo regency area, whether it can trigger and affect the quality of the family economy so that it also affects the quality of food consumption patterns and nutritional intake, this needs to be explored

because the Covid-19 pandemic has occurred already 1.5 years ago, of course, it has a negative value for growth and development, especially for pregnant women, infants and toddlers as a welfare effort for mothers and Children in particular who are the spearheads of the welfare and success of the nation and state in the future.

Method

This research has received legality from the ethics committee with No.99/ER/KEPK/2021, this research was a quantitative research with an analytical survey design. Location of Siman Village, Siman District, Ponorogo Regency, July 2021 - September 2021. The population of 500 heads of family, as for the sample of this study, was taken by purposive sampling on the head of the family in Ronowijayan Siman Ponorogo, the reason samples and sampling techniques because during the study, the Ponorogo area was in the red zone of the pandemic, so there were obstacles in meeting the number of respondents so that researchers could collect a number of 30 heads of families as samples for this study. In the data collection technique, food consumption patterns based on the results of information analysis in the form of the type, quantity, and frequency of food ingredients consumed and nutritional intake are measured based on the amount of each nutrient that must be met from the food determined based on an online survey using video calls with respondents using a 24-hour Recall questionnaire about the amount of energy and macronutrients (carbohydrates, fats, and proteins) consumed are calculated from the conversion of daily food intake(Sirajudin et al., 2018). The amount of energy consumed was expressed in units of calories/day. The amounts of macronutrients (carbohydrates, fats, and proteins) consumed were expressed in grams/day. The conversion of food intake was then compared with the *Nutritional Adequacy Rate* or *Recommended Dietary Allowances* (RDA) of energy and macronutrients and multiplied by 100%. The level of energy and nutrition adequacy was then categorised into several groups (WNPG, 2012): deficit (<80% RDA); adequate (80-110% RDA (*Recommended Dietary Allowances*); and excess (> 110% RDA (*Recommended Dietary Allowances)*. The data that has been collected, then data processing was carried out using analysis The data results are analysed using *Kendall Tau* because it provides a multilevel measure of correlation association levels.

Results

The following was an overview of the Respondents:

Table 1. Characteristics of Respondents

	Demographic Data	Frequency	Percentage
Age	25-30 years old	5	16.7
	36 - 40 years old	5	16.7
	36 - 40 years old	6	20.0
	41-45 years old	4	13.3
	46-50 years old	3	10.0
	51 - 60 years old	3	10.0
	> 61 years old	4	13.3
Gender	Male	28	93.3
	Female	2	6.7

Reference Primary Data 2021

Based on Table 1, it was concluded that the age of respondents who dominated this study was 36

– 40 years, with the gender of the male head of the family.

Table 2. Nutritional Intake (AKG)

	Frequency	Percentage
normal energy, normal protein	22	73.3
normal energy, less protein	3	10.0
less energy, normal protein	2	6.7
less energy, less protein	1	3.3
very less energy, normal protein	2	6.7
Total	30	100.0

Reference Primary Data 2021

Based on the results of the research data above, it shows that the highest number of respondents with good nutritional intake was normal energy and normal protein was 22 respondents, and the least number with less nutritional intake was less energy and protein was less than 1 respondent, where for the size range of energy needs per day was 1500 – 2725 calories/day, protein needs of men 55 g/day and women 45 g/day.

Table 3. Nutrition Types for Food

Parameter		Frequency	Percentage
Amount of Meals 3x, intake of energy, fat, protein, minerals according to URT and amount according to BB/Kg (Good)		26	86.7
Amount of Meals < 3x, energy intake, fat, protein, mineral amount according to BB/Kg (Medium)		3	10.0
Eating < 3x, energy intake, fat, protein, and minerals do not match BB/Kg (Less)		1	3.3
Types of Carbohydrates	Rice	28	93.3
	Bread	2	6.7
Types of Proteins	chicken meat	6	20.0
	Fish	3	10.0
	Egg	8	26.7
	Fermented Soybean tofu	13	43.3
Types of Fats	Milk	1	3.3
	Meat	4	13.3
	Egg	6	20.0
	Junk food	1	3.3
	Fried Food	18	60.0
Types of Minerals	Plain water	25	83.3
	Tea water	2	6.7
	Coffee water	3	10.0

Reference Primary Data 2021

Table 3, it was known based on the results of the research data above, shows that most respondents have good food consumption patterns where the food assessment method to determine the amount of food consumed and calculate nutrient consumption using the 24-hour recall technique, namely the number of meals 3 times, the food consumed contains energy intake, fat, protein, minerals according to URT (*Household Size*) and the amount according to BB/Kg was 26 respondents. The results of the research data with the least number of respondents were consumption patterns that were lacking with eating < 3x, energy intake, fat, protein, and minerals did not match BB/Kg a total of 1 respondent. Then,

the type of carbohydrate food that respondents predominantly consumed was rice, with the type of tempeh tofu protein food, the type of fat food derived from fried foods, and mineral water.

Table 4. Analysis Results *Kendall Tau*

		Consumption Patterns	**Nutritional Intake (AKG)**
Consumption Patterns	Correlation Coefficient	1.000	.452**
	Sig. (2-tailed)	.	.010
	N	30	30
Nutritional Intake (AKG)	Correlation Coefficient	.452**	1.000
	Sig. (2-tailed)	.010	.
	N	30	30

Reference Primary Data 2021

Based on the results of processing using the Kendall Tau analysis method with software computer, the results of correlation analysis were obtained between consumption patterns and nutritional intake, correlation analysis if the significance value < 0.05, then the hypothesis (H0) was rejected, which means there was a relationship between the variables studied. The results of the analysis between consumption patterns and nutritional intake, namely 0.010 < 0.05, can be concluded that there was a relationship between consumption pattern variables and nutritional intake with very weak correlation coefficient values.

Discussion

Nutrition problems in Indonesia are increasingly complex, the problem of malnutrition is still high, but on the other hand, the problem of overnutrition is increasing, especially in big cities (Yunitasari et al., 2019). In this study, there was a limitation, namely having the number of respondents who enter the minimum limit because, during the research period, the population and sample areas were red zone areas during the pandemic, so they could not conduct wider research with more samples, so it could be that the data obtained in SPSS data processing became very limited. Based on the results of processing SPPS data using the Kendall Tau analysis method, the results of the correlation analysis between consumption patterns and nutritional intake can be concluded that there was a significant (real) relationship between consumption pattern variables and nutritional intake with weak correlation coefficient values. Consumption of balanced nutrition was needed to increase immunity, keep the body productive, and reduce the risk of contracting infectious diseases, including COVID-19. Balanced nutritional needs can be met by utilizing food ingredients around. One of the impacts of the COVID-19 pandemic was related to food availability, which can affect consumption patterns and balanced nutritional needs (Ulfa & Perdana, 2021).

A regular and regular diet with balanced nutrition will affect the quality of nutritional intake needed for metabolic processes, cell growth processes, cell development processes and blood and oxygen circulation, as well as hormone circulation (Sparrow et al., 2021). Likewise, the body's immune system is also influenced by the quality of nutritional intake, by paying attention to food consumption patterns that contain micronutrients and macronutrients, The process will run optimally. Balanced Nutrition Guidelines have special messages for the public, including washing hands, consuming food

regularly 3 times a day, consuming high protein such as fish and other side dishes and consuming lots of vegetables and fruits. Consume enough drinking water for the body and limit the consumption of snacks and fast food (Agustina et al., 2021). Food consumption is an essential human requirement that has the potential to impact an individual's nutritional status. The quality of one's nutritional status is influenced by food consumption patterns, which encompass the quantity, frequency, and duration of food intake within a specified period. Typically, food consumption patterns are determined by the satisfaction of requirements, which encompass attitudes, beliefs, and food preferences. In addition to knowledge, gender, age, education, and occupation all influence food consumption.

Kristiandi (2021) states that the frequency of the main meal can affect the total daily intake of energy and nutrients (Kristiandi et al., 2021). Nutrition was a basic necessity of life. Eating habits can be influenced by sociological, psychological, and physiological factors. The height of the COVID-19 pandemic status has affected all of that; high rates of spread have led to changes in human behaviour, such as eating habits (Yılmaz et al., 2020). Characteristics of eating activities that individuals do repeatedly or eat each person in meeting their eating needs Diet was said to be good if it contains food sources of energy, sources of building agents and regulators because all these nutrients are needed by the body to maintain the body's metabolic system in its role as a producer of energy, as growth and maintenance of the body as well as brain development and work productivity, and need to be consumed in eating in sufficient quantities according to needs (Nurwulan et al., 2017). A balanced and secure daily diet facilitates the attainment and maintenance of optimal health and nutritional status (Amaliyah et al., 2021). This can be strengthened by the results of the study, that the number of respondents consuming rice as much as 93.3% with the most types of side dishes tempeh tofu as much as 43.3%. Diet and lifestyle modifications can threaten health. Maintaining a balanced nutritional status was very important, especially during a pandemic when the immune system was needed to fight viruses that harm the body. Maintaining food patterns, planning time for meals, amount of food nutrients, and portions were good sources of immune support. The fulfilment of macronutrients, including carbohydrates, proteins, fats and minerals, was the main thing for the body's metabolism with a proportion of carbohydrate of 60%, protein of 15% and fat of 25%, in this case, the composition of these nutrients needs to be consumed regularly and regularly, but must still maintain the amount of nutrients consumed so that there was a balance and does not have excessive levels so that it can be harmful to the health of the body.

In all countries, the food categories with the highest rates of change are frozen food, canned food, as well as cakes and biscuits; among the food categories with lower rates of change are bread and dairy products(Dieny et al., 2020). People shop less frequently during social distancing to meet the need for the consumption of fresh food (Janssen et al., 2021). Although overall food consumption has not changed, there was a shift in food consumption patterns towards staple foods and away from vegetables. Relative price changes can partially explain this shift. However, there are potential explanations that cannot be ruled out (Hirvonen et al., 2021).

The majority of individuals do not appear to have altered their food consumption patterns for major food categories since the onset of the pandemic; however, they do report snacking more frequently since then. This trend is counterbalanced by a significant decrease in fast food consumption (Hirvonen et al., 2021). The results of the study showed that respondents consumed more fried foods as much as 60%. Fried foods contain saturated fats and trans fats, which, if consumed excessively will trigger hypertension, heart attack, and obesity, which can trigger death if the individual contracts the COVID-19 virus, which is a comorbid disease. Based on the results of the research data, it shows that the most number of respondents with good nutritional intake, namely normal energy and normal protein, was 22 respondents, and the least number with less nutritional intake was less energy and protein was less than 1 respondent. Normal energy and protein intake was part of the indicator of good nutritional intake. Good nutritional intake can trigger the immune system to function and work more actively when there are pathogens in the body. Immune activation requires the availability of energy intake, such as carbohydrates, proteins and fats, with the addition of microelements, namely vitamins and minerals. Insufficient nutritional intake in the diet can lead to cases of malnutrition, on the contrary, people whose nutritional intake is excessive will suffer from more nutrition. Nutrition can be known by measuring several parameters, and then the measurement results are compared with standards or references. The problem was basically that the gap between the desired expectations does not correspond to reality. Likewise, nutritional problems are defined as gaps that occur due to the expected nutritional conditions that are not in accordance with the existing nutritional conditions.

Food consumption with excessive and wrong patterns will trigger hypertension, heart attack, and obesity, which can trigger death if the individual contracts the COVID-19 virus, which is a comorbid disease. Based on the results of the research data, it shows that the most number of respondents with good nutritional intake, namely normal energy and normal protein, was 22 respondents, and the least number with less nutritional intake was less energy and protein was less than 1 respondent. Normal energy and protein intake was part of the indicator of good nutritional intake. Good nutritional intake can trigger the immune system to function and work more actively when there are pathogens in the body. Immune activation requires the availability of energy intake, such as carbohydrates, proteins and fats, with the addition of microelements, namely vitamins and minerals. (Janssen et al., 2021). Insufficient nutritional intake in the diet can lead to cases of malnutrition, on the contrary people whose nutritional intake is excessive will suffer from more nutrition. Nutrition can be known by measuring several parameters, and then the measurement results are compared with standards or references. The problem is basically that the gap between the desired expectations does not correspond to reality. Likewise, nutritional problems are defined as gaps that occur due to the expected nutritional conditions that are not in accordance with the existing nutritional conditions (Lima et al., 2021).

Adhering to a well-balanced and secure diet can enhance immune system function and reduce the likelihood of developing chronic and infectious diseases. Try to make variations in the food menu when at home so that the family does not become bored with the same food menu (Taki, 2018). WHO has recommended a balanced nutrition menu during the COVID-19 pandemic. That is, every food menu

must include complete nutrition, which includes macronutrients such as carbohydrates, proteins, and fats, as well as micronutrients from vitamins and minerals. However, to create a strong foundation of endurance (building block), we must focus on protein intake (Akbar, 2020). The assessment of dietary consumption, including the quantification of essential nutrients, minerals, and other compounds, is employed to discern nutritional trends and identify potential issues (Moguel et al., 2019). Intake of micronutrients and macronutrients, as well as total energy intake, vary between men and women. To evaluate the sufficiency of dietary consumption, an analysis was conducted to compare the calorie macronutrient and micronutrient intake of each individual. It is important to note that actual daily nutritional requirements may differ due to factors such as age, gender, level of physical activity, medical history, and others (Ratsavong et al., 2020).

Conclusions

From the results of the study, it can be identified that food consumption patterns are related to nutritional intake for family members. During this pandemic, with a good food consumption pattern, you will get good nutritional intake as well and will be able to achieve a degree of family health.

References

Agustina, Ranggauni, F., & Pristya, T. Y. R. (2021). Analisis Perbedaan Konsumsi Gizi Seimbang Sebelum dan pada Masa Covid-19 pada Remaja. *Jurnal Ilmiah Kesehatan Masyarakat Volume*, *13*(1), 7–15. https://doi.org/10.52022/jikm.v13i1.158

AIMI. (2020). *Bahaya Terselubung Dari Ultra Processed Food*. BPNI.

Akbar, M. D., & Aidha, Z. (2020). Perilaku Penerapan Gizi Seimbang Masyarakat Kota Binjai Pada Masa Pandemi Covid 19 Tahun 2020. *Jurnal Menara Medika*, *3*(1), 15–21. https://doi.org/10.31869/mm.v3i1.2193

Al-Jawaldeh, A., Taktouk, M., & Nasreddine, L. (2020). Food consumption patterns and nutrient intakes of children and adolescents in the eastern Mediterranean region: A call for policy action. *Nutrients*, *12*(11), 1–28. https://doi.org/10.3390/nu12113345

Amaliyah, M., Soeyono, R. D., Nurlaela, L., & Kritiastuti, D. (2021). Pola Konsumsi Makan Remaja Di Masa Pandemi Covid-19. *Jurnal Tata Boga*, *10*(1), 129–137. https://ejournal.unesa.ac.id/index.php/jurnal-tata-boga/article/view/38402

Arif, S., Isdijoso, W., Fatah, A. R., & Tamyis, A. R. (2020). *Tinjauan Strategis Ketahanan Pangan dan Gizi di Indonesia*. Semeru Research Institute. https://smeru.or.id/id/publication-id/tinjauan-strategis-ketahanan-pangan-dan-gizi-di-indonesia-informasi-terkini-2019-2020

Dewi, N., Maemunah, N., & Putri, R. M. (2020). Gambaran Asupan Nutrisi Dimasa Pandemi Pada Mahasiswa. *Care : Jurnal Ilmiah Ilmu Kesehatan*, *8*(3), 369. https://doi.org/10.33366/jc.v8i3.1959

Dieny, F. F., Jauharany, F. F., Fitranti, D. Y., Tsani, A. F. A., Rahadiyanti, A., Kurniawati, D. M., & Wijayanti, H. S. (2020). Kualitas diet, kurang energi kronis (KEK), dan anemia pada pengantin wanita di Kabupaten Semarang. *Jurnal Gizi Indonesia*, *8*(1), 1. https://doi.org/10.14710/jgi.8.1.1-10

Fajar, P. A. (2020). Dampak Coronavirus Disease (Covid 19) Terhadap Industri Food dan Beverages. *Jurnal Manajemen Bisnis*, *33*(2), 1–6.

Hirvonen, K., de Brauw, A., & Abate, G. T. (2021). Food Consumption and Food Security during the COVID-19 Pandemic in Addis Ababa. *American Journal of Agricultural Economics*, *103*(3), 772–789. https://doi.org/10.1111/ajae.12206

Janssen, M., Chang, B. P. I., Hristov, H., Pravst, I., Profeta, A., & Millard, J. (2021). Changes in Food Consumption During the COVID-19 Pandemic: Analysis of Consumer Survey Data From the First Lockdown Period in Denmark, Germany, and Slovenia. *Frontiers in Nutrition*, *8*(March), 1–20. https://doi.org/10.3389/fnut.2021.635859

Khamees, A., Awadi, S., Rawashdeh, S., Talafha, M., Bani-Issa, J., Alkadiri, M. A. S., Al Zoubi, M. S., Hussein, E., Fattah, F. A., Bashayreh, I. H., & Al-Saghir, M. (2022). Impact of COVID-19 pandemic on the Jordanian eating and nutritional habits. *Heliyon*, *8*(6), e09585. https://doi.org/10.1016/j.heliyon.2022.e09585

Khuri, J., Wang, Y., Holden, K., Fly, A. D., Mbogori, T., Mueller, S., Kandiah, J., & Zhang, M. (2022). Dietary Intake and Nutritional Status among Refugees in Host Countries: A Systematic Review. In Advances in Nutrition (13)5, 1846–1865. 10.1093/advances/nmac051

Kristiandi, K., Yunianto, A. E., Darawati, M., Doloksaribu, T. H., Anggraeni, I., Pasambuna, M., & Akbarini, O. F. (2021). Food consumption patterns of male and female undergraduate students in indonesia during new normal implementation of pandemic covid-19 era. *Open Access Macedonian Journal of Medical Sciences*, *9*(E), 278–282. https://doi.org/10.3889/oamjms.2021.5926

Lima, J. P. M., Costa, S. A., Teresa, R. S., & Rocha, A. (2021). Food Consumption Determinants and Barriers for Healthy Eating at the Workplace —A University Setting. *Foods*, *10*(4), 695. https://doi.org/10.3390/foods10040695

Mekonnen, D. A., Trijsburg, L., Achterbosch, T., Brouwer, I. D., Kennedy, G., Linderhof, V., Ruben, R., & Talsma, E. F. (2021). Food consumption patterns, nutrient adequacy, and the food systems in Nigeria. *Agricultural and Food Economics*, *9*(1). https://doi.org/10.1186/s40100-021-00188-2

Moguel, E., Berrocal, J., & García-Alonso, J. (2019). Systematic literature review of food-intake monitoring in an aging population. *Sensors (Switzerland)*, *19*(15). https://doi.org/10.3390/s19153265

Mukti, Aulia, T. R., Shalsabilla, A. A., & Syabani, D. F. (2021). Sosialisasi Gizi Seimbang Di Masa Pandemi Covid 19 Kepada Siswa Siswi Smp Triyasa Ujung Berung Bandung Secara Daring (Online Via Zoom Meeting). *Prosiding Seminar Nasional Pengabdian Masyarakat LPPM UMJ 2021*. https://jurnal.umj.ac.id/index.php/semnaskat/article/view/10953

Nugraha, F. A., Winarto, A. R., Purnomo, R. A., & Hamidah, C. (2020). Analisis Pengalihan Anggaran Sebagai Solusi Terhadap Hambatan Ekonomi Masyarakat Ponorogo Akibat Covid-19. *Jurnal Pemerintah Dan Politik*, *5*(3), 25–32. https://doi.org/10.36982/jpg.v5i3.1132

Nurwulan, E., Furqan, M., & Debby, E. S. (2017). Relationship between nutrition intake, eat patterns and nutrition knowledge with nutritional status of santri in At-Thayyibah Orphan Boarding School Sukabumi. *ARGIPA (Arsip Gizi Dan Pangan)*, *2*(2), 65–74. https://journal.uhamka.ac.id/index.php/argipa/article/view/2337

O'Connell, M., Smith, K., & Stroud, R. (2022). The dietary impact of the COVID-19 pandemic. *Journal of Health Economics*, *84*(May). https://doi.org/10.1016/j.jhealeco.2022.102641

Ratsavong, K., Van Elsacker, T., Doungvichit, D., Siengsounthone, L., Kounnavong, S., & Essink, D. (2020). Are dietary intake and nutritional status influenced by gender? The pattern of dietary intake in Lao PDR: A developing country. *Nutrition Journal*, *19*(1), 1–16. https://doi.org/10.1186/s12937-020-00545-9

Safitri, A., Jahari, A. B., & Ernawati, F. (2017). Food Consumption in Term of the Norm of Balanced Nutrition). *Penelitian Gizi Dan Makanan (The Journal of Nutrition and Food Research)*, *39*(2), 87–94. https://doi.org/10.22435/pgm.v39i2.6971.87-94

Sirajudin, Surmita, & Trina, A. (2018). *Survey Konsumsi Pangan*. PPSDMKES RI.

Sparrow, R., Agustina, R., Bras, H., Sheila, G., Rieger, M., Yumna, A., Feskens, E., & Melse-Boonstra, A. (2021). Adolescent Nutrition—Developing a Research Agenda for the Second Window of Opportunity in Indonesia. *Food and Nutrition Bulletin*, *42*(1_suppl), S9–S20. https://doi.org/10.1177/0379572120983668

Taki, S. (2018). Malnutrition among children in Indonesia: It is still a problem. *Jurnal Kedokteran Dan*

Kesehatan Indonesia, *9*(2), 68–71. https://doi.org/10.20885/jkki.vol9.iss2.art1

Ulfa, Z. D., & Perdana, J. A. (2021). Maintaining Health during a Pandemic through Balanced Nutrition for PJKR FKIP University Palangka Raya. *Jurnal Dharma Pendidikan Dan Keolahragaan*, *1*(1), 1–6. https://doi.org/10.33369/dharmapendidikan.v1i1.15827

Unicef. (2020). *COVID -19 dan Anak Anak di Indonesia* (Issue April). Unicef.

UNICEF, UNDP, PROSPERA, The SMERU Research Institute. (2021). *Socioeconomic Impact of the COVID-19 Pandemic on Households in Indonesia : Three Rounds of Monitoring Surveys*. UNICEF Indonesia. https://www.unicef.org/indonesia/reports/socio-economic-impact-covid-19-households-indonesia-three-rounds-monitoring-surveys

WHO. (2019). The State of Food Security and Nutritionin the World. In *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing* (Vol. 7, Issue 7).

Yılmaz, H. Ö., Aslan, R., & Unal, C. (2020). Effect of the COVID-19 pandemic on eating habits and food purchasing behaviors of university students. *Kesmas*, *15*(3), 154–159. https://doi.org/10.21109/KESMAS.V15I3.3897

Yunitasari, A. R., Sinaga, T., & Nurdiani, R. (2019). Nutritional Intake, Physical Activity, Nutritional Knowledge, Nutritional Status and Fitness of Dasa School Sports Teachers. *Media Gizi Indonesia*, *14*(2), 197.https://doi.org/10.20473/mgi.v14i2.197-206

Zulfa, H. & Ruhana, A. (2023). Efektivitas Pelaksanaan Pemberian Makanan Tambahan (PMT) Pemulihan Bagi Anak Usia Bawah Lima Tahun (Balita) dengan Gizi Kurang di Desa Watubonang Kecamatan Badegan Kabupaten Ponorogo. *GIZI UNESA*, *3*(1), 193-198. https://ejournal.unesa.ac.id/index.php/GIZIUNESA/article/view/50397

EMBRIO JURNAL KEBIDANAN
p-ISSN: 2089-8789
e-ISSN: 2714-7886

Specification Acupuncture Points Li4 and Sp6 in Postpartum Sectio Caesarea Pain

Nurul Azizah[1], Rafhani Rosyidah[1], Jamilatur Rohmah[2]*

[1] *Midwifery Department, Faculy of Health Science, Universitas Muhammadiyah Sidoarjo, Indonesia*
[2] *Medical Laboratory Technologies Department, Faculty of Health Science, Universitas Muhammadiyah Sidoarjo, Indonesia*

ARTICLE INFORMATION

Received: 22, May, 2033
Revised: 26, August, 2023
Accepted: 8, September, 2023

KEYWORD

Acupuncture; LI4; Pain; Postpartum; SP6

Akupunktur; Li4; Nyeri; Nifas; Sp6

CORRESPONDING AUTHOR

Nurul Azizah
Candi Sidoarjo
nurulazizah@umsida.ac.id
+6281553902006

DOI

https://doi.org/10.36456/embrio.v15i2.7281

A B S T R A C T

Postoperative pain can affect the postpartum SC's mobility, and the physical healing process after surgery can also trigger physiological stress and anxiety due to wound pain. The presence of side effects from analgesic use prompts the exploration of non-pharmacological treatments as an alternative for pain management in post-SC clients, as they are considered to have low side effects. Acupuncture, as one of the non-pharmacological complementary therapies, has been developed to address pain. This research aims to identify the Specific Points of Acupuncture, Li4 and Sp6, in Postpartum Cesarean Section (SC) Pain. The research design employed a quasi-experimental clinical approach, specifically a non-equivalent pre-posttest with a control group. This involved identifying pain reduction before and 24 hours after administering acupuncture intervention at specific points, LI4 and SP6, for a duration of 30 minutes. The study included a total of 34 participants in both the treatment and control groups. The research was conducted at Airlangga University Hospital in Surabaya. The subjects of the study were patients who met the inclusion criteria. The Pain Numeric Rating Scale was used as the research instrument. Statistical analysis involved employing one-way ANOVA to observe the mean change in values between the pre-test and post-test within each group. The administration of acupuncture therapy targeting points LI4 and SP6 in this study proved effective in reducing postpartum SC pain compared to the control group. In future research, further investigation could be conducted to identify changes in chemical reactions within the body following acupuncture treatment.

Nyeri pasca operasi dapat mempengaruhi mobilisasi postpartum SC, proses penyembuhan fisik pasca operasi juga dapat menimbulkan stres fisiologi dan cemas akibat nyeri luka jahitan. Efek samping dari penggunaan analgesik memicu pengobatan nonfarmakologi sebagai alternatif pengobatan nyeri pada klien post SC karena dinilai memiliki efek samping rendah. Akupuntur sebagai salah satu terapi komplementer non-farmakologis telah dikembangkan untuk mengatasi nyeri. Penelitian ini bertujuan mengidentifikasi spesifikasi titik akupunktur Li4 dan Sp6 pada nyeri postpartum seksio sesarea (SC). Desain penelitian menggunakan quasi experimental clinical, non-equivalent pre-posttest with control group, yakni dengan mengidentifikasi penurunan nyeri sebelum dan 24 jam setelah diberikan intervensi akupunktur pada titik LI4 dan SP6 secara spesifik, selama 30 menit, jumlah responden sebanyak 34 pada masing-masing kelompok perlakuan dan kontrol. Tempat penelitian dilaksanakan di RS Universitas Airlangga Surabaya. Subyek penelitian ini pasien yang memenuhi kriteria inklusi. Intrumen pada penelitian menggunankan skala nyeri PNRS. Analisis uji statistik menggunakan one way ANOVA untuk melihat rerata perubahan nilai pre dan posttest masing-masing kelompok. Hasil Pemberian terapi akupunktur antara titik LI4 dan SP6 pada penelitian ini efektif menurunkan nyeri postpartum SC dibandingkan kelompok kontrol. Pada penelitian berikutnya dapat dilanjutkan untuk identifikasi perubahan reaksi kimia pada tubuh dengan pemberian akupunkutur.

Introduction

The 2012 Indonesia Demographic and Health Survey (IDHS) reported that mothers who give birth through cesarean section often experience complications (55%). Rupture of the uterine wall leads to issues with hemostasis and blood circulation, which can trigger pain, bleeding, and infection. These complications can be prevented through physical monitoring and early mobilization efforts for post-cesarean section mothers (Gan et al., 2014). Early mobilization is an essential aspect of improving physiological function. One of the benefits of early mobilization is accelerating wound healing and facilitating blood circulation (Kasdu, 2003). The study conducted by Barid (2011) demonstrated that early mobilization in mothers after cesarean section accelerates the wound healing process and reduces the length of hospital stay (Dini, 2013; Kasdu, 2003).

Physiological stress can occur in postpartum mothers who have undergone a cesarean section due to the presence of wound pain. The process of physical wound healing can lead to complications following surgery, such as pain and anxiety (Saatsaz et al., 2016). Cesarean section, also known as C-section, is a surgical procedure performed under anaesthesia that involves making an incision in the uterine wall to deliver the fetus, placenta, and amniotic fluid (Diane & Margaret, 2009). The experience of pain can disrupt the mobility of mothers. The administration of analgesics as pain treatment can lead to allergies or other complications (Schoenwald et al., 2013).

In patients who continue to experience pain, it will affect the mobility of mothers post-Caesarean section, as well as their ability to recover and comply with treatment (Paice & Ferrell, 2011). Several interventions, such as relaxation techniques, distraction techniques, massage, aromatherapy, and the use of herbal remedies, are highly effective in alleviating pain and anxiety (Joyce & Jane, 2014). Acupuncture is a form of non-pharmacological therapy based on the concept of balancing yin and yang and utilizing meridians as channels of energy flow for healing purposes (Zhong et al., 2019). A hypothesis suggests that acupuncture points possess electrical properties, and when stimulated, they can alter chemical neurotransmitters in the body. This stimulation may activate specific points along the meridian system, which are transmitted through major nerve fibers to the reticular formation, thalamus, and limbic system, ultimately triggering the release of endorphins in the body (Alimoradi et al., 2019).

According to research studies, acupuncture points such as LI4 (Hegu), SP6 (Sanyinjiao), and ST36 (Zusanli) also play a role in pain modulation. The combined use of acupuncture on LI4 and SP6 has been reported in several studies to be effective in inducing labor and reducing labor pain (Tournaire & Theau-Yonneau, 2007). This study aims to specifically compare the effects of acupuncture on LI4 and SP6 points regarding pain in postpartum cesarean section (SC) patients.

Method

The research design employed in this study is a quasi-experimental clinical approach with a non-equivalent post-test-only control group. The respondent selection was based on inclusion criteria, including postpartum cesarean section (SC) patients who were 24-48 hours post-operation, had been removed from intravenous infusion, were receiving oral paracetamol 500mg 3 times a day for pain relief,

and gave informed consent. Exclusion criteria included heart disease, blood clotting disorders, parity less than 4, and those with good nutritional status. The study involved a total of 102 respondents, with 34 in the LI4 group, 34 in the SP6 group, and 34 in the control group. The research aimed to identify the reduction in pain before and 24 hours after acupuncture intervention. The measurement instrument used for pain intensity was the Pain Numeric Rating Scale (PNRS). The study was conducted from February to April 2023 at Universitas Airlangga Hospital. The subjects were postpartum patients who met the inclusion criteria. Statistical analysis employed one-way ANOVA with a significance level of P<0.05 to assess the mean changes in pre-test and post-test values for each group. The analysis aimed to identify differences in pain intensity before and after acupuncture intervention, specifically on LI4 and SP6 points, compared to the control group.

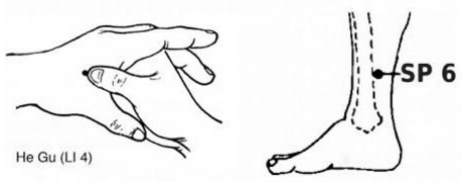

Figure 1. LI4 and SP6 points

Results

Table 1. Presents the Frequency Distribution of Respondents' Characteristics

Characteristics	Intervensi LI4 and SP6	Control	P Value
Age			
Low Risk 20 - 35th	102 (100%)	102 (100%)	0.869
High Risk <20 – >35th	0 (0%)	0 (0%)	
Parity			
Primigrafida	30 (29.41%)	25(24.5%)	0.796
Multigravida	22 (21.5%)	26 (25.4%)	

The sample distribution demonstrates comparability among the research subjects, indicating homogeneity. The research variables of age and parity show that the pain scores before the intervention did not exhibit any significant differences (P>0.05). These results suggest that the data were evenly distributed before the study was conducted.

Table 2. Homogeneity Distribution of Respondents Before Intervention

	n	Sig
Pretest	102	0.173
Posttest	102	0.005
Reduction Difference	102	0.009

The sample distribution demonstrates comparability among the research subjects, indicating homogeneity. The research variables of age and parity show that the pain scores before the intervention did not exhibit any significant differences (P>0.05). These results suggest that the data were evenly distributed before the study was conducted.

The intervention group receiving acupuncture at LI4 for postpartum SC showed an average decrease in pain intensity of 3.94 (Table 3), while the decrease in pain intensity at point SP6 after acupuncture intervention had an average of 3.39. In contrast, the control group's difference in pain intensity measured again after 24 hours had an average of 1.30, with a P-value of <0.05 indicating a significant difference.

Table 3. Frequency Distribution of Pain Intensity Before and After Acupuncture Intervention at LI4 and SP6 Combination Points

		T-Test Mean	n	sig
Pretest	Acupuncture LI4	8.82	34	
	Acupuncture SP6	8.64	34	0.120
	Control	8.48	34	
Posttest	Acupuncture LI4	4.88	34	
	Acupuncture SP6	5.24	34	0.000
	Control	7.18	34	
Reduction Difference	Acupuncture LI4	3,94	34	
	Acupuncture SP6	3,39	34	0.000
	Control	1,30	34	

Discussion

The results of this study indicate a significantly better mean reduction in pain intensity in the intervention group compared to the control group. Moreover, within the intervention groups, the average difference in pain intensity reduction was notably higher in the group receiving acupuncture at LI4 than in the SP6 group. Administering acupuncture at LI4 has the benefit of reducing pain intensity by activating the hypothalamus and the pain modulation centers in the Periaqueductal Gray (PAG) and nucleus raphe magnus (NRM) (Shen, 2001). Electrical stimulation of the periventricular structures in the PAG can inhibit the activity of nociceptive neurons in the dorsal horn to reduce pain. Acupuncture stimulation at LI-4 results in the endogenous activation of antinociceptive pathways in the hypothalamus and midbrain due to increased endorphinergic activity in the hypothalamus. These endorphinergic neurons then project to the PAG and raphe nucleus, thereby inhibiting pain stimuli. Afferent input from these nerve fibers inhibits the propagation of nociceptive signals carried by small, unmyelinated C fibers by blocking transmission along these nerve fibers to target T cells present in the dorsal horn's substantia gelatinosa (S. Chen et al., 2019; Yu et al., 2013).

The mechanism of analgesia produced by acupuncture can be explained by the Gate Control Theory. This theory elucidates that nerve fibers with smaller diameters carrying pain stimuli share the same neural "gate" as fibers with larger diameters that transmit impulses from mechanoreceptors. When both types of nerve fibers pass through the smaller gate simultaneously, the gate is typically closed, blocking the constant transmission of nociceptive signals through C fibers to reach target T cells. However, when peripheral pain stimulation occurs, the information carried by C fibers reaches the target T cells, causing the gate to open. This opening leads to central transmission to the thalamus and cortex, where the impulses are interpreted as pain (T. Chen et al., 2020; Hsieh et al., 2001; Yu et al., 2013).

The use of acupuncture therapy cannot completely eliminate pain, but it can inhibit postoperative pain. Stimulation at points LI4 and SP6 works segmentally on the spinal cord, ultimately affecting both sympathetic and parasympathetic nerve fibers. Sympathetic nerve fibers exit the spinal cord at the thoracolumbar segments, while parasympathetic nerve fibers exit cranially through cranial nerves III, VII, IX, and X, as well as from the sacral segments of the spinal cord. Consequently, these points can help inhibit pain (T. Chen et al., 2020; Sprouse-Blum Ba et al., 2010).

The study conducted by Asadi et al. (2015) Involved 63 postpartum mothers who were divided into two groups: the acupuncture group at LI-4 and SP6 points. The research results indicated a

difference in pain reduction, with the average pain level in the acupuncture group decreasing from 7.6 before the intervention to 5.1 after the intervention. Psychological factors, such as excessive fear and anxiety, can exacerbate the sensation of pain. Labile psychological conditions and situations play a significant role in intensifying postpartum SC pain. One of the psychological defense mechanisms against stress is conversion, where psychological distress is manifested as physical symptoms (Gan et al., 2014; Reddi & Curran, 2014; Wu et al., 2009). One hypothesis suggests that acupuncture points possess electrical properties that stimulate chemical neurotransmitters in the body. This stimulation activates specific points along the meridian system, which are then transmitted through large nerve fibers to the reticular formation, thalamus, and limbic system, leading to the release of endorphins in the body. Endorphins are natural pain-relieving substances produced by the body, providing calming responses and boosting morale. They have positive effects on emotions, inducing relaxation, normalizing bodily functions, and enhancing blood circulation (Bushnell et al., 2013; Pogatzki-Zahn et al., 2017; Sprouse-Blum Ba et al., 2010).

Conclusions

The administration of acupuncture therapy between the LI4 and SP6 points in this study effectively reduces postpartum SC pain compared to the control group. However, between the two specific points, LI4 and SP6, there is not a significant difference in reducing postpartum SC pain.

Acknowledgements

We extend our gratitude to Universitas Muhammadiyah Sidoarjo and Universitas Airlangga Surabaya Hospital for their participation in the completion of this research.

References

Alimoradi, Z., Kazemi, F., Valiani, M., & Gorji, M. (2019). Comparing the effect of auricular acupressure and body acupressure on pain and duration of the first stage of labor: Study protocol for a randomized controlled trial. *Trials*, *20*(1), 1–8. https://doi.org/10.1186/s13063-019-3896-0

Asadi, N., Maharlouei, N., Khalili, A., Darabi, Y., Davoodi, S., Raeisi Shahraki, H., Hadianfard, M., Jokar, A., Vafaei, H., & Kasraeian, M. (2015). Effects of LI-4 and SP-6 Acupuncture on Labor Pain, Cortisol Level and Duration of Labor. *JAMS Journal of Acupuncture and Meridian Studies*, *8*(5), 249–254. https://doi.org/10.1016/j.jams.2015.08.003

Bushnell, M. C., Čeko, M., & Low, L. A. (2013). Cognitive and emotional control of pain and its disruption in chronic pain. *Nature Reviews Neuroscience*, *14*(7), 502–511. https://doi.org/10.1038/nrn3516

Chen, S., Qu, S. H., Zhang, Y., Wen, Z. H., Guo, S. N., Zeng, W. M., Hou, X. S., Jia, Y. F., Xiao, Y., Marmori, F., Wang, J., & Zhao, J. P. (2019). Impact of acupuncture for allergic rhinitis on the activity of the hypothalamus-pituitary-adrenal axis: Study protocol for a randomized controlled trial. *Trials*, *20*(1). https://doi.org/10.1186/s13063-019-3424-2

Chen, T., Zhang, W. W., Chu, Y. X., & Wang, Y. Q. (2020). Acupuncture for Pain Management: Molecular Mechanisms of Action. *American Journal of Chinese Medicine*, *48*(4), 793–811. https://doi.org/10.1142/S0192415X20500408

Diane, M. F., & Margaret, A. C. (2009). *Myles Buku Ajar Bidan*. Buku Kedotersn EGC.

Dini, K. (2013). Operasi Caesar. In *Operasi Caesar* (Issue November 2011, pp. 1–289).

Gan, T. J., Habib, A. S., Miller, T. E., White, W., & Apfelbaum, J. L. (2014). Incidence, patient satisfaction, and perceptions of post-surgical pain: Results from a US national survey. In *Current Medical Research and Opinion* (Vol. 30, Issue 1, pp. 149–160). https://doi.org/10.1185/03007995.2013.860019

Hsieh, J. C., Tu, C. H., Chen, F. P., Chen, M. C., Yeh, T. C., Cheng, H. C., Wu, Y. T., Liu, R. S., & Ho, L. T. (2001). Activation of the hypothalamus characterizes the acupuncture stimulation at the analgesic point in human: a positron emission tomography study. *Neuroscience letters*, 307(2), 105–108. https://doi.org/10.1016/s0304-3940(01)01952-8

Joyce, B., & Jane, H. (2014). *Keperawatan Medikal Bedah: Manajemen Klinis untuk Hasil yang Diharapkan*. Salemba Emban Patria. https://www.elsevier.com/books/keperawatan-medikal-bedah-3-vol-set/black/978-981-272-978-1

Kasdu, D. (2003). *Operasi caesar: masalah dan solusinya*. Puspa Swara. https://books.google.co.id/books?id=CY6iNwAACAJ

Paice, J. A., & Ferrell, B. (2011). The management of cancer pain. *CA: a cancer journal for clinicians*, 61(3), 157–182. https://doi.org/10.3322/caac.20112

Pogatzki-Zahn, E. M., Segelcke, D., & Schug, S. A. (2017). Postoperative pain—from mechanisms to treatment. *Pain Reports*, *2*(2). https://doi.org/10.1097/PR9.0000000000000588

Reddi, D., & Curran, N. (2014). Chronic pain after surgery: Pathophysiology, risk factors and prevention. *Postgraduate Medical Journal*, *90*(1062), 222–227. https://doi.org/10.1136/postgradmedj-2013-132215

Saatsaz, S., Rezaei, R., Alipour, A., & Beheshti, Z. (2016). Massage as adjuvant therapy in the management of post-cesarean pain and anxiety: A randomized clinical trial. *Complementary Therapies in Clinical Practice*, *24*, 92–98. https://doi.org/10.1016/j.ctcp.2016.05.014

Schoenwald, S. K., Mehta, T. G., Frazier, S. L., & Shernoff, E. S. (2013). Clinical Supervision in Effectiveness and Implementation Research. *Clinical Psychology: Science and Practice*, *20*(1), 44–59. https://doi.org/10.1111/cpsp.12022

Shen, J. (2001). Research on the neurophysiological mechanisms of acupuncture: review of selected studies and methodological issues. *Journal of alternative and complementary medicine (New York, N.Y.)*, 7 Suppl 1, S121–S127. https://doi.org/10.1089/107555301753393896

Sprouse-Blum Ba, A. S., Smith, G., Daniel, B., Ba, S., & Don Parsa, F. (2010). Understanding Endorphins and Their Importance in Pain Management. Hawaii medical journal, 69(3), 70–71. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3104618/

Tournaire, M., & Theau-Yonneau, A. (2007). Complementary and alternative approaches to pain relief during labor. *Evidence-Based Complementary and Alternative Medicine*, *4*(4), 409–417. https://doi.org/10.1093/ecam/nem012

Wu, H. C., Liu, Y. C., Ou, K. L., Chang, Y. H., Hsieh, C. L., Tsai, A. H. C., Tsai, H. Te, Chiu, T. H., Hung, C. J., Lee, C. C., & Lin, J. G. (2009). Effects of acupuncture on post-cesarean section pain. *Chinese Medical Journal*, *122*(15), 1743–1748. https://doi.org/10.3760/cma.j.issn.0366-6999.2009.15.005

Yu, J. S., Zeng, B. Y., & Hsieh, C. L. (2013). Acupuncture stimulation and neuroendocrine regulation. In *International Review of Neurobiology* (Vol. 111, pp. 125–140). Academic Press Inc. https://doi.org/10.1016/B978-0-12-411545-3.00006-7

Zhong, Q., Wang, D., Bai, Y. mei, Du, S. zheng, Song, Y. lei, & Zhu, J. (2019). Effectiveness of Auricular Acupressure for Acute Postoperative Pain after Surgery: A Systematic Review and Meta-Analysis. *Chinese Journal of Integrative Medicine*, *25*(3), 225–232. https://doi.org/10.1007/s11655-019-3063-1

EMBRIO JURNAL KEBIDANAN
p-ISSN: 2089-8789
e-ISSN: 2714-7886

The Effectiveness of Cakram Media on Increasing Marriage Age Maturity Knowledge in Young Women

*Nispi Yulyana, Elvi Destariyani**

Health Polytechnic of Bengkulu, Bengkulu, Indonesia

ARTICLE INFORMATION

Received: 4, July, 2023
Revised: 27, August, 2023
Accepted: 11, September, 2023

KEYWORD

Adolescent; Knowledge of marriage age; Disc Media

Remaja; Pengetahuan pendewasaan usia perkawinan; Media Cakram

CORRESPONDING AUTHOR

Elvi Destariyani
Jl. Indragiri no 3 Padang Harapan Bengkulu
elvi@poltekkesbengkulu.ac.id
+6281273565646

DOI

https://doi.org/10.36456/embrio.v15i2.7637

A B S T R A C T

Child marriage aged 7-15 years in Bengkulu province is 8.81%. The study aimed to determine the effectiveness of Cakram media on increasing knowledge of maturing marriage age. This research was quantitative, with a pre-experimental design with two pre-test and post-test groups. The study population was all Bengkulu City Senior High School students, with a sample of 60 people. The intervention was carried out three times for six weeks. Data were analysed using the Mann-Whitney test. The results showed a significant difference between Cakram media and PowerPoint media on increasing knowledge of maturing marriage age with p-value < 0.0001, α = 0.05 (p <α). It is concluded that the use of cakram media is effective in increasing student knowledge about marriage-age maturity.

Pernikahan usia 7-15 tahun di provinsi Bengkulu sebanyak 8.81%. Tujuan penelitian untuk mengetahui efektifitas media cakram terhadap peningkatkan pengetahuan pendewasaan usia perkawinan. Jenis penelitian kuantitatif dengan desain pre-experimental dengan dua grup pre tes dan post tes. Populasi penelitian adalah seluruh siswa di SMA Kota Bengkulu, dengan sampel sebanyak 60 orang. Intervensi dilakukan sebanyak 3 kali selama 6 minggu. Data dianalisis menggunakan uji Mann-Whitney. Hasil penelitian menunjukkan ada perbedaan signifikan media cakram dan media power point terhadap peningkatan pengetahuan pendewsaan usia perkawinan (p value < 0,0001, α = 0,05 (p < α). Dapat disimpulkan bahwa penggunaan media cakram efektif dalam meningkatkan pengetahuan siswa tentang pendewasaan usia perkawinan.

Introduction

The trend of child marriage is still common in the world. More than 12 million girls are married at the age of less than 18 years each year, which is around 21% globally (Subramanee et al., 2022). In Sub Sahara, child marriage occurs as much as 37%, and in South Asia, 30% of the events experienced by around 650 million children girls under 18 years old. In the country with the highest percentage of child marriage, the West African Region, around 76% of women are married before the age of 18 (Siddiqi & Greene, 2022).

The number of child marriages in Indonesia in 2021 was 65 thousand cases; in 2022, it will decrease to 55 thousand. This figure is still very worrying, considering that child marriage violates the basic rights of children and the many risks and impacts on the health of adolescents who engage in child marriage (Handayani & Rofii, 2023). Data on child marriage in Bengkulu province found that 8.81% of women in Bengkulu Province were married at 7-15 years (Kusnandar, 2021).

The impact of child marriage does not only have a physical and psychological impact on the children, but it can also increase poverty rates, drop out of school, divorce, domestic violence, stunting and the threat of cervical cancer (Sekarayu, 2021). The cause of the high number of child marriages is influenced by various factors, including the prevailing culture in society, economic needs, low education, social environment, and free sex among adolescents, which causes unwanted pregnancies and a lack of knowledge (Rahman, 2022).

Efforts made to reduce the number of child marriages include socialization of laws related to child marriage, counselling programs, and procurement of modules to help increase youth knowledge about the effects of child marriage. Good knowledge will influence adolescents in their mindset and decision-making. Increasing adolescents' knowledge needs to make breakthroughs to increase the interest and understanding of adolescents. This study used Cakram media to convey material about child marriage. Cakram media is flat media made of attractive colored paper, making it easier for teenagers to understand the material. Research conducted by Sulviani et al. (2022) showed an effect of nutrition Cakram media interventions on adolescent knowledge and behavior of fruit and vegetable consumption. Research conducted by Rahayu et al. (2022) shows that Cakram media affects cadres' knowledge and skills in assessing nutritional status.

Based on the results of an initial survey of 10 high school teenagers in Bengkulu in March 2022, it was found that 60% of teenagers did not know about the impact of child marriage, the recommended age for marriage and laws related to child marriage. Based on this, the authors are interested in researching media's influence. This study aimed to find out the effectiveness of Cakram media on increasing student knowledge about marriage-age maturity.

Method

This research was a pre-experimental study with two group pre-test dan post-test designs. This study was conducted at Senior High School in Bengkulu City in April-Agustus 2023. The population in this study involved adolescents at SMA in Bengkulu, with a total sample of 60 respondents, with the inclusion criteria respondents aged 15-18 years old. The samples were taken by purposive sampling using the Lemeshow formula. The researcher divided participants into two groups, intervention and control group. The number of participants group is 30. The intervention group received cakram media, and the control group used PowerPoint. The intervention was given by the researcher 3 times for 6 weeks. Before giving the treatment, the researcher distributed a pre-test questionnaire about early marriage. The groups then were given the intervention using the PowerPoint and the Cakram media that were made by the researcher. The respondents can spin the Cakram to uncover the material about marriage-age maturity. Then, on treatment 3, the researcher distributed a post-test questionnaire that included the identity of the respondents and questions about marriage age maturity, including definition, purpose, advantage and impact for the second time. Data were analyzed using the Wilcoxon sign rank and Mann-Whitney. Statistical tests were conducted using SPSS. This study was approved by the ethics committee of Poltekkes Kemenkes Bengkulu, Indonesia (Number KEPK.BKL/164/04/2023)

Figure 1. Cakram media

Results

Table 1. Respondent Characteristics

Respondent Characteristics	Frequency (n=60)	Percentage
Gender		
Male	24	40
Female	36	60
Age (year)		
15	16	26.7
16	32	53.3
17	9	15.0
18	3	5.0

Based on table 1 shows that most of the respondents are girls (60%), and more than half of the respondents are 16 years old.

The results of this study consist of univariate and bivariate data. Univariate data present data on the distribution of knowledge of marriage age maturity before and after the intervention. More details are presented in Table 2 below:

Table 2. Distributions of Knowledge of Marriage-age Maturity Before and After Intervention

Knowledge	Min	Max	Mean±SD	P-Value
Cakram media group				
Before	1	5	2.70±1.17	0.000
After	7	10	8.97±0.92	
Powerpoint group				
Before	1	6	3.63±1.09	0.000
After	6	10	8.00±0.87	

Based on Table 2, it can be observed that after the implementation of Cakram, the media had a minimum score of 7 and a maximum score of 10. The mean knowledge score experienced after the implementation of Cakram media was 8.97, with a decrease of 6.27 from the mean knowledge before the implementation of Cakram media. Meanwhile, after the implementation of the PowerPoint group, a minimum score of 6 and a maximum score of 10. The mean knowledge experienced after the PowerPoint technique was 8.00, with a decrease of 5.63 from the PowerPoint score before the PowerPoint implementation.

The Mann-Whitney statistical test aims to determine the difference in the effectiveness of Cakram media and PowerPoint technique on the knowledge of marriage age maturity. More details are presented in Table 3:

Table 3. The Effectiveness of Cakram Media and PowerPoint in Increasing Knowledge

Variable	Sum of Ranks	P-Value
Cakram media group	41.25	0.00
Powerpoint group	19.75	
* Mann-Whitney test		
* Significant		

The results of data analysis using the Mann-Whitney test obtained p-values of $0.000 \leq 0.05$. The findings indicated a significant difference in the effectiveness of Cakram media and PowerPoint techniques on the knowledge of marriage-age maturity.

Discussion

The results showed that there was a difference in the average knowledge before and after the intervention. Based on the results of the questionnaire, it was known that the respondents did not know about the health risks of child marriage, the health impacts on babies born to mothers aged less than 20 years, the age of marriage according to statutory provisions, and the purpose of marriage. After the intervention, there was an increase in adolescent knowledge, with an average value of 8.97. This study is in line with the study of Sariani (2020) that there is an increase in knowledge after counselling about marriage-age maturity. Knowledge about marriage-age maturity needs to be given to adolescents to change adolescent perceptions and reduce child marriage rates (Khairani et al., 2023).

Statistical test data also found that the intervention and control group's test results were significant. Still, the mean post-test knowledge score in the intervention group was higher than the control group. The study results showed a significant difference in the intervention using Cakram media and PowerPoint. This condition happens because Cakram media is media on colored paper and attractive image designs on each part to increase respondent interest in reading. Cakram media contains material about maturing at the age of marriage that can be carried, which is written in an attractive way using language that respondents easily understand. In the control group, the media used was usually given to respondents, namely power points about maturing the age of marriage. The intervention results found that both groups experienced increased knowledge after the intervention because there is no difference between the Cakram and PowerPoint media material.

Cakram media are designed to suit the needs of respondents, and the material to be delivered is made using attractive media. The media presented included understanding factors that influence early marriage, laws related to marriage age, health impacts on pregnant women at the age of less than 20 years and health risks to babies. Submitting material using interesting writing and pictures can increase interest in reading it. The information obtained by adolescents will increase their knowledge about marriage-age maturity and will also affect their attitude in making decisions (Maryani & Anggraeni, 2022). The efforts to increase knowledge about marriage-age maturity become a focus on adolescents to avoid the impact of child marriage (Rahmawati et al., 2022). The marriage age maturity program is

implemented with health promotion using an interesting method as an example event to give such visualization so that the adolescents understand the problems that occur when child marriage happens (Apriani et al., 2022)

The results of this study following research conducted by Yusriyanti et al. (2019) with the results showing the snowball throwing model assisted by the Kariku Cakram media with statistically significant test results for thematic learning outcomes in sub-theme 2 in class IV students of SD Negeri 02 Kemijen Semarang. Good learning outcomes are also influenced by factors from educators, namely the need to stimulate students to learn more optimally, one of which is by making learning media that attracts respondents' interest. The results of this study are reinforced by research conducted by Yulyana et al. (2023), who found that adolescent knowledge about maturing at the age of marriage needs to be supported by interesting media to enhance and stimulate adolescents' understanding of the effects of child marriage.

The results of this study were in line with the results of research conducted by Wening et al. (2019) with the results obtained that there were significant differences in mothers' knowledge about complementary breastfeeding before and after counseling interventions using media disc. This study is also the same as that conducted by Oktavianisya & Aliftitah (2021), which showed differences in sugar levels before and after treatment using BMI discs in type 2 DM patients. Research conducted by Sharratt et al. (2023) explains that deeper and continuous learning from an intervention requires a concept to process activities that can impact meaningful and sustainable change, and variations are needed in a learning delivery to increase the interest and understanding of respondents.

The learning model with the lecture method verbally explains learning material to a group of listeners to achieve certain learning goals. Variations are needed with other learning methods for maximum results (Arif, 2019). The learning method using Cakram media is one of the innovations to increase respondents' interest, knowledge and understanding of a particular theme. In this study, Cakram media contained material about maturing at the age of marriage. The study results showed that the respondents experienced increased knowledge about maturing the age of marriage after the intervention using Cakram media. Based on the results of this study, Cakram media can be used as a variation in the delivery of a material to increase the interest of the intended target.

The knowledge a person possesses will affect the acceptance of one's perceptions and behavior. The short-term impact of health education delivered can cause changes in the form of increased knowledge, while the long-term impact will impact behavior change (Fatman et al., 2023). This research is expected to reduce child marriage rates.

The knowledge that was obtained can affect the adolescent's attitude based on the knowledge that they have. The attitude that comes from good knowledge will likely last longer than the attitude with no good knowledge base (Hermambang, 2021). Other studies show that girls who do not agree with child marriage have greater knowledge than girls who agree with child marriage. Therefore, good knowledge will correct wrong cultural beliefs and social beliefs to prevent child marriage (Naghizadeh et al., 2021)

The limitation of this study is the difficulty in arranging meeting schedules because the respondents come from all grades and have different study schedules.

Conclusions

The result shows that the use of cakram media is effective in increasing student knowledge about marriage-age maturity. It is hoped that the health services can use the cakram media as media to do counselling about marriage age maturity to decrease the number of child marriages.

References

Apriani, W., Sari, R. M., Ningsih I, D. A., OklainiI, S. T., & Aztika, A. (2022). Pengaruh media leaflet terhadap tingkat pengetahuan pendewasaan usia perkawinan pada siswa SMAN 02 Kabupaten Mukomuko. *Journal of Nursing and Public Health*, *10*(2), 266–273. https://doi.org/10.37676/jnph.v10i2.3207

Arif. (2019). Penggunaan Metode Ceramah Variasi Yang Disertai Kemampuan Orientasi Terhadap Peningkatan Kualitas Pembelajaran Ekonomi Siswa Kelas X-8 SMAN 1 Paciran Lamongan. *Jurnal Annaba STIT Muhammadiyah Paciran Lamongan*, *5*(2), 193–200. https://doi.org/10.37286/ojs.v5i2.55

Fatman, S. A., Sunarjo, L., & Kusno, D. F. (2023). Model CAKAR sebagai media edukasi terhadap peningkatan perilaku remaja dalam pencegahan karang gigi. *Jurnal Healthsains*, *4*(3), 75–84. https://doi.org/10.46799/jhs.v4i3.864

Hermambang, A., Ummah, C., Gratia, E .S., Sanusi, F., Ulfa, W.M., & Nooraeni, R. (2021). Faktor-faktor yang memengaruhi pernikahan usia dini di Indonesia. *Jurnal Kependudukan Indonesia*, *16*(1), 1–12. https://doi.org/10.14203/jki.v16i1.502

Khairani, Pangaribuan, I. K., & Rachmat, A. (2023). Efektivitas media booklet terhadap peningkatan pengetahuan remaja tentang pendewasaan usia perkawinan (PUP). *Journal of Midwifery Sempena Negeri*, *3*(1), 23–28. https://ejournal.sempenanegeri.ac.id/index.php/jk/article/view/50

Kusnandar, V. B. (2021, December 16). *10 Provinsi dengan Pernikahan Perempuan Usia Dini Tertinggi pada 2020*. Databoks.

Maryani, D., & Anggraeni, L. (2022). Pengetahuan remaja tentang pernikahan dini di kalangan siswa SMA wilayah Kota Tangerang. *Jurnal Ilmu Kesehatan Karya Bunda Husada*, *8*(2), 7–15. https://doi.org/10.56861/jikkbh.v8i2.98

Naghizadeh, S., Mirghafourvand, M., Mohammadi, A., Azizi, M., Taghizadeh-Milani, S., & Ganbari, H. (2021). Knowledge and viewpoint of adolescent girls regarding child marriage, its causes and consequences. *BMC Women's Health*, *21*(1), 351. https://doi.org/10.1186/s12905-021-01497-w

Oktavianisya, N., & Aliftitah, S. (2021). Edukasi kebutuhan kalori dengan metode cakram IMT terhadap penurunan kadar gula darah pada pasien DM Tipe 2. *Jurnal Kesehatan Mesencephalon*, *7*(1), 38–45. http://dx.doi.org/10.36053/mesencephalon.v7i1.259

Rahayu, S. D., Elvandari, M., & Fikri, A. M. (2022). Pengaruh Edukasi Menggunakan Cakram Terhadap Pengetahuan dan Keterampilan Penilaian Status Gizi oleh Kader. *JURNAL MUTIARA KESEHATAN MASYARAKAT*, *7*(1), 26–32. https://doi.org/10.51544/jmkm.v7i1.2931

Rahman. (2022). Pernikahan usia dini di Kecamatan Lalabata Kabupaten Soppeng. *Nautical : Jurnal Ilmiah Multidisiplin Indonesia*, *1*(7), 505–511. https://doi.org/10.55904/nautical.v1i7.309

Rahmawati, A., Redjeki, E. S., Gayatri, R. W., & Wardani, H. E. (2022). Pengaruh Promosi Kesehatan Media Buku Pendewasaan Usia Perkawinan Terhadap Peningkatan Pengetahuan dan Sikap Karang Taruna Desa Branggahan Kecamatan Ngadiluwih Kabupaten Kediri. *Sport Science and Health*, *4*(8), 724–730. https://doi.org/10.17977/um062v4i82022p724-730

Sariani, N. M. A., Darmapatni, M. W.G., & Somoyani, N. K. (2020). Perbedaan Pengetahuan Mengenai Pendewasaan Usia Perkawinan Sebelum Dan Sesudah Diberikan penyuluhan Pada Siswa Di SMA Negeri 2 Tabanan. *Jurnal Ilmiah Kebidanan: The Journal Of Midwifery*, *8*(2), 54-61. https://doi.org/10.33992/jik.v8i2.1338

Sekarayu. (2021). Dampak pernikahan usia dini terhadap kesehatan Reproduksi. *Jurnal Pengabdian Dan Penelitian Kepada Masyarakat (JPPM)*, *2*(1), 37–45. https://doi.org/10.24198/jppm.v2i1.33436

Sharratt, K., Nanfuka, E., Mason, S. J., Ochen, E. A., Turyomurugyendo, F., Barwick, M., Pearson, J., Royston, H., & Wager, N. (2023). Evaluation of a serious gaming intervention to prevent child marriage in Uganda. *Computers in Human Behavior*, *143*, 107627. https://doi.org/10.1016/j.chb.2022.107627

Siddiqi dan Greene. (2022). Mapping the Field of Child Marriage: Evidence, Gaps, and Future Directions From a Large-Scale Systematic Scoping Review, 2000–2019. *Journal of Adolescent Health*, *70*(3), S9–S16. https://doi.org/10.1016/j.jadohealth.2021.09.020

Subramanee, S. D., Agho, K., Lakshmi, J., Huda, Md. N., Joshi, R., & Akombi-Inyang, B. (2022). Child Marriage in South Asia: A Systematic Review. *International Journal of Environmental Research and Public Health*, *19*(22), 15138. https://doi.org/10.3390/ijerph192215138

Sulviani, S., Kurniasari, R., & Elvandari, M. (2022). Pengaruh Edukasi Gizi Menggunakan Media Cakram Gizi Terhadap Pengetahuan dan Perilaku Konsumsi Buah dan Sayur Pada Remaja. *Jurnal Ilmiah Wahana Pendidikan*, *8*(14), 297-316. https://doi.org/10.5281/zenodo.6994855

Wening, L. P., Pusparini, P., Par'i, H. M., Agung, F., & Faiqotunnisa, F. (2019). Peranan Media Cakram MP-ASI terhadap Peningkatan Pengetahuan dan Sikap Ibu Hamil tentang Pemberian MP-ASI. *Jurnal Riset Kesehatan Poltekkes Depkes Bandung*, *11*(1), 88. https://doi.org/10.34011/juriskesbdg.v11i1.660

Yulyana, N., Widiyanti, D., & Destariyani, E. (2023). Pengaruh media video terhadap peningkatan pengetahuan pendewasaan usia perkawinan (PUP). *Journal of Nursing and Public Health*, *11*(1), 99–104. https://doi.org/10.37676/jnph.v11i1.4090

Yusriyanti, K. M., Wijayanti, A., & Setya P, A. D. (2019). Keefektifan Model Snowball Throwing Berbantu Media Cakram Kariku Terhadap Hasil Belajar Siswa Pada Pembelajaran Tematik Subtema 2. *International Journal of Elementary Education*, *3*(3), 250. https://doi.org/10.23887/ijee.v3i3.19405

EMBRIO JURNAL KEBIDANAN
p-ISSN: 2089-8789
e-ISSN: 2714-7886

Nutritional Status and Compliance with Blood Supplemental Tablets as a Cause of Anemia in Pregnant Women

Odilia Esem

Faculty of Health, Citra Bangsa University, Kupang, NTT, Indonesia

ARTICLE INFORMATION

Received: 8, June, 2023
Revised: 3, September, 2023
Accepted: 11, September, 2023

KEYWORD

Anemia; Compliance; Nutritional Status; Pregnancy

Anemia; Kepatuhan; Status nutrisi; Kehamilan

CORRESPONDING AUTHOR

Odilia Esem
Kupang City, East Nusa Tenggara
odilia.esem@yahoo.com
+6282247458143

DOI

https://doi.org/10.36456/embrio.v15i2.7396

A B S T R A C T

Health issues that might arise during pregnancy include anemia. Pregnant women who have good nutritional status do not experience anemia. Conversely, pregnant women with poor nutritional status can cause anemia if blood-supplemented tablets that are not consumed regularly can result in pregnant women experiencing iron deficiency which is closely related to the incidence of anemia. This study aims to determine the relationship between nutritional status and adherence in consuming blood supplement tablets with anemia in third-trimester pregnant women. This research is a form of analytic survey research with a cross-sectional analytical design research approach. This research was conducted from March to April 2023. The sample in this study were all third-trimester pregnant women at the Sikumana Health Center, 50 people using a total sampling technique. There was no significant relationship between nutritional status and anemia in third-trimester pregnant women with a p-value (0.050), while there was a significant relationship with anemia adherence with a p-value (of 0.000). Based on the results of the study, it was concluded that there was no statistically significant relationship between nutritional status and the incidence of anemia in third-trimester pregnant women. In the analysis of compliance with anemia, there was a statistically significant relationship between adherence to consuming blood supplement tablets and the incidence of anemia in third-trimester pregnant women.

Anemia sebagai permasalahan kesehatan yang sering muncul dalam masa kehamilan. Seorang wanita hamil dengan keadaan status gizi baik lebih cendrung untuk tidak mengalami anemia, sebaliknya ibu hamil dengan staus gizi kurang dapat mengakibatkan terjadinya anemia. Tablet tambah darah yang tidak dikonsumsi secara teratur dapat mengakibatkan ibu hamil mengalami kekurangan zat besi yang sangat berhubungan dengan kejadian anemia. Penelitian ini ditujukan untuk melihat hubungan antara status gizi dan kepatuhan dalam menkonsumsi tablet tambah darah dengan anemia kehamilan trimester III. Penelitian ini merupakan bentuk penelitian surveianaltik dengan pendekatan penelitian design Cross Sectional Analityc. Penelitian ini dilakukan pada bulan Maret hingga April 2023. Sample dalam penelitian ini adalah semua ibu hamil trimeseter III di Puskesmas Sikumana sejumlah 50 orang dengan teknik total sampling. Tidak terdapat hubungan bermakna antara status gizi dengan anemia ibu hamil trimester III dengan nilai p-value (0,050), sedangkan pada kepatuhan dengan anemia ada hubungan bermakna dengan nilai p-value (0,000). Berdasarkan hasil penelitian disimpulkan bahwa tidak terdapat hubungan yang bermakna secara statistic antara status gizi dengan kejadian anemia pada ibu hamil trimester III. Pada analisis kepatuhan dengan anemia terdapat hubungan yang bermakna secara statistic antara kepatuhan ibu hamil mengkonsumsi suplemen penambah darah dengan masalah anemia kehamilan trimester III.

Introduction

Pregnancy is an essential period in a woman's life. A safe and healthy pregnancy can support entering a safe labor period so that you can give birth to a healthy baby. To keep a good pregnancy process, a woman needs optimal nutritional intake so that it can be used for physical health or spiritual health. Pregnant women usually experience several complaints, such as headaches, fatigue, shortness of breath and pale faces, as well as other health complaints. These complaints indicate that there are indications that pregnant women are experiencing anemia during their pregnancy (Tampubolon et al., 2021).

When a pregnant woman has anemia, her body does not produce enough red blood cells necessary to carry oxygen to the body's numerous organs and cells. According to WHO, a pregnant woman is said to be anemic if her haemoglobin or Hb level is less than 11 g%. Fulfilment of nutritional needs and fetal nutrition is also taken from the body of pregnant women, so it is not surprising that the problem of anemia in pregnant women often occurs and continues to increase (Irmawanti & Rosdianah, 2020).

Anemia can be said to be one of the world's health problems that are very common and widespread and can affect 56 million women in the world, and nearly two-thirds of them occur in the Asian region (Soh, 2015). The problem of anemia that occurs in developing countries can be a health problem for pregnant women that needs serious attention, this is because anemia has an impact on the fetus and mother which contributes to the incidence of maternal mortality. Pregnant women who are anemic run a higher risk of preterm delivery, infant and mother death, and infectious illnesses. Pregnant women who acquire iron deficiency anemia may also have effects on their unborn child's growth and development both during and after pregnancy (Zuiatna, 2021).

The problem of anemia in pregnancy in the world mostly occurs in countries with small and middle income, which is around 56%. The countries that have the highest incidence of anemia in pregnancy are Africa as much at 57%, Southeast Asia reaching 48% and the lowest incidence of countries that have pregnant women with anemia is South America (Stephen, et al., 2018).

According to the findings of the 2018 Basic Health Research (Riskesdas), 48.9% of pregnant women in Indonesia alone had anemia. The age range of 15 to 24 years accounts for up to 84.6% of anemia in pregnant women, while the Ministry of Health's figures on family health programs show an annual rise in the number of maternal mortality. In Indonesia in 2021, there were 7,389 fatalities. This figure represents an increase of 4,627 fatalities from 2020. According to the reasons, COVID-19 had 2,982 instances, haemorrhage had 1,330 cases (anemia is one of the causes of bleeding in pregnant women), and pregnancy-related hypertension had 1,077 cases in 2021 (RI Ministry of Health, 2022).

Pregnancy-related nutritional status and adherence to iron supplementation are two causes of anemia in pregnant women, among other variables. Taking into consideration the findings of Tanziha's (2016) study, it can be seen that both in rural (37.9%) and urban (38.2%) areas of Indonesia, the incidence of anemia in pregnant women is still rather high. Nutritional status, namely Chronic Energy Deficiency (CED), is the factor that is associated with the likelihood of developing anemia. Pregnant

women with CED nutritional status had a 1.975 times higher risk of developing anemia than pregnant women with normal nutritional status (Tanziha et al., 2016).

Anemia tends to affect pregnant women with poor nutritional status (KEK) more frequently than it does healthy pregnant women. This results from an unbalanced pattern of food ingestion and absorption during pregnancy. A person's nutritional condition is significantly impacted by nutrition. Pregnant women run the danger of developing nutritional problems or chronic energy shortage, which can result in anemia, if they do not take a balanced diet during their pregnancy, including both macronutrients and micronutrients (Aminin, 2014).

The incidence of anemia in pregnant women is significantly impacted by compliance with blood-supplement tablet usage. This is evident from the findings of a study conducted by Wulandari (2018), which demonstrates through correlation and regression analyses that adherence to blood-added tablet usage has a highly significant or strong effect on Hb levels and the rate of positive or unidirectional relationship; that is, if pregnant women adhere to the regimen of consuming bloo The objective of this research endeavor was to ascertain the correlation between the nutritional status of third-trimester expectant women at the Sikumana Health Center, Sikumana Village, Kupang City, East Nusa Tenggara, and their adherence to the consumption of blood-supplemented tablets regarding anemia.

Method

This is quantitative research. In this study, an analytical survey employing a cross-sectional analytical design was utilized as the research methodology. The nutritional status of pregnant women and their adherence to blood-supplement tablet consumption in relation to the incidence of anemia in pregnant women were assessed by the researcher simultaneously or at a single point in time, without any subsequent intervention on the results of the measurements. The study was carried out at the Sikumana Health Center, situated in Kupang City, East Nusa Tenggara. The sample for this research comprised fifty expectant women in their third trimester who were receiving care at the Sikumana Health Center in Kupang City, East Nusa Tenggara. Fifty individuals were included in the research samples, which were obtained through the use of a total sampling method (Notoatmodjo, 2014). The investigation spanned the months of March to April in the year 2023. The sample for this study must satisfy the following inclusion criteria: 1) Pregnant women in their third trimester who visit the Puskesmas for pregnancy checks; 2) Pregnant women in their third trimester who are able to communicate in Indonesian; and 3) Mothers of third-trimester pregnant women who are willing to participate in this study. 1) Pregnant women in their first and second trimesters; and 3) Pregnant women who declined to participate as respondents in the study constituted the exclusion criteria.

Research procedures in measuring independent variables: the nutritional status of pregnant women Researchers measured mid-upper arm circumference (MUAC) and adherence to taking blood supplement tablets researchers used a questionnaire. Maternal nutritional status is defined as the nutritional status of pregnant women assessed based on MUAC, into (1) poor nutritional status if MUAC <23.5 cm and (2) good nutritional status if MUAC > 23.5 cm. Maternal adherence to taking iron

supplement tablets is the level of patient attention in following the medical rules given in the form of medication. Disobeying if pregnant women get an MMAS-8 score (<6) = 1 and Compliant if pregnant women get an MMAS-8 score (6-8) = 2. While the dependent variable: Anemia, is done by measuring haemoglobin (HB) according to WHO criteria, be (1) if anemia, namely Hb level < 11 and (2) not anemia, if Hb level ≥ 11. The research used two types of data analysis: univariate and bivariate. The relationship between nutritional status and adherence to anemia treatment among expectant women was determined bivariate through bivariate analysis and the Chi-square test with a significance level of p<0.05. For the analysis of data in this research, SPSS was utilized.

Results

Table 1. Variable Frequency Distribution of Nutritional Status of Pregnant Women, Compliance of Pregnant Women and Anemia of Third Trimester Pregnant Women

Variable	Frequency (f)	Percentage (%)
Nutritional Status of Pregnant Women		
Poor (if MUAC pregnant women < 23.5 cm)	16	32
Good (if mother's MUAC > 23.5 cm)	34	68
Compliance with Pregnant Women		
Not obey (if pregnant women get an MMAS-8 score (<6))	40	80
obey (if pregnant women get an MMAS-8 score, (6-8))	10	20
Anemia of Pregnant Women		
Not Anemia (if Hb level≥11gr/dl)	7	14
Anemia (if Hb level < 11gr/dl)	43	86
Number of Respondents	50	100

Primary data source 2023

Based on the results of the frequency distribution analysis presented in Table 1, it can be observed that the majority of the fifty pregnant women who participated in the study have a favorable nutritional status. However, between forty-two and thirty-four per cent (68 and 80 per cent), respectively, are disobedient to taking iron supplement tablets, and approximately forty-three per cent (86 per cent) of the third-trimester pregnant women have experienced anemia.

Table 2. Bivariate Analysis of The Association Between Pregnant Women's Nutritional Status and the Prevalence of Anemia in Mothers in Trimester Three

Variable	Category	Third Trimester Pregnant Women's Anemia			P-values
		Not Anemia n %	Anemia n %	Total % n%	
Nutritional status	Poor	0 (0)	16 (32)	16 (32)	0.050
	Good	7 (14)	27 (54)	34 (68)	
Amount					

Primary data source 2023

Based on the results presented in Table 2, it is evident that expectant women who had a satisfactory nutritional status were 54% more likely to develop anemia compared to those who had a deficient nutritional status, who was as much as 32% more likely to develop anemia. Based on the p-value > 0.005 (p=0.050) obtained from the statistical analysis test utilizing Chi-Square, it can be deduced that the association between nutritional status and the occurrence of anemia among third-trimester expectant women is not statistically significant.

Table 3. Bivariate Analysis of The Association Between Pregnant Women's Compliance with and The Prevalence of Anemia in Mothers in Trimester Three

Variable	Category	Third Trimester Pregnant Women's Anemia			P-values
		Not Anemia n %	Anemia n %	Total % n%	
Adherence to taking iron tablets	Not obey	1 (2)	37 (74)	38 (76)	0.000
	obey	6 (12)	6 (12)	12 (24)	
Amount		7 (14)	43 (86)	50 (100)	

Primary data source 2023

The findings presented in Table 3 indicate that a greater proportion of pregnant women (n=37, or 74%) who fail to take blood-supplementing tablets develop anemia, compared to pregnant women who do adhere to this practice and only experience anemia as few as six respondents (12 per cent). Based on the statistical analysis test conducted using Chi-Square, the obtained p-value of 0.005 (p=0.000) indicates that the relationship between adherence to iron supplement tablet consumption and the incidence of anemia in third-trimester expectant women is statistically significant.

Discussion

The findings of the analysis indicate that pregnant women who have a healthy nutritional status are 54% more likely to develop anemia compared to those who have a low nutritional status, who are as much as 32% more likely to develop anemia. Based on the statistical analysis test employing Chi-Square, the obtained p-value of 0.050 (>0.005) indicates that the association between nutritional status and the occurrence of anemia in third-trimester expectant women is not statistically significant. Consistent with the findings of Putri (2017), the application of multiple logistic regression analysis yielded statistically insignificant results ($p < 0.299$), indicating that nutritional status had no bearing on adolescent pregnancy-related anemia. This shows that good or poor nutritional status has no direct effect on anemia in teenage pregnant women (Putri, 2017).

Sufficient nutrition is an essential requirement for all individuals, including those in pregnancy, infants, children, adolescents, adults, and the elderly. Inadequate nutrition during pregnancy can lead to hindered physical development and intellectual progress, decreased work output, and compromised body resistance or endurance. Consequently, these consequences may escalate the risk of illness and mortality (Aisha, 2016). The present study exhibits an inverse correlation with the research conducted by Purwaningtyas and Prameswari (2017). The findings of an examination of the correlation between maternal anemia incidence and nutritional status at the Karang Anyar Health Center in Semarang City indicate a significant relationship, as indicated by a p-value of 0.000 (<0.005). Malnutrition will result in adverse outcomes for both the mother and the fetus.

Malnutrition has the potential to induce anemia in the mother, thereby impeding the blood supply that supplies nourishment and oxygen to the embryo and subsequently impeding the growth and development of the fetus. Consequently, it is critical to closely monitor the nutritional status of expectant mothers (Purwaningtyas & Prameswari, 2017). Additionally, other research has established a correlation between nutritional status and the occurrence of anemia; expectant women who have a healthy

nutritional status have a 6,500-fold greater chance of avoiding anemia than those who have a poor nutritional status. Furthermore, nutritional status is found to have a 30.6% impact on the prevalence of anemia (Mutiarasari, 2019). According to the findings of Aminin (2014) study, expectant women with CED have a higher incidence of anemia than those without the condition. This is frequently the result of an unbalanced diet and absorption pattern maintained throughout pregnancy. Dietary requirements can influence an individual's nutritional status. Pregnant women who fail to incorporate micronutrients and macronutrients into their diets during pregnancy run the risk of developing nutritional complications, such as chronic energy deficiency, which may culminate in the development of anemia. Pregnant women without CED have a lower risk of developing anemia compared to those with the condition (Aminin, 2014).

Consistent with the findings of Herlena's (2020) research, nutritional status was identified as the most influential factor in anemia in expectant women (RP = 1.7, 95% CI 1.1-2.6). According to Martha & Hayati (2020)**,** expectant women who have a KEK nutritional status are 1.7 times more likely to develop anemia compared to those who have a non-SEZ nutritional status. Furthermore, it is worth noting that nutritional deficiency is the most prevalent nutritional disorder globally, predominantly impacting expectant women aged 15-49 who reside in tropical and subtropical regions (Ghosh et al., 2019). Anemia contributes to 20-40% of maternal fatalities in India, and over 50% of pregnant women lack adequate iron reserves (Ganaphati, 2017).

Adequate nutrition is essential throughout pregnancy in order to support fetal development and growth, preserve maternal health, and provide the necessary nutrients for lactation. Anemia can be induced in expectant women due to a nutritional deficiency (Rismawati & Rohmatin, 2018). The absence of a statistically significant correlation between nutritional status and the occurrence of anemia among expectant women in their third trimester indicates that nutritional status does not appear to be the primary etiological factor in this population. There are still additional factors that contribute to the development of anemia in expectant women; these factors require additional study. Additional factors that warrant further investigation in relation to the aetiology of anemia include the level of maternal knowledge, household income, parity, pregnancy in women with specific diseases, and birth spacing. While no correlation has been found between nutritional status and anemia in expectant women, it is important to acknowledge that optimal nutrition during pregnancy facilitates the initiation of a risk-free delivery period, thereby increasing the likelihood of delivering healthy infants.

The findings presented in Table 3 indicate that a greater proportion of pregnant women (n=37, or 74%) who fail to take blood-supplementing tablets develop anemia, compared to pregnant women who do adhere to this practice and only experience anemia as few as six respondents (12 %). Based on the statistical analysis test conducted using Chi-Square, the obtained p-value of 0.005 (p=0.000) indicates that the relationship between adherence to iron supplement tablet consumption and the incidence of anemia in expectant women in their third trimester is statistically significant. Pregnant women who have anemia are at an increased risk of developing infectious diseases, maternal and infant mortality, and

preterm birth. During and after pregnancy, iron deficiency anemia in the mother can impair the growth and development of the fetus or neonate.

According to the 2018 Riskesdas, 48.9% of expectant women in Indonesia were diagnosed with anemia. Approximately 84.6% of all cases of anemia in expectant women occur between the ages of 15 and 24. It is recommended that all expectant women consume a minimum of 90 iron tablets throughout their pregnancy in order to prevent anemia (RI Ministry of Health, 2022). However, there are several problems encountered in consuming blood-supplementation tablets in Indonesia, namely some pregnant women who find it difficult to consume blood-boosting tablets every day for reasons of nausea, forgetting, not liking the smell of blood-boosting tablets and various other reasons resulting in non-adherence. pregnant women in consuming blood supplement tablets. The findings of this study align with the research undertaken by Awalamaroh in 2018. A statistical analysis conducted in his study yielded findings that established a noteworthy correlation (p=0.000) between anemia status and adherence to Fe tablet regimens among expectant women who were at least 36 weeks along in gestation (Awalamaroh et al., 2018).

Consistent with the findings of Ainur's (2022) research, the obtained statistical test results (ρ.value 0.0001) indicated the presence of a correlation between expectant women's adherence to Fe tablet consumption and the occurrence of anemia. The greater a pregnant woman's adherence to the prescribed regimen of blood-supplementing medications, the reduced likelihood of developing anemia. Conversely, the greater a pregnant woman's disobedience with regard to the consumption of blood-supplementing tablets during pregnancy, the higher the risk that she will develop anemia. A reduction in the prevalence of anemia will contribute to the enhancement of maternal and infant health (Ainur et al., 2022). Although blood tablets are not the sole method of treating anemia, they should be supplemented with iron-rich foods. Prahesti et al. (2016) state that blood iron tablet supplementation is the optimal method for meeting iron requirements during pregnancy.

Furthermore, the findings corroborated the research conducted by Rismawati (2018), which demonstrated that Fe intake did indeed influence the prevalence of anemia among expectant women. Iron deficiency and folate deficiency are deficiencies that are more prevalent in pregnant women; therefore, it is advised that each woman take at least 90 tablets of iron tablets during her pregnancy. Pregnant women will require 200–300% more blood-supplement pills to support the development of the placenta and red blood cells. 1040 mg of iron is required during pregnancy. Of this total, the body keeps 200 mg of Fe during labor and loses the rest 840 mg. Up to 300 mg of iron is delivered to the fetus, with specifics including 50–75 mg for placenta development, 450 mg to increase red blood cell count, and 200 mg lost at birth. Compared to pregnant women who consistently take pills every day, those who take less or just one iron tablet each week run a twelvefold higher risk of getting anemia. Several factors contribute to the low adherence rate of expectant women taking iron tablets, including knowledge, proper medication administration, adverse effects, and the conduct of healthcare professionals in communicating the significance of iron tablets (Rismawati & Rohmatin, 2018).

The issue of anemia in expectant women may still be attributed to inadequate adherence to iron tablet consumption throughout the course of pregnancy. Iron supplement tablets that are not consistently ingested during pregnancy may lead to iron deficiency in women, a condition that is strongly associated with the prevalence of anemia in this population. Iron deficiency during pregnancy is an additional factor that can contribute to the development of anemia during pregnancy. Iron deficiency may arise from factors such as inadequate iron content in food, obstruction of the absorption process, or excessive iron excretion from the body (Sarah, 2018).

Conclusion

Based on the results of the research, there is no correlation that is statistically significant between the incidence of anemia in expectant women in their third trimester and their nutritional status. Non-adherence to consuming blood supplement tablets can cause pregnant women to experience anemia. It is recommended that future researchers investigate a multitude of additional etiological factors associated with anemia and maximize sample size by optimizing study time and materials. This will enable them to obtain more comprehensive insights into the correlation between nutritional status, adherence to blood supplement tablet consumption, and the incidence of anemia among pregnant women. at a separate medical facility.

References

Ainur, S., Wardani, S., & Kumala, T. F. (2022). The Relationship of Fe Tablet Consumption Obedience and The Incidence of Anemia in Pregnant Women at PMB Emilia Suryani. *Menara Journal of Health Science*, *1*(4), 361–372. Retrieved from https://jurnal.iakmikudus.org/article/view/47

Aisyah, S. (2016). Hubungan Status Gizi Dengan Kejadian Anemia Pada Kehamilan Trimester III Di Polindes Jabung. *Jurnal Midpro*, *8*(2), 10.https:/doi.org/10.30736/midpro.v8i2.11

Aminin, F., Atika, W., & Ria, P. L. (2014). Pengaruh Kekurangan Energi Kronis (KEK) Dengan Kejadian Anemia Pada Ibu Hamil. *Jurnal Kesehatan*, *5*(2), 167–172. http://dx.doi.org/10.26630/jk.v5i2.52

Awalamaroh, F.A., Rahayu, L,S., & Yuliana, I. (2018). Compliance of iron tablets consumption related to anemia status in pregnant women in Cikarang Health Center Bekasi. *ARGIPA (Arsip Gizi Dan Pangan)*, *3*(2), 80–90. Retrieved from https://doi.org/10.22236/argipa.v3i2.2464

Ganapathi K, Chellavel & Sathish K, Kumar. (2017). A cross-sectional study of anemia among women of reproductive age group (15-49 years) in a rural population of Tamil Nadu. I*nternational Journal of Medical Science and Public Health*, *6*(3), 1. https://doi.org/10.5455/ijmsph.2017.0954915092016

Ghosh, S., Spielman, K., Kershaw, M., Ayele, K., Kidane, Y., Zillmer, K., Wentworth, L., Pokharel, A., Griffiths, JK, Belachew, T., & Kennedy, E. (2019). Nutrition-specific and nutrition-sensitive factors associated with mid-upper arm circumference as a measure of nutritional status in pregnant Ethiopian women: Implications for programming in the first 1000 days. *PLoS ONE*, *14*(3), 1–14. https://doi.org/10.1371/journal.pone.0214358

S.,I, & Rosdianah, R. (2020). Effect of Dates Extract on Increasing Hb Levels in Pregnant Women. *Jurnal Ilmiah Kesehatan Sandi Husada*, *9*(2), 1063-1069. https://doi.org/10.35816/jiskh.v12i2.463

Martha, E., & Hayati, H. (2020). Nutritional and Socioeconomic Status as Causes of Anemia in Pregnant Women. *Indonesian Public Health Media*, *16*(1), 1. https://doi.org/10.30597/mkmi.v16i1.8658

Mutiarasari, D. (2019). Hubungan Status Gizi Dengan Kejadian Anemia Pada Ibu Hamil Di Puskesmas Tinggede. *Healthy Tadulako Journal (Jurnal Kesehatan Tadulako)*, *5*(2), 42-48. https://doi.org/10.22487/htj.v5i2.119

Prahesti, R., Indarto, D., & Akhyar, M. (2016). Analysis of Factors Associated with Anemia in Pregnant Women at Prambanan Community Health Center, Sleman, Yogyakarta. *Journal of Maternal and Child Health*, *01*(02), 131–137. https://doi.org/10.26911/thejmch.2016.01.02.08

Putri, P. H. (2018). Pengaruh Umur Kehamilan Usia Remaja, Pengetahuan Ibu Tentang Anemia, Dan Status Gizi Terhadap Kejadian Anemia Di Kecamatan Sawahan Kota Surabaya. *Medical Technology and Public Health Journal*, *1*(1), 35-41. https://doi.org/10.33086/mtphj.v1i1.756

Purwaningtyas, M., & Prameswari, G. (2017). Faktor Kejadian Anemia Pada Ibu Hamil. *HIGEIA (Journal of Public Health Research and Development)*, *1*(3), 43-54. Retrieved from https://journal.unnes.ac.id/sju/index.php/higeia/article/view/14291

Republic of Indonesia Ministry of Health. (2022). Indonesia Health Profile 2021. In Pusdatin.Kemenkes.Go.Id.

Rismawati, S., & Rohmatin, E. (2018). Analysis of the Causes of Anemia in Pregnant Women. *Information Media*, 14(1), 51–57. https://doi.org/10.37160/bmi.v14i1.168

Sarah, S., & Irianto. (2018). Pengaruh Tingkat Kepatuhan Minum Tablet Fe Terhadap Kejadian Ibu Hamil Trimester III Di Puskesmas Pejeruk Tahun 2017: The Influence between The Obedience Level in Consuming Fe Tablet and Anemia Incidentat The Third Trimester Pregnancy at Pejeruk Health Center 2017. *Jurnal Kedokteran YARSI*, 26(2), 75–085. https://doi.org/10.33476/jky.v26i2.392

Stephen, Grace et al., (2018). Anemia in Pregnancy: Prevalence, Risk Factors, and Adverse Perinatal Outcomes in Northern Tanzania. Journal Hindawi, *2018*, 1-9, https://doi.org/10.1155/2018/1846280

Tampubolon, R., Lasamahu, J. F, & Panuntun, B. (2021). Identifikasi Faktor-Faktor Kejadian Anemia pada Ibu Hamil di Kecamatan Amahai Kabupaten Maluku Tengah: Identification of the Factors of Anemia in Pregnant Women in Amahai District, Central Maluku Regency. *Jurnal Sains Dan Kesehatan*, *3*(4), 489–505. https://doi.org/10.25026/jsk.v3i4.432

Tanziha, I., Utama, L. J, & Rosmiati, R. (2016). Risk Factors for Anemia in Pregnant Women in Indonesia. *Journal of Nutrition and Food*, *11*(2), 143–152. https://journal.ipb.ac.id/index.php/jgizipangan/article/view/14687

Wulandari, R. (2018). Effect of Compliance of Pregnant Women in Consuming Fe Tablets on Hb Levels of Third Trimester Pregnant Women. *Indonesian Scientific Journal of Midwifery*, *8*(02), 58–69. https://doi.org/10.33221/jiki.v8i02.146

Zuiatna, D. (2021). Faktor-Faktor Yang Mempengaruhi KejadianAnemia Pada Ibu Hamil. *Jurnal Kebidanan Malahayati*, *7*(3), 404-411. https://doi.org/10.33024/jkm.v7i3.4425

EMBRIO JURNAL KEBIDANAN
p-ISSN: 2089-8789
e-ISSN: 2714-7886

The Effect of Counselling and Administration of Sweet Potato Leaf Decoction on Uterine Involution and Smooth Breastfeeding in Postpartum Mothers 1-7 Days

*Sofia Mawaddah, Annisa Nor Yulia**

Palangkaraya Health Polytechnic, Palangkaraya, Central Kalimantan, Indonesia

ARTICLE INFORMATION

Received: 19, June, 2023
Revised: 2, September, 2023
Accepted: 25, September, 2023

KEYWORD

Counselling; Sweet Potato Leaves; Smooth Breastfeeding; Uterine Involution

Konseling; Daun Ubi Jalar; Involusi Uteri; Kelancaran ASI

CORRESPONDING AUTHOR

Annisa Nor Yulia
Palangkaraya
annisa.nor.yulia@gmail.com
+6285247122894

DOI

https://doi.org/10.36456/embrio.v15i2.7500

A B S T R A C T

The survey results at the UPT Pahandut Health Center, Palangka Raya City, the coverage of babies who do not receive exclusive breastfeeding in 2021 is 163 babies. Alternative measures or management are needed in the form of consuming foods or ingredients that are believed to increase milk supply. The purpose of this study was to determine the effect of counselling and administration of sweet potato leaf decoction on uterine involution and smooth breastfeeding in postpartum mothers for 1-7 days in the working area of the Pahandut Health Center. The type of research used was a quasi-experiment with a two-group pretest-posttest research design before being given treatment and after being given treatment. The total sample is 54 people. The results of the study showed that there was an effect of counselling and sweet potato leaf decoction on uterine involution and smooth breastfeeding p values 0.010 and 0.020 (<0.05). H0 is rejected and H1 is accepted. There is an effect of giving counselling and decoction of sweet potato leaves on uterine involution and the smoothness of breastfeeding in postpartum mothers 1-7 days in the working area of the Pahandut Health Center.

Hasil survey di UPT Puskesmas Pahandut Kota Palangka Raya cakupan bayi yang tidak mendapat ASI Eksklusif pada tahun 2021 yaitu sebanyak 163 bayi.Dibutuhkan upaya tindakan alternatif atau penatalaksanaan berupa dengan mengkonsumsi makanan atau ramuan yang dipercaya dapat meningkatkan suplai ASI. Tujuan dari penelitian ini bertujuan untuk mengetahui Pengaruh Konseling dan Pemberian Rebusan Daun Ubi Jalar terhadap Involusi Uteri dan Kelancaran Asi pada Ibu Nifas 1-7 Hari di Wilayah Kerja Puskesmas Pahandut. Jenis penelitian yang digunakan adalah quasi experiment dengan desain penelitian two group pretest-posttest sebelum diberi perlakuan dan sesudah diberi perlakuan. Total sampel sebanyak 54 orang. Hasil penelitian menunjukkan ada pengaruh pemberian konseling dan rebusan daun ubi jalar terhadap involusi uteri dan kelancaran ASI p value 0,010 dan 0,020 (<0,05). H0 ditolak dan H1 diterima. Ada pengaruh pemberian konseling dan rebusan daun ubi jalar terhadap involusi uteri dan kelancaran ASI pada ibu nifas 1-7 hari di wilayah kerja puskesmas pahandut.

Introduction

According to the Indonesian Health Profile, the number of maternal deaths increased in 2020 by 4,627 and in 2021 by 7,389. According to the Indonesian Health Profile in 2020 maternal deaths in the puerperium period were 1,781 and experienced an increase in 2021 of 5,883. Then maternal deaths based on one of the highest causes, namely bleeding in 2020 amounted to 1,280 then experienced an increase in 2021 of 1,320. According to the Palangkaraya City Health Profile, the maternal mortality

rate from 2019 and 2020 is 2 and it occurs during the postpartum period (Ministry of Health, 2021). There is no data on the number of postpartum women who experience bleeding at the Pahandut Health Center, all good efforts from an accurate diagnosis, adequate treatment and prevention of all risk factors are very important to reduce maternal mortality due to postpartum haemorrhage (Julieta & Widiastuti Giri, 2021). Numerous variables, including age, nutritional status, parity, breastfeeding, and early mobilization, can influence the involution process. Several variables affect the rate of uterine involution, including maternal age, number of children born, occupation, educational attainment, early mobilization, exclusive lactation, and early breastfeeding (Septyara & Hindiarti, 2020).

The rate of uterine involution is additionally impacted by the intake of high-quality foods that are rich in protein, vegetables, and fruits that are abundant in vitamins. For instance, postpartum mothers who consume sweet potato leaves experience a notable acceleration in involution, according to research by Endang Suwanti (2014). The 2020 Indonesian Health Profile indicates that 66.1% of infants are exclusively breastfed; by 2021, this proportion is projected to decline by 56.9%. (Ministry of Health, 2021). The survey results at the UPT Pahandut Health Center in Palangka Raya City, the coverage of infants aged <6 months who did not receive exclusive breastfeeding in 2021 was 163 babies. The number of deliveries from January to October 2022 was 177 people and the number of babies who were not breastfed was 58 babies. One of the causes of the low achievement of exclusive breastfeeding is that babies have never been breastfed because breast milk does not come out or does not flow smoothly at the beginning of breastfeeding (65.7%), babies aged 0-5 months (33.3%) have been given pre lacteal food with this type of food. the most (84.5%) is formula milk (Ministry of Health, 2018).

Various factors cause the failure of IMD practices and exclusive breastfeeding such as working mothers, not having family support absence of assistance from midwives, low knowledge and attitudes of mothers, hereditary culture, incessant promotion of formula milk, abnormalities in the mother's nipples, and others (Sinaga & Siregar, 2020). One of the nutritional content in breast milk that impact on growth, development and health of the baby is the womb macro nutrition. The macronutrients in breast milk are carbohydrates, fats and proteins. Fill Carbohydrates in breast milk are in the form of lactose. Lactose In the small intestine it is broken down into glucose and galactose by the enzyme lactase. Lactase enzyme produced in the baby's small intestine is sometimes not enough, but by giving ASI to infants, the need for the enzyme lactase can be met by meeting the needs of 7.2g1.2. The protein content in breast milk should be 0.9 g contains essential amino acids important for a baby's growth. Fat used to fulfil some needs big baby energy The fat content in breast milk is 3.2- 3.7 g/dL and approximate energy output ranges from 65–70 kcal/dL so there is a correlation which is quite high between the energy required by babies with fat produced in breast milk 3 (Wardana, 2018). Food intake can stimulate increased levels of the hormone prolactin and milk supply.

In addition to stimulating breast milk production, postpartum mothers require sweet potato leaves in order to breastfeed their infants. Sweet potato leaves comprise lipid components and hormonal structures, which exhibit a lactogogum effect and thus actively participate in the process of milk production. Sweet potato leaves contain a substance known as lactagogum, which has the ability to

stimulate milk production. Synthetic lactogogum is a relatively uncommon and costly substance. This necessitates the search for alternative lactogogum medications. Sterols and polyphenols found in sweet potato leaves contribute to increased prolactin levels and breast milk production. Sweet potatoes are rich in carbohydrates which can provide energy to nursing mothers. Apart from that, sweet potatoes contain vitamin C, B Complex and magnesium which can make it a food that facilitates breast milk (Sutrani Syarif & Ani T Prianti, 2022)

Purple sweet potato (Ipomoea batatas var Ayamurasaki) is commonly called Ipomoea batatas blackie because it has a purple-black (dark purple) skin and sweet potato flesh. Purple sweet potato leaves contain 2.3 grams of protein per 100 grams and 1.0 mg of iron per 100 grams which can produce the maximum amount of breast milk (Prisusanti et al., 2013). Counselling on how to breastfeed is very important because through breastfeeding counselling it is hoped that it can increase the knowledge and attitudes of breastfeeding mothers about exclusive breastfeeding (Yuniarti & Susanto, 2012). Furthermore, sweet potato leaves comprise approximately 15% coarse fiber and nearly 7% protein. In addition to provitamin A (beta carotene), vitamins B and C, iron, calcium, phosphorus, and lipids, these leaves are abundant in vitamin A (Wardana & Pramono 2018). In addition to lactagogum constituents. Carotenoids and iron are also present in the leaves of sweet potatoes, which are known to stimulate breast milk production. Sweet potato leaves contribute to the efficacy of exclusive lactation due to the presence of prolactin or oxytocin, hormones that regulate the production of breast milk (Montolalu et al., 2023)

Based on research conducted by Subagio (2019), there is an effect of giving boiled sweet potato leaves for 7 days on breast milk adequacy so that midwives can advise postpartum mothers to use boiled sweet potato leaves as a cheap and easily available food alternative that can increase the production breast milk. The purpose of this study was to determine the effect of counselling (control group), the effect of counselling and administration of sweet potato leaf decoction (treatment group) on uterine involution and smooth breastfeeding in postpartum mothers 1-7 days in the working area of the Pahandut Health Center.

Method

This study applies an experimental design, specifically a quasi-experimental design. The experimental Two Group Pretest Posttest design was utilized in this study; it involved the participation of two distinct groups that underwent contrasting training protocols. Sampling is the procedure by which a representative subset of the population is chosen. Non-probability sampling is employed in the form of Purposive Sampling, which involves the deliberate selection of samples from the population in accordance with the researcher's objectives or research problems. The study sample comprised 177 postpartum mothers residing in the Working Area of the Pahandut Health Center Palangka Raya UPT between January and October 2022. The selection of participants for this study was predicated on inclusion criteria, which encompassed the overall attributes of the subjects selected from a target population that was within the researcher's geographical reach. A total of 54 postpartum mothers

residing in the Work Area of the Pahandut Palangka Raya Health Center comprised the sample for this research. The type of data used is primary data obtained directly from respondents. Primary data in this study are observation sheets and secondary data are data obtained by researchers from the Work Area of the Pahandut Health Center. In this study, the inclusion criteria were mothers who were willing to be respondents, mothers who were 1-7 days postpartum, mothers who did not experience breast abnormalities, mothers who breastfed babies and mothers with normal delivery. Exclusion criteria in this study were mothers who took breast-feeding drugs, there were certain periods when mothers did not consume boiled sweet potato leaves at a predetermined time, mothers who did not live in Palangkaraya, mothers who experienced postpartum complications and mothers who had reproductive diseases.

The steps in collecting data in the control group and the treatment group were to arrange a research code of ethics (ethical clearance No.59/III/KE.PE/2023) from the Palangka Raya Ministry of Health Polytechnic, arrange a research permit by bringing a letter from the Palangka Raya Ministry of Health Poltekkes to be submitted to the Investment and One-Stop Service Office. City of Palangka Raya, after being allowed to proceed to the Health Office of the City of Palangka Raya, Continued from the Health Office of the City of Palangka Raya, a permit is addressed to the Head of the BLUD UPT Pahandut Palangka Raya Health Center to allow and facilitate to conduct research, The researcher approaches and provides an explanation of the purpose of the research to postpartum mothers and provide informed consent if willing to be a respondent signed by the respondent, Check the uterus and check the smoothness of the mother's milk then enter the results on the observation sheet before being given counseling, Check the uterus and check the smoothness of the mother's milk then enter the results on the observation sheet before being sent provide counseling and decoction of sweet potato leaves, provide intervention or treatment in the form of boiled fresh purple sweet potato leaves as much as 50 grams with 350 ml of water consumed regularly once a day in the morning from 06:00 -10:00 WIB for 7 days, Researcher enter the results of the state of the uterus and the smoothness of the mother's milk after being given counseling, the researcher enters the results of the condition of the uterus and the smoothness of the mother's milk after being given counseling and boiled sweet potato leaves.

After processing the data (Process Editing, coding, Data Entry, Data Cleaning), data analysis is performed. The data that has been collected was analyzed by univariate analysis and bivariate analysis. Data analysis was performed with the help of a computer program. Bivariate analysis using the Independent T-Test test. Previously, the data normality test was carried out using the Kolmogorov-Smirnov Test, the data that had been obtained was analyzed statistically by a computer. After that, an Independent T-Test was carried out to find out whether there was a significant difference between the control group and the treatment group.

Results

Table 1. Frequency Distribution of Respondents Based on Family Support

Family support	Frequency (f)	Percentage (%)
Support	26	48.1%
Does not support	28	51.9%
Total	54	100%

From the table above it can be seen from the 54 respondents that based on family support, the respondents from the treatment group and the control group who supported totalled 26 people (48.1%) and did not support 28 people (51.9%).

Table 2. Frequency Distribution of Respondents Based on the Support of Health Workers

Health Workers Support	Frequency (f)	Percentage (%)
Support	49	90.7 %
Does not support	5	9.3 %
Total	54	100 %

From the table above it can be seen from the 54 respondents that based on the support of health workers, the respondents from the treatment group and the control group who supported totalled 49 people (90.7%) and did not support 5 people (9.3%).

Table 3. Frequency Distribution of Respondents' Uterine Involution Before and After Counseling.

Uterine Involution		Frequency (f)	Percentage (%)
Before	Normal	22	81.5 %
	Abnormal	5	18.5 %
After	Normal	24	88.9 %
	Abnormal	3	11.1 %
Total		27	100 %

From the table above it can be seen from the 27 respondents that the respondent's Uterine Involution based on before counselling obtained normal results there were 22 people (81.5%) then after counselling, the normal results were 24 (88.9%).

Table 4. Frequency Distribution of Respondents' Breastfeeding Before and After Counseling.

Smooth breastfeeding		Frequency (f)	Percentage (%)
Before	Not smooth	13	24.1 %
	Fluent	14	25.9 %
After	Not smooth	10	18.5 %
	Fluent	17	31.5 %
Total		27	100%

From the table above, it can be seen from the 27 respondents that based on before being given counselling, 14 people (25.9%) were Current Breastfeeding and after counselling, 17 people (31.5%) were Current Breastfeeding.

Table 5. Frequency Distribution of Respondents' Uterine Involution Before and After Giving Counseling and Sweet Potato Leaf Decoction.

Uterine Involution		Frequency (f)	Percentage (%)
Before	Normal	23	85.2 %
	Abnormal	4	14.8 %
After	Normal	27	100 %
	Abnormal	0	0 %
Total		27	100 %

From the table above, it can be seen from the 27 respondents that according to the respondent's Uterine Involution, based before counselling, there were normal results, there were 23 people (85.2%) then after counselling, the normal results were 27 (100%)

Table 6. Frequency Distribution of Respondents' Smooth Breastfeeding Before and After Being Given Counseling and Sweet Potato Leaf Decoction.

Smooth Breastfeeding		Frequency (f)	Percentage (%)
Before	Not smooth	15	55.6 %
	Fluent	12	44.4 %
After	Not smooth	5	9.3 %
	Fluent	22	90.7 %
Total		27	100 %

From the table above it can be seen from 27 respondents that the smoothness of breastfeeding was based on before being given counselling and sweet potato leaf decoction, there were 12 people (44.4%) breastfeeding smoothly. Then when it was done after being given Counseling and Sweet Potato Leaf Decoction there were 22 people (90.7%) breastfeeding smoothly.

Table 7. The Effect of Counseling on Counseling and Decoction of Sweet Potato Leaves on Uterine Involution and Smooth Breastfeeding Respondents

Group	Variable	
	Uterine Involution (Mean)	Smooth breastfeeding (means)
Counselling	1.11	4.11
Counseling and Decoction of Sweet Potato Leaves	1	4.88
P Value	0.020	0.010

From the table above, it can be seen from the control group and the treatment group on uterine involution, the p-value = 0.020 with the condition that the p-value is <0.05 so it can be concluded that there is an effect of counselling and sweet potato leaf decoction on uterine involution.

Meanwhile, the control group and the treatment group on the smoothness of breastfeeding were p-value = 0.010 with the provision that the p-value was <0.05 so that it could be concluded that there was an effect of counselling and sweet potato leaf decoction on the smoothness of breastfeeding.

Discussion

From the results of research conducted at the Pahandut Health Center to find the Effect of Counseling and Sweet Potato Leaf Decoction on the Smoothness of Breastfeeding and Uterine Involution in Postpartum Mothers 1-7 Days based on the following parameters From the results of the study, the control group with the most education was 11 high school graduates (40.7%), 7 academic/university graduates (25.9%), 5 junior high school graduates (18.5%), Elementary school graduates totalled 4 people (14.8%). From the results of the study, the treatment group with the most education was 9 high school graduates (33.3%), 9 academic/higher education graduates (33.3%), 5 junior high school graduates (18.5%), Elementary school graduates totalled 4 people (14.8%). From the 54 respondents, it was found that based on the education of the respondents from the treatment group and the control group, 20 people graduated from high school (37.0%), 16 people graduated from high school (29.6%), graduated from junior high school, 10 people (18.5%), 8 people graduated from elementary school (14.8%) and in this study, out of 54 respondents, many had high school education and ASI was not fluent, most of the respondents had high school education. The educational attainment and knowledge of the mother are significant determinants in promoting exclusive breastfeeding for infants, as individuals with higher levels of education have simpler access to information, thereby

enhancing their knowledge base. On the contrary, an inadequate education will impede the formation of an individual's perspective regarding the introduced values (Sihombing, S 2018).

From the results of the study, the control group who received the support of health workers totalled 23 people (85.1%) and those who did not receive the support of health workers totalled 4 people (14.8%). From the results of the study, the treatment group who received the support of health workers totalled 25 people (92.5%) and those who did not receive the support of health workers totalled 2 people (7.4%). From the research results, it can be seen from 54 respondents, that it was found that based on the support of health workers, respondents from the treatment group and the control group who supported totalled 49 people (90.7%) and did not support 5 people (9.3%). This indicates that all postpartum mothers in this study received substantial lactation support from health professionals. The effectiveness of exclusive lactation is contingent upon a multitude of factors, with assistance from healthcare professionals, such as midwives, being one such element. Midwives support exclusive breastfeeding, among other things, through initiatives to encourage exclusive breastfeeding from the moment of conception. In addition, midwives can assist expectant mothers in preparing themselves to breastfeed effectively through the implementation of breast care practices (Kusumawati, 2021).

From the research results it can be seen that 27 respondents found that based on being given counselling on Uterine Involution Respondents Based on before counselling it was found that there were normal results for 22 people 81.5%) and abnormal for 5 people (18.5%) then after counselling, normal results became 24 (88.9%) and abnormal 3 people (11.1%). One of the efforts to increase exclusive breastfeeding can be done by providing counselling. Counselling is a two-way interpersonal communication process between counsellor and client to help clients overcome and make the right decisions in overcoming health problems they face. (Yuliastanti & Utami, 2021). For Current ASI there were 14 people (25.9%) and Non-Smooth ASI before counselling there were 13 people (24.1%) and when it was done after counselling Smooth ASI totalled 17 people (31.5%) and Non-Smooth ASI totalled 10 people (18.5%), which means that being given counselling has little effect, which has increased only slightly from Current ASI before counselling, 14 people have increased to 17, which means there are only 3 people who have changed. Breastfeeding counselling can help mothers recognize problems encountered during breastfeeding, identify alternative solutions to problems, set priorities for alternative solutions to problems, conduct studies on the consequences and benefits of the selected alternatives, increase the ability of mothers to decide and act and encourage mothers to find ways to solve problems, what can be done and increase the mother's ability to be able to think positively and optimistically (Mariani, 2019).

From the research results it can be seen that 27 respondents it was found based on being given counselling and boiled sweet potato leaves were Uteri Involution Respondents Based on counselling and boiled sweet potato leaves, normal results were found there were 23 people 85.2%) and abnormal 4 people (14.8 %) then after counselling and sweet potato leaf decoction, the normal results were 27 (100%) and abnormal 0 people (0%). This means that involution which was initially abnormal returns to normal when it is carried out after counselling and boiling sweet potato leaves. Efforts to mitigate

postpartum hemorrhage can be initiated through the administration of oxytocin during the third and fourth phases of labor. The hormone oxytocin is a crucial component in the uterine involution process. Strengthy uterine contractions are essential for a successful involution; therefore, measures must be implemented to enhance uterine contractions. Attempts to regulate hemorrhage through the use of oxytocin massage (Yuliawati et al, 2020). For smooth breastfeeding, the results of breastfeeding were not smooth, there were 15 people (55.6%), breastfeeding was smooth, there were 12 people (44.4%), when it was done after counselling and boiled sweet potato leaves, breastfeeding was smooth, there were 22 people (40.7%) and breastfeeding not current 7 people (9.3%). It was carried out after counselling and a decoction of sweet potato leaves changed, there was a reduction of 10 out of 15 people who experienced non-fluent breastfeeding. This proves that there is a change from giving counselling treatment and sweet potato leaf decoction to smooth breastfeeding for postpartum mothers. With counselling, mothers understand and can practice how to breastfeed properly know the benefits of breastfeeding for babies and mothers and how to deal with problems during the breastfeeding process. With family counselling, it is also understood that mothers who have their first babies need more support from the family so that mothers can be more motivated to breastfeed and care for their babies (Djogo et al., 2022). According to the results of research, boiled cassava leaves can stimulate to increase the hormone prolactin and increase milk production. Due to the content of structural elements of lipids and hormones, the active compounds are actively involved in the production of milk, namely the lactogogum effect. Lactogogum is a substance contained in sweet potato leaves that can help produce breast milk (Subagio, 2019).

From the results of the study, it can be seen from the control group and the treatment group on uterine involution, the p-value = 0.020 with the provision that the p-value is <0.05 so it can be concluded that there is an effect of counselling and sweet potato leaf decoction on uterine involution. Sucking on the nipple stimulates the release of prolactin and oxytocin. Prolactin stimulates milk production, oxytocin stimulates the myoepithelium around the alveoli which will contract and pump milk out and stimulate uterine contractions. Therefore, efforts to maintain uterine contractions through breastfeeding are an important part of postpartum care (Nuraini et al., 2019). Breastfeeding counselling is a form of education that is quite effective in addition to increasing knowledge but also providing approaches and support in exclusive breastfeeding for mothers to their babies. Breastfeeding counselling is part of the ANC service standard. Breastfeeding counselling activities that help motivate pregnant women to provide exclusive breastfeeding have not been optimally implemented (Mariana et al., 2020).

Breastfeeding counselling helps mothers and children to be successful in breastfeeding. Providing assistance and advice to breastfeeding mothers can be done through breastfeeding counselling. Breastfeeding counselling is very important, not only before childbirth and during pregnancy but also throughout the first and second years of a child's life.

Thus, we can give mothers useful advice so that mothers breastfeed their babies at any time when the babies are healthy or sick breastfeeding counselling can also help convince mothers that their milk is sufficient, overcome breastfeeding problems, or working mothers can still breastfeed their

babies. Breastfeeding counselling is expected to increase the knowledge and attitudes of breastfeeding mothers about exclusive breastfeeding. Research conducted by Nurfatimah et al (2019) concluded that there was an effect of lactation counselling on exclusive breastfeeding for 6 months. This study suggests that midwives provide counselling at visits to antenatal care about lactation counselling as preparation for lactation. Every health facility needs to have trained breastfeeding counsellors who have the competence to assist mothers and their families in carrying out early breastfeeding initiation (IMD) and exclusive breastfeeding for six months. Spearheading the implementation of breastfeeding counselling is a breastfeeding counsellor. Breastfeeding counsellors have been trained based on the Guidelines for Organizing Breastfeeding Counseling Training from the Indonesian Ministry of Health (Murtiyarini et al., 2014). Based on the mini-research conducted by Subagio (2019), there is an effect of giving boiled cassava leaves for 7 days on the adequacy of breast milk. Postpartum mothers can understand the adequacy of breast milk for their babies so that health workers can motivate the community and postpartum mothers to be able to make sweet potato leaf decoction as an alternative food that is cheap and easy to get which can increase milk production. The statistical test results from the Wilcoxon Sign Rank obtained a p-value = 0.000.

Sweet potato leaves are easy to find and beneficial for mothers. Because they contain galactagogue substances that can increase milk production and thus provide the nutritional needs of infants through breast milk, sweet potato leaves are readily utilized as food to increase milk production and ensure the success of an exclusive breastfeeding program. The effectiveness of exclusive lactation is contingent upon a multitude of factors, with assistance from healthcare professionals, such as midwives, being one such element. Midwives support exclusive breastfeeding, among other things, through initiatives to encourage exclusive breastfeeding from the moment of conception. In addition, midwives can assist expectant mothers in preparing themselves to breastfeed effectively through the implementation of breast care practices (Kusumawati, 2021). The obstacle in this research is that there are still respondents who do not want to drink this sweet potato leaf decoction but this can be overcome by researchers by communicating from heart to heart to convince mothers that this is not dangerous but on the contrary, it contains many benefits. Then for the shortcomings, the researcher did not provide patient monitoring sheets.

Conclusions

Breastfeeding for postpartum mothers at the Pahandut Health Center efforts are needed to make breastfeeding successful for infants, one of which is by providing counselling and boiling sweet potato leaves. Sweet potato leaves are believed to contain vitamins that the body needs, one of which is vitamin A which can help the anterior pituitary to stimulate the hormone prolactin in the brain epithelium so that it will increase and activate epithelial cells in the alveoli to collect milk in the breasts and cause milk supply to increase so that it can increase the mother's confidence in helping to increase the adequacy of breast milk supply.

Acknowledgements

We would like to thank those who supported this study, especially the midwifery department, the Palangka Raya Ministry of Health Polytechnic and the Palangka Raya Pahandut Health Center.

References

Djogo, M. H. A., Wuladari, T. M., & Letor, Y. M. K. (2022). The Effect of Exclusive Breastfeeding Counseling on the Motivation of Breastfeeding Mothers in the Postnatal Room of Hospital SK. Lerik in Kupang City. *Jurnal Ilmiah Obsgin : Jurnal Ilmiah Ilmu Kebidanan & Kandungan*, 14(2), 77–85. https://doi.org/10.36089/job.v14i2.706

Endang. S (2014). Uterine Involution Speed In Postpartum Mothers With Consumption Of Sweet Palm Leaves. *Interest : Jurnal Ilmu Kesehatan*, 3(1), 51–56. http://jurnal.poltekkes-solo.ac.id/index.php/Int/article/viewFile/77/67

Julieta, N. P. N., & Widiastuti Giri, M. K. (2021). Postpartum Hemorrhage: Emergencies in Delivery for Pregnant Women. *Ganesha Medicine*, 1(1), 48. https://doi.org/10.23887/gm.v1i1.31709

Kusumawati, S. (2022). Hubungan Sikap dan Dukungan Tenaga Kesehatan Dengan Keberhasilan Pemberian Asi Eksklusif Di wilayah Puskesmas Berangas Kabupaten Barito Kuala. *JURNAL KEPERAWATAN SUAKA INSAN (JKSI)*, 6(2), 116-120. https://doi.org/10.51143/jksi.v6i2.295

Mariana, D., G, S., & Idayati, I. (2020). Konseling Materi Teknik Menyusui Terhadap Perilaku Pemberian Asi Esklusif di Kabupaten Mamuju Provinsi Sulawesi Barat. *Jurnal Penelitian Kesehatan "SUARA FORIKES"*, 11(April), 78. https://doi.org/10.33846/sf11nk215

Mariani, N.H. (2019). The effect of breastfeeding counselling on attitudes, motivation and success of mothers in breastfeeding in Karangbong Village. *Jurnal Ilmu Keperawatan*. 12(1), 33-40.. https://jurnal.usahidsolo.ac.id/index.php/JIKI/article/view/331

Ministry of Health. (2018). Basic Health Research Results 2018. Kementerian Kesehatan Republik Indonesia. https://kesmas.kemkes.go.id/assets/upload/dir_519d41d8cd98f00/files/Hasil-riskesdas-2018_1274.pdf

Ministry of Health. (2021). Indonesia Health Profile 2021. https://www.kemkes.go.id/downloads/resources/download/pusdatin/profil-kesehatan-indonesia/Profil-Kesehatan-2021.pdf

Montolalu, A., Keintjem, F., Limbengpiah, S., Kuhu, F., Donsu, A., Manueke, I., Lontaan, A., Adam, Y., Lumy, F., & Solang, S. (2023). Efektivitas Pemberian Daun Ubi Jalar Terhadap Penurunan Involusi Uteri Pada Ibu Nifas. *JIDAN (Jurnal Ilmiah Bidan)*, 10(2), 83 - 89. https://doi.org/https://doi.org/10.47718/jib.v10i2.1921

Murtiyarini, I., Herawati, D. M. D., & Afriandi, I. (2014). Evaluation of the Implementation of Breastfeeding Counseling. *Kesmas: National Public Health Journal*, 9(1), 78. https://doi.org/10.21109/kesmas.v9i1.460

Nuraini, I., Ningrum, nyna puspita, & Iswati, retno setyo. (2019). Pengaruh Menyusui Secara Eksklusif Terhadap Involusi Uteri Pada Ibu Nifas. *Jurnal Kebidanan Indonesia*, 10(1), 49–55. https://doi.org/10.36419/jkebin.v10i1.244

Nurfatimah, N., Entoh, C., & Ramadhan, K. (2019). Pengaruh Konseling Laktasi Terhadap Pemberian Asi Eksklusif Di Wilayah Kerja Puskesmas Mapane Kabupaten Poso. *Jurnal Publikasi Kesehatan Masyarakat Indonesia*, 6(1), 1–6. https://doi.org/10.20527/jpkmi.v6i1.6869

Septyara, A., & Hindiarti, Yudita Ingga. (2020). Gambaran Faktor-Faktor yang Mempengaruhi Proses Involusi Uterus pada Ibu Post Partum di Wilayah Kerja Puskesmas Langensari Kota Banjar. *Journal of Midwifery and Public Health*, 2(2), 63–68. http://dx.doi.org/10.25157/jmph.v2i2.6872

Sinaga, H. T., & Siregar, M. (2020). Literature review: Factors causing low coverage of early breastfeeding initiation and exclusive breastfeeding. *Action: Aceh Nutrition Journal*, 5(2), 164. https://doi.org/10.30867/action.v5i2.316

Subagio, S.U. (2019). MINIRISET Increased adequacy of breast milk production in postpartum mothers using a decoction of sweet potato leaves in the Work Area of Puskesmas I Kesesi I Pekalongan Regency. *Journal of Midwifery*, 8(2), 137. https://doi.org/10.26714/jk.8.2.2019.137-142

Sutrani Syarif, & Ani T Prianti. (2022). Penyuluhan Dan Bakti Sosial Pemanfaatan Daun Ubi Jalar Terhadap Produksi Asi. *NUSANTARA : Jurnal Pengabdian Kepada Masyarakat*, *2*(3), 89–94. https://doi.org/10.55606/nusantara.v2i3.239

Wardana, R. K., Widyastuti, N., & Pramono, A. (2018). Hubungan Asupan Zat Gizi Makro dan Status Gizi Ibu Menyusui dengan Kandungan Zat Gizi Makro pada Air Susu Ibu (ASI) di Kelurahan Bandarharjo Semarang. Journal of Nutrition College, 7(3), 107. https://doi.org/10.14710/jnc.v7i3.22269

Yuliastanti, T., & Utami, S. (2021). hubungan konseling menyusui dengan keberhasilan ASI ekslusif. *Jurnal Cakrawala Kesehatan*, 12(01), 7–18. https://e-jurnal.anugerahbintan.ac.id/index.php/ck/article/view/77

Yuliawati, Anggraini, Y., & Sadiman. (2020). Efforts to Accelerate the Uterine Involution Process and Streamline. *Jurnal Pengabdian Masyarakat*, 1(1), 23–27. https://doi.org/10.26630/jpk.v1i1.18

Yuniarti, H., Susanto, E., & terati, terati. (2018). Pengaruh Konseling Menyusui Terhadap Pengetahuan, Sikap dan Tindakan Ibu Dalam Menyusui Bayi Usia 0-6 Bulan Di Puskesmas 4 ULU Kecamatan Seberang Ulu 1 dan Puskesmas Taman Bacaan Kecamatan Seberang Ulu 2 Kota Palembang. *JPP (Jurnal Kesehatan Poltekkes Palembang)*, 1(11), 124-131. https://jurnal.poltekkespalembang.ac.id/index.php/JPP/article/view/108

EMBRIO JURNAL KEBIDANAN
p-ISSN: 2089-8789
e-ISSN: 2714-7886

Pregnant Women's Behavior in Stimulating the Fetus After Giving Education Through Audiovisual Media

Sri Setiasih, Titi Mursiti, Rozikhan*

Ministry of Health Polytechnic Semarang, Central Java, Indonesia

ARTICLE INFORMATION

Received: 6, July, 2023
Revised: 10, September, 2023
Accepted: 25, September, 2023

KEYWORD

Audiovisual Education; Knowledge; Behavior; Fetal Stimulation

Edukasi Audiovisual; Pengetahuan; Perilaku; Stimulasi Janin

CORRESPONDING AUTHOR

Sri Setiasih
Semarang, Indonesia
ssetiasih15@gmail.com

DOI

https://doi.org/10.36456/embrio.v15i2.7675

A B S T R A C T

National data from the Ministry of Health of the Republic of Indonesia in 2018, 11% of toddlers in Indonesia experience growth and development disorders. It is estimated that 1-3% experience delays in motor development. Efforts to maintain and increase intelligence potential during pregnancy are very important to prepare quality Indonesian human resources in an effort to increase the Human Development Index (IPM) of Indonesian society in the future. The purpose of this study is to ascertain how fetal stimulation knowledge and behavior among pregnant women in the *Bandengan* Subdistrict are related to education through audiovisual media. The research design is a quasi-experiment with a one-group pretest and posttest design technique. This research was conducted in *Bandengan* Village, *Kendal* District, *Kendal* Regency in September-December 2022. The population in this study were all pregnant women who were in *Bandengan* Village Trimesters 2 and 3 in October-December 2021, with a total of 73 pregnant women. In this study, the respondents were the total population of pregnant women in *Bandengan* village. The measurement tool used a questionnaire regarding the depth of fetal stimulation knowledge. The result of a statistical test using the Wilcoxon test show that there is a relationship between fetal stimulation in pregnant women through audiovisual media education with a p-value of 0.000, with a description of pregnant women's behavior regarding fetal stimulation after receiving education of 100%. For future researchers, other methods that are more perfect in the health education model can be used.

Data nasional Kemenkes RI 2018, 11% balita di Indonesia mengalami gangguan pertumbuhan dan perkembangan. Diperkirakan 1-3% mengalami keterlambatan perkembangan motorik. Upaya dalam memelihara dan meningkatkan potensi intelegensi pada periode kehamilan sangat penting untuk mempersiapkan SDM Indonesia yang berkualitas dalam upaya meningkatkan Indeks Pembangunan Manusia (IPM) masyarakat Indonesia dikemudian hari. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh edukasi melalui media audiovisual terhadap pengetahuan dan perilaku stimulasi janin pada ibu hamil di Kelurahan Bandengan. Desain penelitian ini yaitu quasi experiment dengan pendekatan one group pretest and posttest design. Penelitian ini dilaksanakan di Kelurahan Bandengan Kecamatan Kendal Kabupaten Kendal pada bulan September-Desember 2022. Populasi dalam penelitian ini adalah semua ibu hamil yang berada di Kelurahan Bandengan Trimester 2 dan 3 pada bulan Oktober-Desember 2021, sebanyak 73 ibu hamil. Dalam penelitian ini, responden adalah total populasi ibu hamil di Kelurahan Bandengan. Instrumen penelitian menggunakan kuesioner tingkat pengetahuan stimulasi janin. Uji statistik yang digunakan adalah Uji Wilcoxon, diperoleh hasil bahwa ada pengaruh edukasi melalui media audiovisual terhadap pengetahuan ibu hamil tentang stimulasi janin dengan p value 0.000, dengan gambaran perilaku ibu hamil mengenai stimulasi janin setelah mendapatkan edukasi sebesar 100%.. Bagi peneliti selanjutnya dapat menggunakan metode lain yang lebih sempurna dalam model pendidikan kesehatan.

Introduction

According to the World Health Organization (WHO), the prevalence of toddlers with growth and developmental abnormalities is 28.7%, and Indonesia is the third country in Southeast Asia with the greatest prevalence (Rumahorbo et al., 2020). It is estimated that 200 million children under five in developing countries experience developmental delays due to poverty, malnutrition, high infection rates, lack of stimulation and education and instability at home. The incidence of developmental deviations in children worldwide is 10-17%. The prevalence of developmental delays ranges from 12–16% in the United States, 24% in Thailand, and 22% in Argentina, while it ranges from 29.9% in Indonesia. According to UNICEF, 3 million children or 27.5% of children under the age of five still experience growth and development abnormalities, particularly motor development disorders (UNICEF, 2019).

According to information from the Central Statistics Agency's (BPS) official website, Indonesia's Human Development Index (IPM) will be 72.29 in 2021. When compared to the previous year, when the score was 71.94 points, this score has grown by 0.49%. Indonesia's HDI in 2021 is ranked 5th in ASEAN and 107th in the world out of 189 countries (BPS, 2022). According to national data, according to the Indonesian Ministry of Health, in 2018, 11% of children under five in Indonesia experienced growth and development disorders. Meanwhile, data from Riskesdas in 2018 showed that the development of children aged 36-59 months in the motor aspect reached 97.8% of the target of 98.3%. The Indonesian Health Profile stated that the number of children under five at intervals was 14,228,917 people. Around 10% of children are estimated to experience developmental delays, and it is estimated that 1-3% specifically for children under 5 years in Indonesia experience general developmental delays including motor development (Jurana, 2017).

Intelligence is one of the crucial things that must be considered in the younger generation as a determinant of the quality of human resources which is closely related to the success of national development and HDI (Almatsier, 2014). Efforts to maintain and increase intelligence potential during pregnancy are very important to prepare quality Indonesian human resources to increase the HDI of Indonesian society in the future (Suparni & Aisyah, 2019). Preparation of superior quality human resources can be started from an early age even in the womb through prenatal education. Prenatal education is providing a stimulus to children with certain exercises and methods carried out by the mother. According to Rene Van de Carr, prenatal stimulation can help develop a child's orientation and effectiveness in coping with the outside world after he is born (Rahman & Hardiana, 2022). Likewise, research conducted by Setyaningsih (2017) shows that there is a substantial relationship between fetal stimulation and newborn baby temperament. During pregnancy, mothers who stimulate the fetus have a 5.611 chance of giving birth to a child with a calm disposition. This is because this stimulation can influence the baby's character psychologically by fostering brain development. The fetus in the womb is stimulated by talking, chatting, singing, reading prayers, and singing religious songs while being rubbed on the mother's stomach. The baby's brain can be stimulated from 18 to 20 weeks of gestation. This is caused by the massive expansion of fetal nerve cells that occurs during this period; Therefore, it should be done frequently, continuously and sustainably with affection (Yulita & Yanti, 2020).

Method

This study's design is a quasi-experiment with a one-group pretest and posttest approach, meaning there is no comparison group (control) but at least one observation has been made (pretest), allowing testing of the changes that take place after the experiment (program) (Sugiyono, 2019). This research was conducted in *Bandengan* Village, *Kendal* District, *Kendal* Regency in September-December 2022. The population in this study were all pregnant women who were in *Bandengan* Village Trimesters 2 and 3 in October-December 2021, with as many as 73 pregnant women. The inclusion criteria for pregnant women in trimesters 2-3, pregnant women who are willing to be respondents, and pregnant women who are physically healthy and have no mental disorders. Pregnant women who were sick, pregnant women who were not willing, and pregnant women in the 1st trimester were excluded. The study used total sampling so that the respondents were the entire population of pregnant women in *Bandengan* Village. The implementation of this research was conducted during the Covid-19 pandemic situation so all data collection activities were carried out online with the help of the WhatsApp application and Google Forms. Researchers provided education through audiovisual media in the form of videos sent via WhatsApp to respondents after a pretest was carried out using a Google form. Audiovisual video media contains the meaning of stimulation, benefits, goals, principles, stimulation of the five senses and prenatal stimulation in the form of music and sound. Next, the researchers gave a post-test questionnaire via Google Forms 14 days after providing the education. The measurement tool used a questionnaire regarding the depth of fetal stimulation knowledge. The components studied were knowledge, totalling 22 questions in the form of unfavourable and favorable questions with right and wrong answers, and 1 behavioral question with a yes or no question answer. How to fill in by selecting answers (multiple choice). The Wilcoxon test is the statistical analysis method employed. The purpose of this study is to ascertain how fetal stimulation knowledge and behavior among pregnant women in the *Bandengan* Subdistrict are related to education through audiovisual media.

Results

This research was conducted during the COVID-19 epidemic situation so all data collection activities were carried out online with the help of the WhatsApp and Google form applications. The intervention was also carried out online by distributing audiovisual media embedded at the end of the Google form pretest. Following are the study's findings.

Table 1. Frequency Distribution of Mother's Knowledge Level of Fetal Stimulation

Category	Frequency			
	Pretest	**%**	**Posttest**	**%**
Good (>75%) / score 15-20	59	80,8	71	97,3
Fair (56-75%) / score 11-14	13	17,8	2	2,7
Less (<56%) / score 1-10	1	1,4	0	0
Total	73	100	73	100

Based on Table 1, the knowledge level of respondents regarding fetal stimulation showed that in the pretest good knowledge of 59 respondents (80.8%), sufficient knowledge of 13 respondents (17.8%) and knowledge of less than 1 respondent (1.4%). The posttest shows good knowledge of 50 respondents (97.3%), sufficient knowledge of 2 people (2.7%) and less knowledge of 0 respondents (0%).

Table 2. Frequency Distribution of Fetal Stimulation Behavior

Category	Frequency
Yes (doing stimulation)	73 (100%)
No (does not stimulate)	0 (0%)
Total	73 (100%)

Based on Table 2 with the question of whether to stimulate or communicate with the fetus, all respondents answered yes (100%) because they had received more education and knowledge about fetal stimulation.

Bivariate analysis was carried out to find out the relationship between the independent variable (education using audiovisual media) with the dependent variable (knowledge of pregnant women about fetal stimulation). Before the data was analyzed, the Kolmogorov-Smirnov test was used to check the data's normality first. The knowledge variable's normality test findings yielded pretest data with a p-value of 0.005 (P<0.05) while in the posttest column, it showed a p-value of 0.000 (P<0.05), therefore it was concluded that the data were not normally distributed, then for knowing the difference in knowledge during the pretest and posttest the authors used the Wilcoxon Test.

Table 3. Results of the Wilcoxon Test on Variable Knowledge of Pregnant Women about Fetal Stimulation

Knowledge	*Wilcoxon Test*		
	Mean	**Total**	***p-value***
Pretest	16,26	73	0,000
Posttest	18,45		

Table 3 showed that at the pretest the mean score of pregnant women's knowledge about fetal stimulation was 16.26, while at the posttest the score was 18.45. This shows an increase in the average score of pregnant women's knowledge about fetal stimulation from 16.26 to 18.45. It is also known that the Wilcoxon test results show a difference between pregnant women's knowledge of fetal stimulation before and after the intervention is administered, and that this difference has a p-value of 0.000 (<0.05), indicating that the intervention has an impact on pregnant women's knowledge.

Discussion

Description of the Knowledge Level of Pregnant Women Regarding Fetal Stimulation in *Bandengan* Village, *Kendal* District, *Kendal* Regency

The results of the study, mean score at the time of the pretest was 16.26. While the mean score at the time of the posttest was 18.45. This demonstrates that the average value of knowledge has increased, so it can be concluded that the value of knowledge is better at the time of the posttest after being given the intervention. It can be described according to the table of the frequency of pregnant women with good knowledge on the pretest of 59 respondents (80.8%), 13 respondents (17.8%) and less knowledge of 1 respondent (1.4%). Whereas in the post-test pregnant women with good knowledge 71 respondents (97.3%), 2 people (2.7%) had sufficient knowledge and 0 respondents (0%) had insufficient knowledge. This shows an increase in the category of good knowledge in pregnant women.

Knowledge is one of the variables that is expected to increase in this study after being given health education interventions using audiovisual media regarding fetal stimulation. Knowledge is the result of "knowing" that occurs after a person experiences the process of sensing an object. Optimal sensing will

produce new knowledge. The senses of sight and hearing themselves are two senses that have a major influence on one's knowledge (Notoatmodjo, 2014). In accordance with Sari & Wijayanti's research (2013), the stimulation of fetal intelligence in the womb and pregnant women's understanding of fetal development are positively and significantly related. Certain knowledge about health, such as about fetal development, is important before someone stimulates fetal intelligence. This is because a person's actions tend to be based on the knowledge he has, so with good knowledge about fetal development it is hoped that someone can stimulate the intelligence of the fetus in the womb. The influence of knowledge on child development is very important because knowledgeable women will be more concerned with their child's growth. On the other hand, if the mother doesn't monitor the child's development and doesn't give it stimulation, the infant could face developmental delays (Nuraina, 2020).

Growth stimulation is well related to the purpose of providing stimulation. Knowledge of pregnant women about fetal growth is necessary for success in stimulation. Lack of counselling, information, and education (IEC) services is one of the factors contributing to pregnant moms' lack of awareness (Ekayanthi & Suryani, 2019). This does not correlate with this research because most respondents (80.8%) had good knowledge. Education is one component of a person's knowledge contributor. Education can be provided in non-formal forms such as health education or counselling to convey information or material about it so that the audience has better knowledge than before being given education. This is in accordance with Notoatmodjo (2014) which states that one of the factors that influence knowledge is education. Education is the provision of direction on a subject by a third party so that the recipient may comprehend it. In addition, information media also influences knowledge, here the author uses audiovisual media regarding fetal stimulation as a means of imparting knowledge. Suparni & Aisyah (2019) revealed that to be able to carry out stimulation, knowledge about fetal stimulation is needed.

Description of the Behavior of Pregnant Women Regarding Fetal Stimulation in *Bandengan* Village, *Kendal* District, *Kendal* Regency

The results of the answers to the behavioral variables after being given education, all respondents as many as 73 respondents (100%) answered that they often carry out stimuli according to the material in audiovisual media, such as communicating with the fetus or inviting the fetus to tell stories, listening to classical music such as Mozart, stimulating the fetus's sense of sight by attaching a flashlight to the mother's stomach, and stimulating the fetus's sense of taste through tactile stimulation by stroking. stomach. Stimulation is carried out every day and as often as possible when the opportunity arises. This means that education also affects the behavior of pregnant women because the education provided is education related to pregnancy, a way to stimulate a baby's intelligence with an audiovisual approach that makes pregnant women better understand how to stimulate or communicate with the fetus.

This is in accordance with the basic theory developed by Lawrence Green (1991) in Nursalam (2014), The following factors have an impact on behavioral causes: Knowledge and attitudes are among the predisposing elements (Predisposing elements). After pregnant women get education about fetal stimulus through audiovisual media it becomes knowledge that triggers pregnant women to continue to

stimulate or communicate with the fetus for the sake of the baby's intelligence. Nuraina (2020) revealed that Prenatal stimulation can take the form of conversation. When a woman speaks, the fetus can understand the words she uses since it can hear the mother's voice. Additionally, since the fetus will progressively identify its mother, communication with the fetus is crucial. Early communication, i.e. while the infant is still in the womb, can help the mother and fetus build a deeper inner bond (Nuraina, 2020).

A theory by Nuraina (2020) explains that at the 16th week of pregnancy, the fetus will begin to hear waves passing through the amniotic fluid. The sound that the fetus likes the most is the mother's voice. The sound of the mother's heartbeat and digestive system is likewise known to the fetus. The fetus also has senses that capture sound sources which are waves. The fetal ear is filled with amniotic fluid so that it perceives sound by vibrations in the cranial bones. These waves are captured by the eardrum through air conduction. Marx and Nagy in their research showed that the fetus tends to reach out and touch the uterine wall when the mother touches her stomach and also touches herself less during that touch (Valiani & HadiAlijanvand, 2021). The sensory system, which includes the senses of hearing, sight, touch, smell, and taste, can also be stimulated by stimulation. Additionally, stimulation can encourage communication, excite the fetus's pleasurable feelings, and promote both gross and fine movements of the hands, feet, and fingers (Nuraina, 2020). So stimulation can stimulate the ability of the fetus so that it can grow and develop optimally. Baibazarova's theory in Setyaningsih (2017) explains that when a pregnant mother gives tactile stimuli to her fetus, the mother will feel close to her baby, this will reduce maternal stress and depression due to a decrease in the amount of cortisol in the blood and amniotic fluid, this has a significant effect on indirectly to the baby (Setyaningsih, 2017).

Relationship between education and audiovisual media with pregnant women's knowledge of fetal stimulation

The Wilcoxon test results in Table 3 obtained a p-value of 0.000 <0.05, which means that the hypothesis is accepted so that there is a relationship between education through audiovisual media on pregnant women's knowledge of fetal stimulation in *Bandengan* Village, *Kendal* District, *Kendal* Regency. The results of this study are in line with the research of Marizi (2019) the results show that audiovisual media is an effective medium to increase one's knowledge because the education provided is packaged in a unique, creative and innovative way.

The intelligence (IQ) of children is not completely influenced by heredity (nature), but also by stimulation (nurture). The influence of nurture will be much greater if done properly. Preparation of superior quality Human Resources (HR) itself can be started from an early age even in the womb (Aisyah in Haka et al., 2022). According to Seodjatmiko in Haka et al. (2022), the brain is an organ that plays a very important role in determining the intelligence of a child. From 8 to 14 weeks of pregnancy, the fetus's brain begins to develop. The brain is an important organ in the body that functions as a centre for control, thinking, emotion, creativity, intelligence and behaviour. Dr. David Chamberlain, an obstetrician from Boston University, United States, stated the results of his research showed that children who start learning from the womb have multiple intelligence abilities at school age. The same

is true of Dr. William Lilley from the University of Auckland in New Zealand, who asserted that youngsters who experience high levels of stimulation beginning in the womb will mature more quickly than those who experience low or no levels of stimulation. The earlier the stimulation is done, the greater the benefits for the child's development (Suri & Nelliraharti, 2019).

Communication is a sort of prenatal stimulation that involves sound. The fetus can hear what the mother is saying when she speaks to it, and as they converse, the fetus learns to identify the mother more and more. Communication that occurs early or even while the fetus is still inside the mother can help to deepen their emotional bond. Communicating with the fetus can help the mother feel as though the fetus is an actual part of her life, which will make it simpler for her to transition to her new role once the baby is born (Fannia et al., 2023). Knowledge of pregnant women about fetal growth is necessary for success in stimulation. Lack of counselling, information, and education (IEC) is one of the factors contributing to pregnant women's limited pregnancy knowledge (Ekayanthi & Suryani, 2019).

In the current situation providing face-to-face education will be at risk for the transmission of COVID-19. The success of an education depends on the learning components including learning media, the use of interesting media accelerates affective cognitive and psychomotor changes (Zakaria, 2017). Audiovisual media is one of the effective learning media for the health education process because it can stimulate the senses of hearing and sight and attracts more attention so that it is easy for respondents to remember (Zakaria, 2017). This is in line with Edgar Dale's cone theory, which describes how the technique and medium affect participants' ability to remember health education messages. One of the cone points claims that hearing and seeing can boost memory by up to 50%.

Audio visual media is a teaching aid that has the form of an image and makes a sound. Audio-visual media displays elements of images and sounds simultaneously when consuming messages or information. Audiovisual media provides a more realistic picture and improves memory retention because it is more interesting and easier to remember (Ningsih, 2021). Audiovisual media has many advantages including not being limited by distance and time, audiovisual in the form of video can also be played continuously as a learning medium, and the information displayed is also packaged as uniquely and attractively as possible to make it easier to remember and arouse the enthusiasm of respondents to get information so that information is easier accepted. The theory put forward by Daryanto is that video as an audiovisual medium in health education can strengthen the learning process as well as the entertainment value of the presentation. The motion shown can be in the form of a matching stimulus or the form of a response expected from the audience. Messages are conveyed more efficiently because moving images can communicate messages quickly and realistically. Therefore, audiovisual media can accelerate the understanding of messages in a more comprehensive manner. Messages are conveyed more effectively because audiovisual presentation makes the audience more concentrated (Karyaningtyas et al., 2020). In line with what was stated Meidiana et al. (2018) state that audiovisual media is commonly used to increase learning motivation or receive information that begins with curiosity, attention, and participation.

According to Anggreyenti S. et al., (2022), Audiovisual media is the easiest media to digest and is in accordance with the times, so it is intended that using this audiovisual material will help mothers know more and have better attitudes and behaviors. According to research results, it is stated that the sense of the eye transmits most of the knowledge to the brain around 75% to 87%, while the other senses transmit knowledge by 13% to 25%. Providing education with audiovisual media in the form of videos can demonstrate a more efficient absorption of information when employing both hearing and sight as opposed to just sight (Wardani & Kurniasari, 2017).

F. Rene Van de Carr, et al., that The Prenatal Enrichment Unit at Hua Chiew General Hospital, in Bangkok Thailand, led by Dr. C. Panthuraamphorn, has conducted a similar study on prenatal infants and the results concluded that: there is a critical period in infant development that starts at about five months before birth and continues for up to two years when brain stimulation and intellectual exercises can enhance the baby's abilities, prenatal stimulation can help develop a baby's orientation and effectiveness in coping with the outside world after he is born, babies who get prenatal stimulation can be better able to control their movements and are better prepared to explore and learn about the environment after birth, babies who are given prenatal stimulation are fast proficient speech, imitating sounds, saying first words, smiling spontaneously, turning to his parents' voices, being more receptive to music, and maturing into a person with stronger social skills (Miftahillah, 2016).

The implementation of interventions for pregnant women in *Bandengan* Village which was carried out online with the help of the Whatsapp application to distribute audiovisual media and Google forms to distribute questionnaires could be implemented properly. This is inseparable from good human resources so that they can make the most of technology. Therefore, it is important to adjust educational media with existing human resources.

Research Limitations

In this study, researchers had limited time so they did not investigate further changes in behavior in respondents. This is based on the theory of behavior change that is influenced by knowledge.

Conclusions

The conclusion from this study is that there is a relationship between education through audiovisual media and pregnant women's knowledge about fetal stimulation in the *Bandengan* Village based on a p-value finding of 0.000, with a description of pregnant women's behavior regarding fetal stimulation after receiving education of 100%. For future researchers, it is hoped that they can use other methods that are more perfect in the health education model. Pregnant women are expected to have the self-awareness to seek the best information for the growth and development of their babies, as well as health service providers to be able to provide optimal service to pregnant women to obtain a quality generation.

References

Almatsier, S. (2014). *Prinsip Dasar Ilmu Gizi*. Jakarta: PT. Gramedia Pustaka Utama.

Badan Pusat Statistik (BPS). (2022). *Indeks Pembangunan Manusia 2021*. https://www.bps.go.id/publication/2022/05/11/48b6466dcf14b562df9f17e2/indeks-pembangunan-manusia-2021.html

Ekayanthi, N. W. D., & Suryani, P. (2019). Edukasi Gizi pada Ibu Hamil Mencegah Stunting pada Kelas Ibu Hamil. *Jurnal Kesehatan*, *10*(3), 312–319. https://doi.org/10.26630/jk.v10i3.1389

Fannia, N. A., Misrawati, & Wahyuni, S. (2023). Pengaruh Edukasi Stimulasi Janin Menggunakan Media Video Terhadap Kedekatan Emosional Ibu dan Janin. *COMSERVA: Jurnal Penelitian Dan Pengabdian Masyarakat*, *2*(9), 1677–1684. https://doi.org/10.36418/comserva.v2i09.531

Haka, I. N., Setiasih, S., & Hardjanti, T. S. (2022). Edukasi Stimulasi Janin Secara Audiovisual Mempengaruhi Tingkat Pengetahuan Ibu Hamil. *Midwifery Care Journal*, *3*(4), 139–134. https://doi.org/10.31983/micajo.v3i4.9256

Jurana. (2017). Perkembangan Motorik Kasar dan Halus Pada Anak Usia 1-3 Tahun (Toodler)Di KelurahanMamboro Barat Wilayah Kerja Puskesmas Mamboro. *Jurnal Ilmiah Kedokteran Medika Tadulako*, *4*(3). http://jurnal.untad.ac.id/jurnal/index.php/MedikaTadulako/article/view/9293

Karyaningtyas, W., Martanti, L. E., & Widyastuti, E. (2020). The Effectiveness of Booklets and Animation Videos on Increasing the Danger of Post Partum Signs Knowledge on the Husband. *Journal of Midwifery Science : Basic and Applied Research*, *2*(1), 8–17. https://ejournal.poltekkes-smg.ac.id/ojs/index.php/JOMISBAR/article/view/5931/1763

Marizi, L., Novita, N., & Setiawati, D. (2019). Efektivitas Media Audiovisual Tentang Kontrasepsi Intra Uterine Device Terhadap Pengetahuan Wanita Usia Subur. *JPP (Jurnal Kesehatan Poltekkes Palembang)*, *14*(1), 7–12. https://doi.org/10.36086/jpp.v14i1.280

Meidiana, R., Simbolon, D., & Wahyudi, A. (2018). Pengaruh Edukasi melalui Media Audio Visual terhadap Pengetahuan dan Sikap Remaja Overweight. *Jurnal Kesehatan*, *9*(3), 478–484. https://ejurnal.poltekkes-tjk.ac.id/index.php/JK/article/view/961/836

Miftahillah. (2016). Urgensi Pendidikan Pranatal bagi Ibu Hamil. *SELING: Jurnal Program Studi PGRA*, *2*(2), 150–169. https://jurnal.stitnualhikmah.ac.id/index.php/seling/article/download/227/209/

Ningsih, P. A. (2021). *Pengaruh Pendidikan Kesehatan Menggunakan Media Audio Visual (Video) terhadap Pengetahuan dan Sikap Remaja Putri tentang Abortus yang Tidak Aman di SMA 6 Konawe Selatan* [Poltekkes Kendari]. http://repository.poltekkes-kdi.ac.id/2367/2/PUTRI AYU NASKAH NEW.pdf

Notoatmodjo, S. (2014). *Ilmu Perilaku Kesehatan* (2nd ed.). Jakarta: Rineka Cipta.

Nuraina. (2020). *Pengalaman Ibu Hamil dalam Melakukan Stimulasi pada Janin di Praktik Mandiri Bidan (PMB) Sleman Yogyakarta* [Universitas 'Aisyiyah Yogyakarta]. http://digilib.unisayogya.ac.id/5420/1/NURAINA_1810102026_S2 ILMU KEBIDANAN_NASPUB - Nuraina Ramli.pdf

Rahman, I. K., & Hardiana, L. (2022). Konsep bimbingan dan konseling ibu hamil dalam menstimulasi kecerdasan janin dan metode pendekatannya menurut perspektif Baihaqi. *Jurnal Pendidikan Islam*, *15*(1). 73–84. https://doi.org/10.32832/tawazun.v15i1.6325

Rumahorbo, R. M., Syamsiah, N., & Mirah. (2020). Faktor-Faktor yang Mempengaruhi Tumbuh Kembang Balita di Wilayah Kerja Puskesmas Pancur Batu. *CHMK HEALTH JOURNAL*, *4*(2), 158–165. http://cyber-chmk.net/ojs/index.php/kesehatan/article/view/795

S., C. D. A., Kartini, A., & Martini, M. (2022). Media Edukasi Terhadap Peningkatan Pengetahuan Ibu Hamil dalam Pencegahan Stunting: Literature Review. *MPPKI : Media Publikasi Promosi Kesehatan Indonesia*, *5*(12), 1532–1539. https://doi.org/10.56338/mppki.v5i12.2847

Sari, D. N., & Wijayanti. (2013). Hubungan antara Tingkat Pengetahuan Ibu Hamil tentang Perkembangan Janin dengan Stimulasi Kecerdasan Janin dalam Kandungan di BPM Sri Lumintu Surakarta. *Jurnal Kebidanan*, *5*(2), 21–32. https://doi.org/https://doi.org/10.35872/jurkeb.v5i2.119

Setyaningsih, M. M. (2017). Analisa Pengaruh Stimulasi Janin terhadap Temperamen Bayi (Suatu penelitian retrospektif pada bayi berusia 2 – 3 bulan). *Jurnal Keperawatan Malang (JKM)*, *2*(1), 8–17. https://doi.org/10.36916/jkm.v2i1.20

Sugiyono, P. D. (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D* (2nd ed.). Bandung: Alfabeta.

Suparni, F., & Aisyah, R. D. (2019). Paket Edukasi Brain Booster Pada Ibu Hamil di Kabupaten Peklaongan. *Jurnal Kesehatan Dan Kebidanan*, *08*, 93–101. http://dx.doi.org/10.30591/siklus.v8i2.1095

Suri, M., & Nelliraharti. (2019). Intensitas Komunikasi Ibu Hamil terhadap Janin sebagai Rangsangan Pendengaran dan Perkembangan Otak dalam Perkenalan Kosakata. *Jurnal Kesehatan Dan Kebidanan*, *5*(2), 33–38. https://jurnal.uui.ac.id/index.php/jes/article/view/584

UNICEF. (2019). *The State of The World's Children (2019): Children, Food and Nutritioin Growingwell in A Changing World (The State of The World's Children)*. New York: UNICEF.

Valiani, M., & HadiAlijanvand, S. (2021). The Effect of Fetus Stimulation Techniques on Newborn Behavior. *Iranian Journal of Nursing and Midwifery Research*, *26*(6), 550–554. https://doi.org/10.4103/ijnmr.IJNMR_142_20

Wardani, A. I., & Kurniasari, L. (2017). *Pengaruh Media Video Terhadap Pengetahuan Dalam Upaya Pencegahan Perilaku Seks Pranikah pada Siswa Kelas VIII di SMP Nuri Samarinda* [Sekolah Tinggi Ilmu Kesehatan Muhammadiyah Samarinda]. https://dspace.umkt.ac.id/bitstream/handle/463.2017/105/PUBLICATION MANUSCRIPT DOC ASTRID.pdf?sequence=2&isAllowed=y

Yulita, D., & Yanti, M. (2020). Faktor–Faktor yang Berhubungan dengan Pelaksanaan Stimulasi Janin dalam Kandungan. *Jurnal Kesehatan Perintis (Perintis's Health Journal*, *7*(2), 65–70. https://doi.org/10.33653/jkp.v7i2.495

Zakaria, F., Rono, H., & Kartini, F. (2018). Pengaruh Pendidikan Kesehatan Dengan Media Audiovisual Terhadap Sikap Ibu Tentang Inisiasi Menyusu Dini. *Jurnal Kebidanan Dan Keperawatan Aisyiyah*, *13*(2), 128–140. https://doi.org/https://doi.org/10.31101/jkk.396

EMBRIO JURNAL KEBIDANAN
p-ISSN: 2089-8789
e-ISSN: 2714-7886

The Influence of Counseling and Media Leaflets on Increasing Dysmenorrhea Knowledge

Ni Nyoman Sri Artina Dewi, Dyah Woro Kartiko Kusumo Wardani, Dewi Novitasari Suhaid*

STIK Sint Carolus, Jakarta, Indonesia

ARTICLE INFORMATION

Received: 26, June, 2023
Revised: 12, September, 2023
Accepted: 25, September, 2023

KEYWORD

Counseling; Dysmenorrhea; Knowledge; Leaflet

Penyuluhan; Dismenore; Pengetahuan; Leaflet

CORRESPONDING AUTHOR

Ni Nyoman Sri Artina Dewi
Salemba Raya No 41 Jakarta Pusat 10440
komang.artina@gmail.com
+6281809128381

DOI

https://doi.org/10.36456/embrio.v15i2.7556

A B S T R A C T

Dysmenorrhea is a symptom that arises due to abnormalities in the pelvic cavity and interferes with daily activities, especially in school-age adolescents. It was reported that between 30% and 60% of young women who had dysmenorrhea did not go to school. Treatment of dysmenorrhea can be carried out pharmacologically or non-pharmacologically, depending on the aspect of knowledge. Counselling is known to be effective in increasing knowledge, and leaflets and printed media also facilitate the teaching and learning process. This study aims to determine the effect of counselling and leaflet media on increasing knowledge. The study used a non-equivalent control group design. The research sample was taken by simple random sampling using a questionnaire to assess knowledge about dysmenorrhea. The analysis used a paired t-test to determine the effect of counselling and leaflet media and an independent t-test to determine the most influential media. The results showed that there was an effect of increasing knowledge by providing material through counselling and leaflets ($p < 0.05$). Leaflets are concluded to increase knowledge, compared to counselling.

Dismenore merupakan gejala yang timbul akibat adanya kelainan dalam rongga panggul dan mengganggu aktivitas sehari-hari terutama pada remaja usia sekolah. Dilaporkan dari 30% - 60% remaja wanita yang mengalami dismenore, didapatkan 7 % - 15% tidak pergi ke sekolah. Penanganan dismenore dapat dilakukan secara farmakologis dan non farmakologis yang bergantung pada aspek pengetahuan. Penyuluhan diketahui efektif dalam meningkatkan pengetahuan dan leaflet sebagai media cetak juga mempermudah dalam proses belajar mengajar. Penelitian ini bertujuan mengetahui pengaruh penyuluhan dan media leaflet dalam meningkatkan pengetahuan. Penelitian menggunakan rancangan non-equivalent control group design. Sampel penelitian diambil secara simple random sampling menggunakan kuesioner untuk menilai pengetahuan tentang dismenore. Analisis menggunakan uji paired t-test untuk mengetahui pengaruh penyuluhan dan media leaflet, dan independen t-test untuk mengetahui media yang paling berpengaruh. Hasil penelitian menunjukkan ada pengaruh peningkatan pengetahuan dengan pemberian materi melalui penyuluhan dan leaflet (p< 0,05). Leaflet disimpulkan lebih meningkatkan pengetahuan dibandingkan penyuluhan.

Introduction

Adolescence is a time of transition from child to adult. At this point, a teenager is going through a developmental phase marked by the maturity of the reproductive organs (Setiawan & Allizamar, 2019). The youth population of the world's total population is around 1.2 billion or around 18% (Bulu et al., 2019). The Central Statistics Agency reports that the number of teenagers or the so-called Generation Z in Indonesia in 2020 is 46.8 million people (27.94%), while the number of teenagers in

DKI Jakarta in 2020 is 16.10%, of which 48.59% are teenage girls. The prevalence of dysmenorrhea in adolescents in Central Jakarta reached 87.5%, where 20% of respondents experienced mild pain, 64.76% moderate pain, and 14.76% severe pain (BPS, 2021; BPS DKI Jakarta, 2021; Wahyuni & Zulfahmi, 2021).

The WHO defines youth as citizens aged 10-19, while the Indonesian Minister of Health states that youth are residents aged 10-18. In addition, the BKKBN regulates the age of young people between 10-24 years and unmarried people (Kementerian Kesehatan Indonesia, 2018; WHO, 2020).

Changes that adolescents experience lead to adolescents reaching puberty. Maturity of the reproductive organs is a sign that occurs in adolescents. Especially in adolescent girls, this period is marked by the onset of menstruation. Menstruation is bleeding that occurs regularly due to the detachment of the uterine lining in the uterine wall. Menarche, or menstruation, first occurs between the ages of 12 and 16. One of the discomforts that appear during the menstrual process is the feeling of cramps in the lower abdomen, causing pain; this is called dysmenorrhea. Dysmenorrhea depends on the individual's description of pain, perception, and experience (Hamang, 2020; Solihati & Sa'idah, 2020).

According to the World Health Organization (WHO), the incidence of dysmenorrhea is quite high worldwide, according to Indrayanis Research (2021), with the average incidence of dysmenorrhea in young women ranging from 16.8% to 81%. It was reported that out of 1,769,425 (90%) women with dysmenorrhea, 10-15% had severe dysmenorrhea. In Indonesia, an estimated 55% are of childbearing age. In Indonesia, there is 64.25 per cent of cases of dysmenorrhea, of which 54.89% are primary. In adolescent girls, primary dysmenorrhea affects 60%–75% of cases. Dysmenorrhea was estimated to affect 30% to 60% of female teenagers, and it was shown that 7% to 15% of them skipped school. (Cia & Ghia, 2020; Daniel Martinus Sihombing et al., 2022; Indrayani & Antiza, 2021).

Dysmenorrhea is a symptom that occurs due to abnormalities in the pelvic cavity and affects women's activities, but it is not a disease. Dysmenorrhea commonly disrupts daily activities in school-age adolescents. A student suffering from dysmenorrhea has less motivation to study because she cannot concentrate. Therefore, dysmenorrhea in adolescents must be treated with appropriate measures to avoid adverse effects (Efriyanti 2015 dalam (Indrayani & Antiza, 2021).

Health education is a community learning effort so that people are ready to take action to overcome their problems and improve their health. Health promotion in schools is an effective step in communicating information to groups or individuals because schools are institutions for promoting and improving the quality of human resources, including physical, mental, moral, and intellectual (Emilda, 2017).

Treatment to alleviate or even eliminate pain in dysmenorrhea can be pharmacological and non-pharmacological but depends on cognitive or knowledge aspects. In their research, Septiana (2020) concluded that there is a link between knowledge about dysmenorrhea and attitudes towards overcoming it (Septiana & Putra, 2020). When expanding knowledge, print media such as e-brochures are needed to meet all needs in the teaching and learning process (Hanifah Salsabila et al., 2020).

Adolescent dysmenorrhea needs to be treated properly to prevent side effects. Controlling dysmenorrhea requires certain types of expertise. One can broaden their knowledge via a variety of mediums. There has been no research that demonstrates which of the two media is more effective at raising students' awareness of dysmenorrhea, despite numerous studies showing that counselling is effective in raising knowledge and that leaflets as a print medium also make the teaching and learning process easier, particularly in increasing knowledge related to dysmenorrhea.

Researchers are interested in studying "The Influence of Counseling and Leaflet Media in Increasing Knowledge of Dysmenorrhea Among Female Students of SMKN 38 Jakarta" because SMKN 38 is located in Central Jakarta.

Method

This study uses a two-group pretest-posttest design with different treatments for each of the two groups in a quasi-experimental setting. With number 063/KEPPKSTIKSC/V/2022, the STIK Sint Carolus Health Research and Development Ethics Commission has also approved this study as ethical. The sample for each group was obtained by dividing into two groups from all students present in class at the time of sampling. The total population was 120 students, the leaflet group respondents were 61 students, and the counselling group was 59 students. The researchers divided the first two groups, which received treatment in the form of counselling for dysmenorrhea. The second group received treatment in the form of the distribution of dysmenorrhea leaflets. This research was initiated by conducting a pre-test before the consultation and leaflet distribution. The researchers and team then conducted a counselling session for Group 1 and gave Group 2 informational brochures about dysmenorrhea to read for two hours. The material presented in the leaflets and counselling is the same, related to the meaning, classification, risk factors, causes, clinical symptoms, and treatment of dysmenorrhea. They then conducted a post-test on both groups of respondents.

The population of this study consisted of 120 students from SMKN 38 Jakarta who attended the 1st grade. The sample used is a sampling technique with specific considerations and criteria. The inclusion criteria in this study were female gender and willingness to be part of the sample. Respondents can be included in the dropout category if they do not take part in all activities (pretest, treatment, and posttest) or receive two treatments simultaneously. The questionnaires used before and after the test were used in previous studies (Wardani et al., 2021). The results obtained were then analyzed with SPSS. Bivariate analysis using the paired t-test compared the mean knowledge of the two groups. An independent t-test analysis was then used to find the difference in mean scores between one group and another.

Results

The bivariate analysis takes into account the data normality test using the Mann-Whitney test. The results of the analysis showed that only variable menstrual length had an impact on the incidence of dysmenorrhea in the two treatment groups <0.05 (p-value = 0.007). This means that H0 was rejected,

and it could be interpreted as a significant relationship between the length of menstruation and the occurrence of dysmenorrhea. The variables of age, menarche, and the number of pads changed per day did not affect the incidence of dysmenorrhea in either the group receiving the package insert or the group receiving counselling.

Table 1. Relationship of Respondent's Age, Age of Menarche, Length of Menstruation, and Number of Pads/Day with The Incidence of Dysmenorrhea in The Two Treatment Groups

Variable	Treatment with leaflets		Treatment with counselling		p- Value
	Dysmenorrhea (n = 51)	No dysmenorrhea (n = 10)	Dysmenorrhea (n = 48)	No dysmenorrhea (n = 11)	
Age (year)					
Average	16.47	16.5	16.48	16.36	
Median	16	16.5	16.5	16	0.993
SD	0.731	0.527	0.595	0.505	
Min-Max	15-18	16-17	13-18	16-17	
Age of Menarche (year)					
Average	12.51	12.4	12.65	12.36	
Median	12	12	12	12	0.817
SD	0.809	1.265	1.194	1.206	
Min-Maks	11-15	11-15	11-17	11-14	
Menstrual length (days)					
Average	6.49	5.5	6.88	5.64	
Median	7	5	7	5	0.0073
SD	1.206	0.850	0.703	0.924	
Min-Max	3-10	5-7	5-9	5-7	
Number of pads/day					
Average	4.01	4.1	4	3.27	
Median	4	4	4	4	0.969
SD	1.392	1.197	1.255	0.944	
Min-Max	2-8	3-7	2-7	3-6	

Table 2. Correlation of Subject Characteristics with Increased Knowledge of Dysmenorrhea in Both Treatment Groups

Correlation of increased knowledge of dysmenorrhea with:	Leaflets		Counseling	
	R	p-value	R	p-value
Age	0.236	0.067	-0.248	0.059
Menarche age	-0.077	0.558	0.017	0.917
Menstrual length	-0.137	0.291	-0.066	0.621
Number of pads	-0.039	0.763	-0.088	0.515

The results of the analysis presented in Table 2 show that not all characteristics show a significant connection with knowledge about dysmenorrhea. Age, age at menarche, length of menses and number of bladders can generally be concluded to have almost no relation to knowledge of dysmenorrhea.

Table 3. Effect of Knowledge of Dysmenorrhea in Both Treatment Groups

	Treatment with leaflets			Treatment with counselling		
	N	Average rating	Number of ratings	N	Average rating	Number of ratings
Difference negative	1[a]	4.00	4.00	21[a]	17.07	358.50
Positive difference	55[b]	28.95	1592.00	25[b]	28.90	722.50
Similarity	5[c]			13[c]		
	61			59		

a. Post-test score < pre-test score
b. Post-test score > pre-test score
c. Post-test score = pre-test score

Based on Table 3, it is known that in students who were given treatment in the form of leaflets, there was one person (1.6%) who had a post-test score lower than the pre-test score, there were five

people (8.2%) who had the same score between post and pre-test, and as many as 55 people (90.2%) experienced an increase in post-test scores. In the counselling group, 25 people (42.4%) experienced an increase in post-test scores, 21 people (35.6%) had a decrease in scores from pre- to post-test, and 13 people (22%) had the same score between post and pre-test.

Table 4. Comparison of Increase in Dysmenorrhea Knowledge Score in Both Treatment Groups

Dysmenorrhea Knowledge Score	Group		P value*
	Leaflet (n = 61)	Counseling (n = 59)	
Pre			
Median	16	16	0.793
Range	10-21	7-22	
Post			
Median	20	17	<0.001
Range	14-24	4-21	
Comparison of pre vs post	p < 0.001	p < 0.001	
Increase (%)	4 (25%)	1 (6,25%)	<0.001

Based on Table 4, it is known that providing information through information leaflets and counselling leads to better knowledge about dysmenorrhea. This is evidenced by the fact that the p-value in the two treatment groups is <0.05. The results of the analysis of the mean percentage between the values before and after the test between information booklets and counselling show that the treatment by distributing information booklets brings about a more significant percentage increase in knowledge compared to counselling. The percentage increase in knowledge rating in the booklet group was 25%, and the percentage increase in knowledge rating in the group given advice was 6.2%.

Discussion

Counselling is a service that is provided to individuals, social organizations, and society to improve the knowledge that affects behavior. By affecting attitudes and behaviors, counselling can also serve as a tool for self-regulation (Mahadewi, 2021). This study demonstrates that test results improved compared to pre-test results after teaching the counselling group about dysmenorrhea, demonstrating an increase in knowledge in 25 (42.4%) female students at SMKN 38 Jakarta. Research conducted in 2021 by the Limaupit Community Health Center in the Lebong Regency suggested that counselling media might improve comprehension (Anderiani, 2021). The goal of counselling is to assist individuals, groups, and communities in learning skills that will modify their behavior. Counselling can influence attitudes and behavior and act as a type of self-control (Mahadewi, 2021).

Similar studies have found a substantial difference between young women's attitudes before and after attending health education at SMK Negeri 5 Surabaya. This demonstrates that the counselling approach to knowledge expansion is successful (Yulinda & Fitriyah, 2020). Research on youths at the Bintang Terampil Orphanage in Bengkulu City shows that counselling has an impact on knowledge because the average level of knowledge rose between before and after counselling. This is because health education takes the form of counselling, allowing youngsters to learn new facts that will broaden their knowledge and help them receive better grades (Sartika et al., 2021). This claim is corroborated by the study's findings, which have a p-value of 0.001 (0.005) and indicate that most respondents'

understanding has improved. Knowledge is a crucial area for influencing one's behavior. Research and experiences with behavior based on knowledge will last longer (PH et al., 2018).

The technologies and media employed in health education affect a person's capacity for memory. When information is received through both the senses of sight and hearing, the message is recalled up to 50% better and can even increase the responders' knowledge (Luxiarti, 2018). Using text and graphics in brochures, you can learn more about a subject. The media flyer condenses and simplifies information to make it shorter and easier to read. Prospectus media are, moreover, reprintable, discussion-capable, enduring, extensive, and distinctive print media (Ramadhanti et al., 2019).

The study's conclusions show that there was a 55-person increase in the pretest score compared to the posttest score, showing that female students at SMKN 38 Jakarta knew more about dysmenorrhea after getting information about it in the leaflet group. With an average difference of 5.43, the leaflet group had more knowledge prior to the intervention, in line with earlier studies (Anderiani, 2021). Studies on Posyandu cadres' MR booster immunization show the booklet method's impact on knowledge expansion. The outcomes of statistical analyses using the paired-sample t-test demonstrate the impact of health education using the leaflet technique on the subject of knowledge, improved knowledge demonstrating that the material is well memorized can be learned (Sari & Hanifah, 2018).

The results of the above research are also supported by other studies, which show that there is a difference in knowledge before and after being given health education through leaflet media. It was found that the average value increases from 1.65 to 1.98; this concludes that leaflet media is effective in increasing knowledge (Andan Firmansyah et al., 2019). The Ralla Community Health Center region underwent the same investigation regarding the efficacy of using leaflets to boost knowledge, and the findings indicated an improvement in knowledge for 48 respondents. This further demonstrates the value of leaflet media in terms of enhancing one's knowledge (Sirvana et al., 2021).

Because brochures are visual aids built on the idea that the five senses contribute to knowledge acquisition, they are successful at spreading knowledge. Additionally, the brochure's wording is maintained straightforwardly for ease of comprehension. Additionally, the intriguing title piques the reader's curiosity about the brochure's content. The combination of text and images in the brochure media also piques the reader's interest and helps them comprehend the content's purpose (Alini & Indrawati, 2018).

According to the study, the percentage gain in knowledge score was 6.2% for the counselling group and 25% for the brochure group. This leads to the conclusion that brochures improve knowledge more than they increase advice. Research has shown that postpartum mothers who get pamphlets or flyers have a greater comprehension of exclusive breastfeeding than mothers who receive lecture-style counselling, and this study supports that finding. This is due to the fact that the lecture technique needs to be revised, making it impossible for the research method to accurately describe how information is delivered. Additionally, each person's level of comprehension can have an impact on the understanding they acquire (Aminuddin & Bong, 2018).

Other consistent research also found that leafleting and counselling had the same impact on behavior change. Still, leafleting media was shown to increase knowledge about health protocols to prevent COVID-19 in the work area of Limaupit Lebong Health Center more than counselling. Leaflets as written media are used as an advertising or marketing tool to convey health messages on a sheet of paper with two or more folds. The content of the message or the information it contains can be in the form of sentences, images, or both, so leaflets have better knowledge-enhancing effectiveness (Anderiani, 2021). Research to improve respondents' knowledge of baby massages performed in Telaga Sari Village also found that the difference in mean scores in improving attitudes was up to 90% better with the leaflet method than with the lecture method, which reached only 77% (Susanti, 2020).

Another study also found that health education through pamphlets given to pregnant women during prenatal care has been shown to improve pregnant women's knowledge of their pregnancy. Leaflets are great for conveying short and media-rich messages, and their compact size makes them easy to carry and distribute. The advantages of leaflets are that they can help officials to teach, they have high visual acuity, they are a connecting tool that can deliver messages and statements in large numbers to the public, there are more opportunities for retraining, and they are easy to carry and disseminate, the process of creating short messages relatively quickly and inexpensively can be simplified. Leaflets allow for 30% mastery of the material, 10% reading and 20% listening. However, if the mode is set to active learning, 90 per cent mastery of the material can be achieved (Admin & Yuli Suryanti, 2021).

Conclusion

Various mediums can be used to expand knowledge. According to the study's findings, teaching female students about dysmenorrhea through educational media and pamphlets can both boost their understanding of the condition. It may be inferred that leaflets increased knowledge more than extensions because the percentage increase in the knowledge score in the leaflet group was 25%, and in the extension group, it was 6.2%. The findings of this study demonstrate that counselling and pamphlets are viable alternatives for educating people. To determine how much the two approaches together will improve things in the future.

References

Admin, & Yuli Suryanti. (2021). Pengaruh Penkes Menggunakan Metode Ceramah Dan Leaflet Terhadap Tingkat Kecemasan Primigravida. *Jurnal Kesehatan Dan Pembangunan*, *11*(22), 110–118. https://doi.org/10.52047/jkp.v11i22.118

Alini, & Indrawati. (2018). Efektifitas Promosi Kesehatan Melalui Audio Visual dan Leafleat Tentang Sadari (Pemeriksaan Payudara Sendiri) Terhadap Peningkatan Pengetahuan Remaja Putri di SMAN 1 Kampar. *Jurnal Ners*, *2*(2). https://doi.org/10.31004/jn.v2i2.187

Aminuddin, M., & Bong, F. S. (2018). Effektifitas Metode Ceramah dan Metode Leaflet/Brosur terhadap Tingkat Pemahaman Ibu-Ibu Post Partum Tentang Asi Eksklusif. *Jurnal Kesehatan Pasak Bumi Kalimantan*, *1*(1), 51–71. http://e-journals.unmul.ac.id/index.php/JKPBK/article/view/3621/2356

Andan Firmansyah, Ahid Jahidin, & Nur Isriani Najamuddin. (2019). Efektivitas Penyuluhan Dengan Menggunakan Media Leaflet Dan Video Bahasa Daerah Terhadap Pengetahuan Bahaya Rokok

Pada Remaja. *Bina Generasi : Jurnal Kesehatan*, *11*(1), 80–86. https://doi.org/10.35907/jksbg.v11i1.138

Anderiani, M. (2021). *Perbandingan Metode Edukasi Penyuluhan Kelompok dan Leaflet terhadap Perilaku Protokol Kesehatan Pencegahan Covid-19 di Wilayah Kerja Puskesmas Limaupit Lebong*. [Thesis, Poltekkes Bengkulu]. Poltekkes Kemenkes Bengkulu Repository. http://repository.poltekkesbengkulu.ac.id/id/eprint/1559

Aprilianti, C., & Ghia, A. (2020). Asupan Kalsium dan Kejadian Dismenore pada Remaja. *Jurnal Ilmiah Permas: Jurnal Ilmiah STIKES Kendal*, *10*(1), 91-96. https://doi.org/https://doi.org/10.32583/pskm.v10i1.658

BPS. (2021). *Hasil sensus penduduk 2020*. https://www.bps.go.id/website/materi_ind/materiBrsInd-20210121151046.pdf

BPS DKI Jakarta. (2021). Jumlah Penduduk Menurut Kelompok Umur dan Jenis Kelamin di Provinsi DKI JAKARTA, 2020. *Badan Pusat Statistik*, 1. https://jakarta.bps.go.id/publication.html?page=2

Bulu, Y., Maemunah, N., & Sulasmini. (2019). Faktor-faktor yang Mempengaruhi Perilaku Bullying pada Remaja Awal. *Nursing News*, *4*(1), 54–66. https://publikasi.unitri.ac.id/index.php/fikes/article/download/1473/1047

Daniel Martinus Sihombing, F., Gunawan, D., & Permata Putri, M. (2022). Pengaruh Pemberian Kompres Hangat Terhadap Penurunan Derajat Dismenore Pada Siswi Mas Ushuluddin Kota Singkawang. *Zona Kedokteran*, *12*(2). 97-106. https://doi.org/10.37776/zked.v12i2.1019

Emilda, S. (2017). *Pengetahuan Remaja Putri Sesudah Penyuluhan Di SMA Bina Cipta Palembang.* https://d1wqtxts1xzle7.cloudfront.net/66383470/SodaPDF_converted_prosiding_emil2018-with-cover-page-v2.pdf?Expires=1627583187&Signature=YyXJ6zLCR8NFZvoJbNeZ9h0GQC5aJfIyAUuUzw-tWPYVp404F4xdxpGe9BHgdcy300kKYSwzuLA5b9leTeRGbf00chCPbjwvT7aHFiDs1oxvLkDvqRdaKZ5

Hamang, S. H. (2020). *Efektivitas Penggunaan Modul Pembelajaran Terhadap Pengetahuan Dan Sikap Remaja Tentang Dismenorhea Di Smpn 4 Pongtiku Makassar*. [Thesis, Universitas Hasanuddin Makasar]. UNHAS Repository. http://repository.unhas.ac.id/id/eprint/956/2/P102172018_tesis_23-10-2020%28FILEminimizer%29_1-2.pdf

Hanifah Salsabila, U., Irna Sari, L., Haibati Lathif, K., Puji Lestari, A., & Ayuning, A. (2020). Peran Teknologi Dalam Pembelajaran di Masa Pandemi Covid-19. *Al-Mutharahah: Jurnal Penelitian Dan Kajian Sosial Keagamaan*, *17*(2), 188–198. https://doi.org/10.46781/al-mutharahah.v17i2.138

Indrayani, T., & Antiza, V. (2021). Penyuluhan dan Pelatihan Akupresur Untuk Mengurangi Nyeri Dismenorea Pada Remaja Putri di Babakan Ciparay Bandung. *Journal of Community Engagement in Health*, *4*(1), 249–253. https://doi.org/10.30994/jceh.v4i1.160

Kementerian Kesehatan Indonesia. (2018). Profile Kesehatan Indonesia Tahun 2017. In *Ministry of Health Indonesia*. https://doi.org/10.1002/qj

Luxiarti, R. (2018). Pengaruh Penyuluhan Kesehatan Terhadap Pengetahuan Masyarakat Tentang Leptospirosis Di Dusun Nogosari Ii Desa Wukirsari Kecamatan Imogiri Kabupaten Bantul Yogyakarta. *Gema Wiralodra*, *9*(2), 231–239. https://doi.org/10.31943/gemawiralodra.vol9.iss2.355

Mahadewi, N. (2021). Perbandingan Pengetahuan Pentingnya Konsumsi Tablet Tambah Darah Melalui Penyuluhan Kesehatan Dengan Video Dan Leaflet. *Bali Health Journal*, *5*(1). http://ejournal.unbi.ac.id/index.php/BHJ/article/view/89

PH, L., Yulianto, E., & Hermanto, H. (2018). Pengaruh Pendidikan Kesehatan Personal Hygiene terhadap Tingkat Pengetahuan dan Sikap Masyarakat. *Jurnal Keperawatan Komprehensif (Comprehensive Nursing Journal)*, *4*(1), 1–6. https://doi.org/10.33755/jkk.v4i1.2

Ramadhanti, C. A., Adespin, D. A., & Julianti, H. P. (2019). Perbandingan Penggunaan Metode Penyuluhan Dengan dan Tanpa Media Leaflet Terhadap Pengetahuan dan Sikap Ibu Tentang Tumbuh Kembang Balita. *Jurnal Kedokteran Diponegoro (Diponegoro Medical Journal)*, *8*(1), 99-120. https://doi.org/10.14710/dmj.v8i1.23304

Sari, A. N., & Hanifah, L. (2018). Pengaruh Pendidikan Kesehatan Dengan Metode Leaflet Terhadap Pengetahuan Kader Posyandu Abadi Tentang Imunisasi Mr Booster. *Intan Husada : Jurnal Ilmiah Keperawatan*, *6*(1), 60-73. https://akperinsada.ac.id/e-jurnal/index.php/insada/article/view/89

Sartika, A., Oktarianita, & Padila. (2021). Penyuluhan Terhadap Pengetahuan Remaja Tentang PKPR. *Journal of Telenursing (JOTING)*, *3*(1), 171-176. https://doi.org/10.31539/joting.v3i1.2192

Setiawan, A., & Allizamar, A. (2019). Relationship Between Self Control and Bullying Behavior Trends in Students Of SMP N 15 Padang. *Jurnal Neo Konseling*, *1*(4), 1–7. https://doi.org/10.24036/00182kons2019

Sirvana, I. H., Sabur, F., & Umar, S. (2021). Efektivitas Penggunaan Media Audiovisual dan Leaflet Terhadap Peningkatan Pengetahuan Pasangan Usia Subur Tentang Alat Kontrasepsi Suntik 3 Bulan di Puskesmas Ralla Kabupaten Barru. *Indonesia Jurnal Kebidanan 5*(2), 42–47. https://doi.org/10.26751/ijb.v5i2.1184

Solihati, & Sa'idah, S. N. (2020). Penyuluhan Pengetahuan Tentang Manfaat Minuman Herbal Kunyit, Jahe dan Madu Terhadap Dismenorea Primer pada Remaja Di Wilayah RT 006 RW 003 Gelam Jaya Pasar Kemis Tangerang. *PIN-LITAMAS*, *2*(1), 248–252. http://ejournal.stikesjayc.id/index.php/PLT/article/view/41

Susanti, N. (2020). Efektivitas Metode Ceramah dan Media Leaflet terhadap sikap dan Pengetahuan Ibu terhadap pijat bayi. *EVIDANCE BASSED JOURNAL*, *1*(1), 28–33. https://ojs.stikessehati.ac.id/index.php/ebj/article/view/5

Wahyuni, W., & Zulfahmi, U. (2021). Prevalensi dan Gambaran Karakteristik Dismenorea pada Remaja. *Griya Widya: Journal of Sexual and Reproductive Health*, *1*(1), 1–13. https://doi.org/10.53088/griyawidya.v1i1.104

Wardani, D. W. K. K., Dewi, N. N. S. A., & Suhaid, D. N. (2021). The Effectiveness of the Use of the Dysmenorrhea e-booklet on Increasing Knowledge of SMAN 28 Tangerang Students in the Covid-19 Era. *Journal of Midwifery*, *6*(2), 62. https://doi.org/10.25077/jom.6.2.62-68.2021

WHO. (2020). *Adolescent health*. WHO. https://www.who.int/southeastasia/health-topics/adolescent-health

Yulinda, A., & Fitriyah, N. (2020). Efektivitas Penyuluhan Metode Ceramah Dan Audiovisual Dalam Meningkatkan Pengetahuan Dan Sikap Tentang sadari di SMKN 5 Surabaya. *Jurnal Promkes*, *6*(2), 116–128. https://e-journal.unair.ac.id/PROMKES/article/viewFile/6439/5917

EMBRIO JURNAL KEBIDANAN
p-ISSN: 2089-8789
e-ISSN: 2714-7886

The Effect of Peer Group Education on Knowledge Levels About the Dangers of Free Sex in Adolescents

Ima Sukmawati, Ayu Silpiani, Elis Noviati, Yuyun Rahayu, Heni Marliany, Rosmiati*

STIKes Muhammadiyah Ciamis, Ciamis, West Java, Indonesia

ARTICLE INFORMATION

Received: 14, July, 2023
Revised: 4, October, 2023
Accepted: 1, November, 2023

KEYWORD

Knowledge; Peer Group Education; The Dangers of Free Sex; Teenagers

Pengetahuan; Peer Group Ecucation; *Bahaya seks bebas; Remaja*

CORRESPONDING AUTHOR

Ima Sukmawati
STIKes Muhammadiyah Ciamis
Imasukma90@gmail.com
+6281214958445

DOI

https://doi.org/10.36456/embrio.v15i2.7768

A B S T R A C T

According to the World Health Organization (WHO), in 2018 stated that 33% of Indonesian teenagers engage in promiscuous sex. The consequences of unrestricted sex include the development of venereal illnesses, STDs, and HIV/AIDS, as well as unintended pregnancy. Peer Group Education is one method for delivering accurate knowledge regarding free sex. It is considered twice as effective as other methods because the facilitator creates a more open atmosphere with a friendly approach, not patronising or judging. The goal of this study is to see how peer group education affects teenagers' understanding of the consequences of unrestricted sex. This study is pre-experimental, with a one-group pretest-posttest design and complete sampling. A questionnaire was used to collect data. The sample size was 42 people which was conducted at SMKN 1 Rancah in March 2022. The results showed that most participants had poor knowledge before the peer group discussion intervention. However, after the intervention, most participants were categorised as having good knowledge, with a mean ± standard deviation (SD) change before and after the intervention of 34.90 ± 3.37 to 47.24±1.39. There is an effect of peer group education on the level of knowledge about the dangers of free sex in adolescents. A structured and comprehensive education programme on the various aspects of the dangers of casual sex, including physical and mental health risks, and social impacts, as well as solutions and strategies to avoid it, is needed.

World Health Organization (WHO) pada tahun 2018 menyatakan bahwa 33 % remaja Indonesia melakukan hubungan seks bebas. Dampak dari seks bebas adalah terjadinya penyakit kelamin, PMS dan HIV/AIDS serta bahaya kehamilan dini. Diperlukan penyampaian informasi yang tepat mengenai seks bebas, salah satunya dengan Peer Group Education yang dinilai 2 kali lebih efektif dibandingkan metode lain disebabkan fasilitator dapat menciptakan suasana yang lebih terbuka dengan pendekatan bersahabat, tidak menggurui atau menghakimi. Tujuan penelitian untuk mengetahui pengaruh pendidikan kelompok sebaya terhadap tingkat pengetahuan tentang bahaya seks bebas pada remaja. Desain penelitian ini adalah pra-eksperimental dengan rancangan one group pretest-posttest design dengan menggunakan total sampling. Data dikumpulkan dengan kuesioner. Jumlah sampel sebanyak 42 responden yang dilakukan di SMKN 1 Rancah pada bulan Maret 2022. Hasil penelitian menunjukkan bahwa sebagian besar partisipan dikategorikan memiliki pengetahuan yang kurang baik sebelum intervensi diskusi kelompok sebaya. Namun, setelah intervensi, sebagian besar partisipan dikategorikan memiliki pengetahuan yang baik, dengan perubahan mean±standard deviasi (SD) sebelum dan sesudah intervensi sebesar 34,90±3,37 menjadi 47,24±1,39. Terdapat pengaruh pendidikan kelompok sebaya terhadap tingkat pengetahuan tentang bahaya seks bebas pada remaja. Diperlukan program edukasi yang terstruktur dan menyeluruh terkait berbagai aspek bahaya seks bebas, termasuk risiko kesehatan fisik dan mental, dampak sosial, serta solusi dan strategi untuk menghindarinya.

Introduction

Adolescence is a transition period marked by physical, emotional and psychological changes. Adolescents have changes in their physical, mental, and emotional organs (Harini & Juwitasari, 2023). Psychological (mental) changes include emotional changes in the form of sensitive conditions, tend to want to know new things so that trial and error behavior appears that causes the desire to have sexual relations (Topan & Yuandari, 2021; Zayanti et al., 2017). The World Health Organization (WHO) states that 33 per cent of Indonesian teenagers have free sex. The Ministry of Health of the Republic of Indonesia said that 58% of adolescents penetrated at the age of 18 to 21 years, and 30% had abortions. Sexual behavior carried out was 88% holding hands, 32% kissing lips, 11% touching or stimulating, and 2% of young women and 5% of young men had sexual relations (Kamalah & Tina, 2021; Sari & Pertiwi, 2018).

The impact of free sex is the occurrence of physical impacts, namely venereal disease, sexually transmitted diseases and HIV/AIDS as well as the dangers of unwanted early pregnancy (L. Jennings et al., 2019; Makaria et al., 2021). Sexually transmitted diseases are diseases that can be transmitted from one person to another through sexual intercourse (Racionero-Plaza et al., 2021). As for the psychological impact, there are feelings of guilt, anger, sadness, regret, shame, loneliness, confusion, stress, self-hatred and the people involved, unable to forgive oneself, and nightmares (Zakiah *et al*., 2022).

Factors that play a role in the emergence of sexual problems in adolescents include the limited service of sex education because it is still considered taboo. Knowledge can shape attitudes so that teenagers are motivated to behave healthily, especially by avoiding free sex (Vongxay et al., 2019). Knowledge can be increased by a group learning process with peers or peer groups (Kamalah & Tina, 2021). Factors that influence free sex behavior in adolescents include lack of parental indifference, low level of family education, peer pressure, understanding of the level of religion (religiosity), lack of knowledge about the dangers of free sex and exposure to pornographic media. Among these factors, peer groups are a very dominant factor in influencing sexual behavior among adolescents (Sasqia E. Putri, 2021).

Peer group education is a combination of educational boundaries and peer groups, which is interpreted as a process to train and motivate a group of children through informal and formal educational activities carried out in a peer group (Fasil et al., 2022). The benefit is to increase knowledge, attitudes, beliefs, and skills, so that they can be responsible (J. M. Jennings et al., 2014). The reasons for using peer group education are economic, practical, effective, and open (Khusniyati et al., 2018).

Researchers conducted a preliminary survey in January 2022 on adolescents at State Vocational High School 1 Rancah and found that 70% of adolescents did not understand the right information related to free sex. In addition, the results of interviews conducted with several adolescents show that adolescents have close friends where the risk of free sex is even greater. Adolescents at State Vocational High School 1 Rancah School have never received health education specifically on the issue of free sex using the Peer Group Education method. This is the background for researchers to conduct research

aimed at knowing the effect of peer group education on the level of knowledge about the dangers of free sex in adolescents.

Method

This study used a Pre-experiment design with a pretest-posttest two-group design approach. We conducted the study in March 2022 at State Vocational High School 1 Rancah Indonesia, involving 42 students selected by total sampling and fulfilling the sample inclusion requirements, such as adolescent students and willing to become respondents by signing a consent letter. Inclusion criteria were XII grade students at State Vocational High School 1 Rancah who were willing to be respondents. Exclusion criteria were students who did not complete the questionnaire. Respondents who did not follow the procedure until the end were excluded from this study.

The variables of this study were adolescent students. In this study, researchers have selected eight students who are used as providers of information related to the dangers of free sex, where the selected students have more knowledge than the respondents. Previously, the eight selected students had received information related to the impact of free sex which contained an explanation of the definition, forms of free sex, causal factors, dangers, and ways to prevent free sex. Before the intervention, researchers measured the level of knowledge of adolescents related to the dangers of free sex (pre-test). Then after the intervention with the peer group discussion method, the researcher again measured the level of knowledge of adolescents related to the dangers of free sex (posttest). In this study, the intervention model was provided in the form of peer group discussions regarding the definition, forms of free sex, causal factors, dangers, and ways to prevent free sex. Each respondent received material using a predetermined intervention tool.

The knowledge questionnaire has 15 questions with right and wrong response choices. If the responder replied correctly, a score of 1 was assigned; if the response was incorrect, a score of 0 was assigned. The scores achieved ranged from 0 to 30. Good categories were assigned when the response score was 25-30 (76-100%), Fair when the answer score was 20-24 (56-75%), and Poor when the answer score was ≤ 19 (0-55%).

The Guttman scale is used in the questionnaire. The fundamental aspect of the Guttman scale is that it is a cumulative scale that only measures one dimension of a multidimensional variable; hence, this scale is dimensionless. The data obtained is either interval data or a dichotomous ratio (two options). The researcher holds a master's degree and has worked as a professor and researcher for 10-15 years. Because the researcher has performed several health sector studies and accumulated numerous questionnaires, he created one for this study. The questionnaire was evaluated on ten respondents prior to the research, and the results got a validity test score < 0.514.

This study created a picture of teenage understanding before and after peer education about the hazards of 1unrestricted sex. Sampling was done using total sampling and obtained a sample size of 50 adolescent respondents, namely eight respondents for peer group education and 42 respondents. There are no disadvantages arising from participation in this study. Respondents voluntarily participated in

this study and were free to stop the study at any time without consequences. Inform consent was obtained before the study started. The research data was stored by the research group with confidentiality and closed access without our permission. This study received permission from SMKN 1 Rancah with number 317/TU.01.02/SMKN1/CADISDIK.WIL XIII and STIKes Muhammadiyah Ciamis with number 136/III.3.AU/F/2022.

Results

Table 1. Characteristics of Respondents

		Frequency	Per cent	Valid Percent	Cumulative Percent
Gender	Male	22	52.4	52.4	52.4
	Female	20	47.6	47.6	47.6
	Total	42	100.0	100.0	100
Age	17	12	28.6	28.6	28.6
	18	28	66.7	66.7	95.2
	19	2	4.8	4.8	100.0
Total		42	100.0	100.0	

Table 1 reveals that the majority of the 42 % of respondents were under the age of 18. Meanwhile, in the gender category, the highest frequency was male, with as many as 22 % of respondents (52.4%).

Table 2. Providing Audio Visuals

Before Peer Group Education				After Peer Group Education			
		Frequency	Per cent			Frequency	Per cent
Valid	Good	4	9.5	**Valid**	Good	33	78.6
	Enough	18	42.9		Enough	9	21.4
	Less	20	47.6				
	Total	42	100.0		Total	42	100.0

Table 2 shows that respondents' knowledge about the dangers of free sex before being given peer group education was highest in the less category of 47.6% of respondents. After being given peer group education, the highest was in the good category, with as many as 78.6% of respondents.

Table 3. Level of Knowledge about the Dangers of Free Sex Before and After Being Peer Group Education

			Statistic	Std. Error
Pre_Test	Mean		34.90	.520
	95% Confidence Interval forMean	Lower Bound	33.85	
		Upper Bound	35.95	
	5% Trimmed Mean		34.89	
	Median		34.00	
	Variance		11.357	
	Std. Deviation		3.370	
	Minimum		28	
	Maximum		42	
	Range		14	
	Interquartile Range		6	
	Skewness		.038	.365
	Kurtosis		-.699	.717
Post_Test	Mean		47.24	.215
	95% Confidence Interval forMean	Lower Bound	46.80	
		Upper Bound	47.67	
	5% Trimmed Mean		47.15	
	Median		47.00	
	Variance		1.942	
	Std. Deviation		1.394	
	Minimum		46	
	Maximum		50	
	Range		4	

Table 3 revealed that most participants (47.6%) had a low understanding prior to the peer group discussion intervention. However, after the intervention, most participants (78.6%) were categorised as having good knowledge, with a mean±standard deviation (SD) change before and after the intervention of 34.90±3.37 to 47.24±1.39.

Table 4. Results of Wilcoxon Test Analysis Level of Knowledge About the Dangers of Free Sex Before and After Peer Group Education

	Average	**Percentage**	***P-Value***
Decrease	0	0	
Increase	38	90.4%	0.000
Permanent	4	9.5%	
Amount	**42**	**100.0**	

Table 4 shows changes before and after peer group education, as evidenced by a p-value of 0.000. This suggests that peer group education has a substantial impact on understanding the hazards of unrestricted sex. Thirty-eight persons (90.4%) reported a gain in knowledge after participating in peer-group education, with an average increase of 12.34%.

Discussion

The results showed that respondents, before peer group education, were categorized as lacking knowledge. According to the results of research by Owa, Sekunda, & Budiana (2020) obtained by all respondents studied in the less category. Nurleny (2018) states that adolescents' knowledge about the dangers of free sex before peer group education is a poor level of knowledge, which is characterised by the number of wrong answers in the pretest, including the question on the item "the impact of free sex".One of the contributing factors is that respondents tend to understand themselves regarding information about sex and do not have relevant sources of information. Taboo and disrespectful reasons are some of the reasons why respondents get information related to free sex (Akbarini & Fitriani, 2020). From the results of interviews with school parties, it is known that adolescents have not received detailed and in-depth interventions related to the topic of free sex. Table 1 shows that 66% are above the age of 18. This indicates that teenagers have reached middle age. At this age, sexual activity begins to increase, and teenagers' interest in high sexuality is fueled by the growth of developing reproductive organs. At this stage, one's ability to capture and think is impacted by one's age. The more a person grows older, the better his or her ability to capture and think, resulting in more knowledge (Nuttall et al., 2022).

The results of increasing knowledge after being given a knowledge intervention using the peer group education method. This is in line with Khusniyati, Purwati, & Vivianni (2018), who states that one of the factors that influence knowledge is peers (peer group). Adequate knowledge of peer groups regarding reproductive health will facilitate healthy and responsible decision-making (Layzer et al., 2017). On the other hand, adolescents' knowledge about reproductive health is low, it will produce information that cannot be accounted for, including myths related to reproductive health that tend to be misleading (Waliyanti et al., 2022). Peer Group Education or peer education is the delivery of education and information delivered by a friend or community group categorized by age, class, or status. Because the information is delivered by their friends using the same language, it can be done anytime and anywhere, and someone will be more open and brave to ask for information from their peers, health

education using the Peer Group Education method is more effective in improving students' knowledge about reproductive health (Mullen et al., 2020). Through peer educators, sensitive messages can be conveyed openly so that many issues of sexuality and reproductive health are obtained. In addition, increased knowledge about the dangers of free sex occurs because of experience, namely in the form of health education with the peer group education method. (2022) states that the level of knowledge can be influenced by experience. The experience in question is in the form of exposure to information obtained by individuals through formal and informal activities, which provide a new memory (Dodd et al., 2022).

Table 4 shows that respondents experienced increased knowledge after peer group education was carried out by as many as 38 people (90.4%), with an average increase of 12.34%. This finding is in accordance with the research of Kamalah & Tina (2021) that health education with the peer group education method increases adolescent knowledge about the dangers of free sex, with a p-value of 0.000 < 0.005. The peer teaching technique is becoming more popular in education since it enhances learning outcomes and produces good effects. Peer-facilitated knowledge improvement builds a bridge between cooperative learning methodologies, encouraging mutual respect and understanding among collaborative learners. Furthermore, research conducted by Nurleny (2018) revealed that there is a significant difference between adolescent knowledge about the dangers of free sex before and after peer-group education. Adolescents' sexual lives are crucial. Adolescents go through developmental stages such as sexual identity, self-esteem, and sexual responsibility. Adolescents require additional assistance in developing knowledge, skills, and behaviors that promote healthy sexual development. Sexual development is healthy. According to many polls, some teenagers in Indonesia have engaged in actions that led to free sex. As a result, teenage sexual health is crucial, where there is a requirement for healthy sexual development.

Researchers argue that peer group education is very effective in triggering the respondents' curiosity about the dangers of free sex. This is demonstrated by the respondents' eagerness to listen to and debate the consequences of unrestricted sex. Peer group education activities become a forum for discussing and exchanging information so that knowledge increases. This increase in knowledge shows the respondents' awareness of the dangers of free sex that can prevent deviant behavior or free-sex behavior. The researcher assumes that peer group education is good as a role model that can influence behavior and knowledge related to free sex. The emotional closeness between peers makes peer group education an easy and effective method.

Conclusions

The results showed that most participants (47.6%) were categorised as having poor knowledge before the peer group discussion intervention. However, after the intervention, most participants (78.6%) were categorised as having good knowledge, with a mean±standard deviation (SD) change before and after the intervention of 34.90±3.37 to 47.24±1.39. Peer group education has great potential to increase knowledge about the dangers of free sex in adolescents. Collaboration and support from

schools and parents are needed to develop more effective sexual education programmes. developing a more effective sexual education programme.

Acknowledgements

The authors would like to thank STIKes Muhammadiyah Ciamis and SMKN 1 Rancah for permitting them to conduct this research. We would like to thank all respondents who have participated in this study.

References

Akbarini, O. F., & Fitriani, H. (2020). Pengaruh Peer Education Terhadap Pengetahuan Siswa SMK Tentang HIV/AIDS di Kota Pontianak. *Jakiyah: Jurnal Ilmiah Umum Dan Kesehatan*, *5*(2), 68–75. https://doi.org/10.35721/jakiyah.v5i2.11

Dodd, S., Widnall, E., Russell, A. E., Curtin, E. L., Simmonds, R., Limmer, M., & Kidger, J. (2022). School-based peer education interventions to improve health: a global systematic review of effectiveness. *BMC Public Health*, *22*(1), 1–13. https://doi.org/10.1186/s12889-022-14688-3

Fasil, N., Worku, A., Oljira, L., Tadesse, A. W., & Berhane, Y. (2022). Association between sexual and reproductive health education in peer group and comprehensive knowledge of HIV among adolescent girls in rural eastern Ethiopia: a community-based cross-sectional study. *BMJ Open*, *12*(10), 1–7. https://doi.org/10.1136/bmjopen-2022-063292

Harini, R., & Juwitasari. (2023). A Systematic Review: Knowledge of Reproductive Health in Adolescents. *KnE Medicine*, *2023*(1), 553–564. https://doi.org/10.18502/kme.v3i2.13091

Jennings, J. M., Howard, S., & Perotte, C. L. (2014). Effects of a school-based sexuality education program on peer educators: The Teen PEP model. *Health Education Research*, *29*(2), 319–329. https://doi.org/10.1093/her/cyt153

Jennings, L., George, A. S., Jacobs, T., Blanchet, K., & Singh, N. S. (2019). A forgotten group during humanitarian crises: a systematic review of sexual and reproductive health interventions for young people including adolescents in humanitarian settings. *Conflict and Health*, *13*(1), 15–17. https://doi.org/10.1186/s13031-019-0240-y

Kamalah, R., Honaryati, H., & Tina, I. (2021). PENGARUH HEALTH EDUCATION MELALUI PEER REVIEW TERHADAP PENGETAHUAN DAN SIKAP REMAJA TENTANG BAHAYA SEKS BEBAS PADA SISWA SMP. *JURNAL KESEHATAN ALMUSLIM*, *7*(1), 24–28. https://doi.org/10.51179/jka.v7i1.431

Khusniyati, E., Purwati, H., & Vivianni, R. (2018). Tentang Pengaruh Peer Educator Terhadap Tingkat Pengetahuan Penanganan Premenstrual Syndrome Pada Remaja Putri Kelas VII SMP Negeri 2 Mojoanyar Mojokerto. *Jurnal Keperawatan*, *6*(2). https://doi.org/10.47560/kep.v6i2.134

Layzer, C., Rosapep, L., & Barr, S. (2017). Student Voices : Perspectives on Peer-to-Peer Teen Pregnancy Prevention in the United States and in. *Journal of School Health*, *87*(7), 513–523. https://doi.org/http://dx.doi.org/10.1111/josh.12519

Makaria, E. C., Rachmayanie, R., & Adawiyah, R. (2021). Teenagers' Promiscuity of Alpha Generation. *Proceedings of the 2nd International Conference on Social Sciences Education (ICSSE 2020)*, *525*(Icsse 2020), 205–210. https://doi.org/10.2991/assehr.k.210222.032

Mullen, C. A., Boyles, E. T., Witcher, A. W., & Klimaitis, C. C. (2020). Dynamics shaping collaborative peer group mentoring among educational leaders. *Mentoring and Tutoring: Partnership in Learning*, *00*(00), 416–438. https://doi.org/10.1080/13611267.2020.1793087

Nurleny. (2018). The Effect of Peer Group Education on SMK Taman Siswa Padang Tahun 2018…. *Jurnal Kesehatan Prima Nusantara Bukittinggi*, *9*(2). 131-137. https://doi.org/10.35730/jk.v9i2.361

Nuttall, A., Mancini, J., Lizin, C., Hamzaoui, S., Mariotti, S., Louesdon, H., Tardieu, S., Viton, J. M., Delotte, J., & Bretelle, F. (2022). Multidisciplinary peer-led sexual and reproductive health education programme in France, a prospective controlled-study. *BMC Public Health*, *22*(1), 1–11. https://doi.org/10.1186/s12889-022-14583-x

Owa, K., Sekunda, M. S., & Budiana, I. (2020). Peer Group Education Meningkatkan Pengetahuan Dan Perilaku Sadari Remaja Putri SMAKN. *Ovary Midwifery Journal*, *1*(2), 60–68. http://ovari.id/index.php/ovari/article/view/17

Racionero-Plaza, S., Duque, E., Padrós, M., & Molina Roldán, S. (2021). "Your Friends Do Matter": Peer group talk in adolescence and gender violence victimization. *Children*, *8*(2), 1–15. https://doi.org/10.3390/children8020065

Sari, M. M., & Pertiwi, F. D. (2018). Gambaran Tingkat Pengetahuan Remaja Tentang Perilaku Seks Pranikah Di Sma Negeri 1 Kandanghaur Kabupaten Indaramayu Jawa Tengah. *Promotor*, *1*(1). https://doi.org/10.32832/pro.v1i1.1424

Sasqia E. Putri, A. (2021). Pengaruh Self Help Group (Shg) Terhadap Pengetahuan Dan Sikap Ibu Dalam Memperkenalkan Pendidikan Seks Bebas Pada Remaja. *Media Husada Journal Of Nursing Science*, *2*(1), 51–62. https://doi.org/10.33475/mhjns.v1i2.36

Topan, R. T. A. R., & Yuandari, E. (2021). Analysis Factors Causing the Occurrence of Free Sex in Banjarmasin. *International Journal of Clinical Inventions and Medical Science*, *3*(1), 26–30. https://doi.org/10.36079/lamintang.ijcims-0301.175

Vongxay, V., Albers, F., Thongmixay, S., Thongsombath, M., Broerse, J. E. W., Sychareun, V., & Essink, D. R. (2019). Sexual and reproductive health literacy of school adolescents in Lao PDR. *PLoS ONE*, *14*(1), 1–14. https://doi.org/10.1371/journal.pone.0209675

Waliyanti, E., Puspita, D., Destyanto, A. A., Mutmainnah, S., Mustikasari, H. P., & Prabowo, R. A. (2022). Youth capacity building in preventing risky sexual behavior in rural areas. *Community Empowerment*, *7*(3), 417–429. https://doi.org/10.31603/ce.5532

Zakiah, L., Safitri, A. W., Karina, K., Sulistiani, S., Astuti, W., & Mutmainah, Z.(2022). Pendidikan Kesehatan Reproduksi : Pendidikan Seksual Pada Remaja MA Al-Aulia. *Jurnal Pemberdayaan Dan Pendidikan Kesehatan*, *1*(02), 66–74. https://doi.org/10.34305/jppk.v1i02.429

Zayanti, N., Nopiantini, R., & Susanti, A. I. (2017). Perbedaan Pengetahuan Dan Sikap Remaja Sebelum Dan Sesudah Diberikan Promosi Kesehatan Mengenai Bahaya Seks Bebas Di Desa Cilayung. *Jurnal Sistem Kesehatan*, *2*(3), 144–148. https://doi.org/10.24198/jsk.v2i3.11960

EMBRIO JURNAL KEBIDANAN
p-ISSN: 2089-8789
e-ISSN: 2714-7886

Women's Anxiety and Fetal Movement in the 3rd Trimester of Pregnancy

Chindy Zulfanji Jannetia, Ika Yudianti, Ita Yuliani*

Poltekkes Kemenkes Malang, Malang, East Java, Indonesia

ARTICLE INFORMATION

Received: 11, August, 2023
Revised: 5, October, 2023
Accepted: 1, November, 2023

KEYWORD

Anxiety; Fetal movement; Kick Counter; Pregnancy

Kecemasam; Gerak janin; Kick counter; Kehamilan

CORRESPONDING AUTHOR

Ika Yudianti
Jl. Besar Ijen 77c Malang
ika_yudianti@poltekkes-malang.ac.id

DOI

https://doi.org/10.36456/embrio.v15i2.7944

A B S T R A C T

Pregnancy is an important period in a woman's life, where there are physiological and psychological changes as well as changes in their status in the family and society. These changes can cause mental disorders of various types, for example, increased stress and anxiety, as well as mood disorders. Maternal anxiety will cause interaction among hormones which leads to alteration of fetal wellbeing. This study aims to determine the correlation between anxiety and the frequency of fetal movement in the 3rd trimester of pregnancy. The subjects of this study were 30 at-risk pregnant women at a TPMB in Malang City, who were selected through consecutive sampling. Measurement of anxiety levels using the PRAQ-R2 instrument, as well as the Kick Counter application to calculate fetal movements. Each subject was observed using both instruments 3 times at intervals a week. The results of the study from 3 series of Chi-Square tests showed significant results, namely there was a correlation between the level of anxiety and the frequency of fetal movement in all measurements (p-value 0.033; 0.042; 0.047). Pregnant women with mild anxiety produce a normal frequency of fetal movements. Conversely, pregnant women with severe anxiety result in abnormal fetal movement frequency. It is recommended that every pregnant woman can maintain mental health so that fetal movements remain normal.

Kehamilan adalah periode penting dalam kehidupan wanita, dimana terjadi perubahan fisiologis dan psikologis, serta perubahan status mereka dalam keluarga dan masyarakat. Perubahan ini dapat menyebabkan gangguan mental dari berbagai jenis, misalnya peningkatan stres dan kecemasan, serta gangguan suasana hati. Kecemasan ibu hamil akan mengakibatkan serangkaian interaksi hormonal yang berimplikasi pada kesejahteraan janin. Penelitian ini bertujuan untuk mengetahui korelasi kecemasan dan frekuensi pergerakan janin pada trimester ke-3 kehamilan. Subyek penelitian ini adalah 30 ibu hamil berisiko di sebuah TPMB di Kota Malang, yang dipilih melalui consecutive sampling. Pengukuran tingkat kecemasan menggunakan instrumen PRAQ-R2, serta aplikasi Kick Counter untuk menghitung gerakan janin. Setiap subjek diobservasi menggunakan kedua instrument sebanyak 3 kali dengan interval seminggu. Hasil penelitian dari 3 seri uji Chi-Square menunjukkan hasil yang signifikan, yaitu terdapat korelasi antara tingkat kecemasan dengan frekuensi pergerakan janin pada semua pengukuran (p-value 0,033; 0,042; 0,047). Ibu hamil dengan kecemasan ringan menghasilkan frekuensi gerakan janin normal. Sebaliknya, ibu hamil dengan kecemasan berat mengakibatkan frekuensi gerakan janin abnormal. Direkomendasikan supaya setiap ibu hamil dapat menjaga kesehatan mental supaya gerakan janin tetap normal.

Introduction

Anxiety and depression in pregnancy will increase maternal cortisol levels for a long time and abundantly. This will lead to increased methylation of stress-related genes by the

placenta/glucocorticoids. Cortisol will cross the placental barrier and enter the fetal circulation, causing fetal neurodevelopmental disorders. This results in decreased fetal movement and hypersensitivity of the HPA axis (Do et al., 2021). When a woman becomes pregnant, physiological and psychological changes occur. The emergence of physiological changes and important psychological changes that require adaptation to ongoing changes are also fundamental problems (Zhang & Ma, 2021). The psychological changes that occur in the first, second and third trimesters of pregnancy will be different. A form of psychological change in the third trimester is a form of irritable behaviour, easily sad, fear and anxiety (Kowalska, 2023).

The problem that exists today is that there is still a high infant mortality rate in Indonesia (20 per 1000 live births by 2020) and according to a preliminary study there were 65% of pregnant women who do not familiar with monitoring the number of their babies' movement so that if there is an emergency in the fetus it cannot be detected immediately. The level of anxiety is very influential on the welfare of pregnant women and fetuses in the womb. Low levels of anxiety in pregnant women can reduce the complications caused so that it can indirectly reduce Maternal Mortality Rate (MMR) and Infant Mortality Rate (AKB) in Indonesia, while high anxiety levels can aggravate complications that occur and increase MMR and NMR. Ongoing anxiety without proper treatment can affect the health of the mother and the fetus she is carrying. The low-risk pregnancy group almost entirely experienced mild levels of anxiety (88.9%), almost all high-risk pregnancies (86.7%) experienced anxiety levels moderate, while very high-risk pregnancies almost all (66.7%) experienced the rate of severe anxiety. (Saputri & Yudianti, 2020).

Pregnancy anxiety is an emotional reaction that occurs in pregnant women. Anxiety occurs in the form of maternal concerns about the well-being of herself and her fetus, during and after childbirth, as well as when she has played the role of a mother (Dunkel Schetter & Tanner, 2012). Anxiety experienced by pregnant women is caused by an increase in the hormone progesterone. In addition to making pregnant women feel anxious, and affecting fetal movement, the increase in hormones also causes emotional disturbances and makes pregnant women tired quickly. Pregnant women who experience anxiety will change neurotransmitters in the brain so that they affect fetal neurotransmitters through the placenta (Renny et al., 2020).

Anxiety can have a negative adverse impact on the mother and fetus from pregnancy to childbirth, such as low birth weight, uterine contraction disorders, bleeding during labour, premature birth, postpartum depression and miscarriage, and even maternal and child mortality (Novitasari et al., 2013). Anxiety can also lead to increased HPA (Hypothalamic-Pituitary-Adrenal) activity, causing alterations in steroid hormone production, changes in social behaviour and reproductive rates in adulthood, hyperactivity disorders, hierarchical and cognitive disorders in children (Do et al., 2021).

In Indonesia, the results of research on anxiety were conducted in the third-trimester primigravida as many as 33.93% experienced anxiety. Another study stated that normal pregnant women in the face of childbirth experienced 47.7% severe anxiety, 16.9% moderate anxiety, and 35.4% experienced mild anxiety (Puty L, Arief W, 2012). The survey results from the Ministry of Health of the Republic of

Indonesia, 2019 that have been carried out in 2018 there were 5,291,143 pregnant women. Pregnant women who experience prolonged feelings of anxiety can reduce the level of attachment between the mother and her fetus. The attachment between mother and fetus should be strengthened since pregnancy because it affects the health of the mother and fetus and the smooth delivery process (Hassan & Hassan, 2017). Studies show that pregnancy-related anxiety can affect pregnancy outcomes, namely shorter gestational age and neurodevelopmental problems in the fetus (Rusmini et al., 2023).

Intrauterine movement of the fetus begins at the end of the eighth week but is visible by the time the fetus is 20 weeks old (Mangesi et al., 2015). Fetal movements become more pronounced, stronger and more stable with increasing gestational age (Tveit et al., 2009). Therefore, the calculation of fetal movement is the mother's activity to understand and calculate the fetal movement/shock she feels with a certain duration and technique. Counting fetal movements is the only independent research method that can be carried out by pregnant women without the help of health professionals or special tools to monitor the condition of the fetus during pregnancy. Mothers who regularly count fetal movements and are informed by health providers if fetal movements are abnormal have the potential to reduce pregnancy mortality and reduce maternal anxiety (Bellussi et al., 2020). Previous studies have shown that counting fetal movement can detect and explain reduced fetal movement, while also assuming that it can alert the mother if she feels a decrease in fetal movement.

The results of a preliminary study conducted at an independent midwife practice in Malang in December 2021, obtained data on the number of pregnant women in the third trimester for the period from November to December 2021 as many as 34 pregnant women. Secondary data obtained from filling out the PRAQ-R2 anxiety questionnaire by 15 third-trimester pregnant women related to psychological conditions in pregnant women, it was found that 56% of pregnant women experienced mild anxiety and 44% experienced moderate anxiety. The cause of the problem is that pregnant women have feelings of worry when approaching labor and concerns about the condition and health of their babies after birth which may affect the activity and welfare of the fetus. Based on the background above, this research aims to find out the relationship between maternal level of anxiety and frequency of fetal movement in third-trimester pregnant women.

Method

This study included correlational analytical research with an observational approach and 60 pregnant women who visited an independent midwife practice in Malang from March to May 2022 and obtained a sample of 30 respondents summed by Slovin's and selected by consecutive sampling. The inclusion criteria of this study are pregnant women with a gestational age of ≥ 28 weeks, have felt fetal movement, have an Android mobile phone, and have internet access. Subjects will be excluded from the study if they experience obstetric pathology. The research instrument used the PRAQ-R2 anxiety questionnaire (Huizink et al., 2016)as well as the Kick Counter App (Yudianti et al., 2022). The data was analyzed with the Chi-Square test. The categorization of PRAQ-R2 would be severe anxiety (≥ score of 37), moderate anxiety (23 ≤ a score of < 37), and mild anxiety (score < 23). Meanwhile, fetal

movement will be defined as normal when there are 3 or more body movements within 2 hours, or abnormal if there are less than 3 body movements within 2 hours. This research has passed ethical review.

Results

The following is the frequency distribution of several demographic characteristics of the respondents.

Table 1. Respondents' Demographic Situation

Characteristic	Category	n	%
Age	<20	1	3.3
	21-35	26	86.7
	>35	3	10.0
	Total	**30**	**100**
Education	Elementary	1	19
	Junior High	3	38.1
	Senior High	23	33.3
	Higher Education	3	9.5
	Total	**30**	**100**
Occupation	Unemployed	21	70.0
	Employed	9	30.0
	Total	**30**	**100**

Of 30 third-trimester pregnant women who joined this research, almost all of them (86.7%) the aged 20-35 years old. Based on education from 30 third-trimester pregnant women, it shows that almost all (76.7%) respondents have high school education. Based on the employment of 30 third-trimester pregnant women showed that most (70.0%) respondents were not working. Based on the number of samples used as respondents, the following is the result of the frequency distribution of research variables, namely the relationship between anxiety levels and fetal movement frequency in third-trimester pregnant women.

Table 2. Anxiety Level in 1st, 2nd, and 3rd Assessment

Characteristic	Category	n	%
1st Assessment	Mild	22	73.3
	Moderate	5	16.7
	Severe	3	10.0
	Total	**30**	**100**
2nd Assessment	Mild	11	36.7
	Moderate	16	53.3
	Severe	3	10.0
	Total	**30**	**100**
3rd Assessment	Mild	14	46.7
	Moderate	13	43.3
	Severe	3	10.0
	Total	**30**	**100**

Based on anxiety levels, measurement 1 showed that most (73.3%) III-trimester pregnant women experienced mild anxiety. Based on the level of anxiety, measurement 2 showed that most (53.3%) pregnant women in the third trimester experienced moderate anxiety. Based on the level of anxiety, measurement 3 showed that almost half (46.7%) of pregnant women in the third trimester experienced mild anxiety.

Table 3. Fetal Movement Frequency in 1st, 2nd, and 3rd Assessment

Characteristic	Category	n	%
1st Assessment	Normal	25	83.3
	Abnormal	5	16.7
	Total	**30**	**100**
2nd Assessment	Normal	23	76.7
	Abnormal	7	23.3
	Total	**30**	**100**
3rd Assessment	Normal	22	73.3
	Abnormal	8	26.7
	Total	**30**	**100**

Table 3 describes that based on the frequency of fetal movement, 1st assessment shows that almost all (83.3%) of fetal movement frequency in measurement 1 is normal. Based on the frequency of fetal movement, 2nd assessment shows that almost all (76.7%) of fetal movement frequency in measurement 2 is normal. Based on fetal movement frequency, the 3rd assessment shows that almost all (73.3%) fetal movement frequency is normal.

Table 4. Level of Anxiety and Fetal Movement Frequency in 1st Assessment

Level of Anxiety	Fetal Movement Frequency				Total		p-value
	Normal		Abnormal				
	n	(%)	n	(%)	n	(%)	
Mild	20	66.7	2	6.7	22	73.3	
Moderate	4	13.3	1	3.3	5	23.3	0.042
Severe	1	3.3	2	6.7	3	3.3	
Total	25	8.3	5	16.7	30	100.0	

Table 4 shows that at the 1st assessment, most (73.3%) respondents experienced mild anxiety with fetal movement frequency more than half (66.7%) were normal, and only a few pregnant women (6.7%) experienced abnormal fetal movement frequency.

Table 5. Level of Anxiety and Fetal Movement Frequency in 2nd Assessment

Level of Anxiety	Fetal Movement Frequency				Total		p-value
	Normal		Abnormal				
	n	(%)	n	(%)	n	(%)	
Mild	7	23.3	4	13.3	11	36.7	
Moderate	15	50.0	1	3.3	16	53.3	0.033
Severe	1	3.3	2	6.7	3	10.0	
Total	23	86.7	7	13.3	30	100.0	

Table 5 shows that in the 2nd assessment, most of the respondents (53.3%) experienced moderate anxiety, since half of them (50%) had normal fetal movement frequency, and only a small group of the respondents (3.3%) had abnormal fetal movement frequency.

Table 6. Level of Anxiety and Fetal Movement Frequency in 3rd Assessment

Level of Anxiety	Fetal Movement Frequency				Total		p-value
	Normal		Abnormal				
	n	(%)	n	(%)	n	(%)	
Mild	13	43.3	1	3.3	14	46.7	
Moderate	8	26.7	5	16.7	13	43.3	0.047
Severe	1	3.3	2	6.7	3	10.0	
Total	22	7.3	8	16.7	30	100.0	

Table 6 shows that in measurement 3, almost half of the respondents (46.7%) experienced moderate anxiety, since their fetal movement frequency almost half of them (43.3%) are normal, and

only a small part of the respondents (3.3%) have abnormal fetal movement frequency. According to the three chi-square tests above, it is known that there was a correlation between the level of anxiety and fetal movement frequency since each statistical test has a p-value of Pearson Chi-Square less than 0.05 (0.033, 0.042, 0.047).

Discussion

The results showed that the anxiety levels of the 30 respondents studied at 3x measurements were mostly experiencing mild anxiety. The results of this study are in accordance with those stated by Saputri & Yudianti (2020), that primigravida mothers in the third trimester often feel anxiety because they are getting closer to the labor process. Mothers will tend to feel anxious about their pregnancy, feel anxious and afraid to face childbirth, considering ignorance is a supporting factor for anxiety. Internal factors that affect the anxiety of pregnant women in the third trimester one of them is age. Based on Table 1 of age data, almost all respondents experiencing mild anxiety levels are of healthy reproductive age with an age range of 20-35 years. The results of this study are in accordance with those stated by (Hassan & Hassan, 2017), a person's age can affect the state of his pregnancy. The age of women during pregnancy affects the level of anxiety in the face of childbirth. Productive age is the age a woman has planned for her pregnancy. Pregnant women of productive age will be more ready to accept their pregnancy and prepare for the presence of their baby so that the mother's feelings will be happier in welcoming the birth of her baby.

One of the external factors that affect the anxiety of third-trimester pregnant women is education. Based on Table 4 of education data, almost all respondents experiencing mild anxiety levels were the last to have a high school education. The results of this study are in accordance with what was stated by (Larasati, 2019), a person's level of education will affect his knowledge. The higher the education, the wider the knowledge. High knowledge will increase a person's awareness to get information about his situation to reduce the anxiety experienced. According to (Argaheni, 2021), the higher a person's education, the more qualified his knowledge will be and the more mature his intellect. The higher a person's education, the greater the opportunity to seek treatment from health workers. Conversely, a lower education will cause a person to experience stress and anxiety that occurs due to a lack of information obtained.

Based on Table 4 of employment status data, most respondents who experience severe anxiety are respondents who are not working. The results of this study are in accordance with those stated by (Larasati, 2019), employment status can affect maternal knowledge. Working mothers have a better level of knowledge than non-working mothers because working mothers will have more opportunities to interact with others, so they have many opportunities to get information about their situation to reduce anxiety approaching labour.

The results of research on the frequency of fetal movements in 30 respondents showed that almost all fetal movement frequencies with normal categories. Fetal movement is a spontaneous movement carried out by the fetus in the womb. Decreased fetal movement can pose a risk of complications such

as fetal growth retardation and stillbirth. If the fetus is silent there is no response at all to physical stimuli and sounds are given, the mother must be vigilant, because there may be hypoxia (lack of oxygen) due to the fetus wrapped around the umbilical cord. The results of this study are in accordance with those stated by (Sroufe, 2005), The attachment between a pregnant woman and her fetus is particularly important because of the potential link between prenatal attachment and good parental behaviour during pregnancy and after birth.

Based on Table 4 age data. According to (Hassan & Hassan, 2017), a healthy reproductive age is the ideal age for a woman who has psychosocial readiness greater than the age under 20 years old who still lacks the knowledge and experience to become a mother. Pregnant women of productive age will be more ready to accept the pregnancy and prepare for the presence of their baby more enthusiastically so that the mother's thoughts and feelings will be happier in welcoming her baby and do not interfere with the welfare of the fetus in the womb.

Based on Table 4 data on employment status data, a small percentage of pregnant women with abnormal fetal movement frequency have working status. The results of this study are in accordance with those stated by (Hassan & Hassan, 2017), employment status can affect maternal knowledge about the importance of maternal and fetal attachment to the welfare of the fetus. Working mothers have a better level of knowledge than non-working mothers because working mothers will have more opportunities to interact with others, so they have many opportunities to get information about their situation. Non-working mothers tend to be more introverted stay indoors and have limited information with their peers so mothers have limited knowledge about developing relationships about well-being or movement in their fetuses (Yani et al., 2021).

The results of the statistical test have revealed the aim of this research, which is a strong relationship between the level of maternal anxiety and the frequency of fetal movements. The results of this study show that the adaptation of third-trimester pregnant women to anxiety before childbirth is very important, as evidenced by several study respondents who experienced abnormal fetal movement frequency caused by several kinds of factors from mothers, namely, mothers who work hard (catering, factory employees), mothers who are at home and feel limited information, mothers who lack exercise, and mothers who rarely make antenatal visits. These results show that the variable level of anxiety can be associated with the variable frequency of fetal movement in third-trimester pregnant women. Anxiety in pregnancy is an emotional reaction that occurs in pregnant women. Anxiety occurs in the form of maternal concern for the welfare of the fetus and herself and the continuity of pregnancy (Dunkel et al., 2012).

Some pregnant women experience feelings of anxiety due to physical and psychological changes experienced (Abasi et al., 2012). Anxiety is considered less important by pregnant women so it is considered normal that can happen to every mother who experiences the process of pregnancy. Anxiety that occurs in pregnant women has a negative effect on the fetus. Pregnant women who experience anxiety will change neurotransmitters in the brain that affect fetal neotransmitters through the placenta which can affect fetal movement. High levels of anxiety increase the chances of premature birth, low

birth weight, miscarriage and infantile disorders (Akbarzadeh et al., 2016). The incidence of anxiety in pregnant women can affect the birth process which can be fatal. Prolonged feelings of anxiety can decrease the level of attachment between the mother and her fetus (Abasi et al., 2012).

Fetal movement monitoring is a simple, inexpensive and low-tech method. The method used is to calculate the baby's movements every day. The number of normal baby movements is about three to five times in an hour, if the results are not satisfactory then it should be checked with ultrasound (Yani et al., 2021). The mother's perception of reduced fetal movement is the most important marker of decreased fetal activity. The mother can control fetal movements carefully and report if there is a decrease in fetal movement to her doctor or health care provider. However, this method can prevent perinatal morbidity and mortality (Samutri & Endriyani, 2021).

The attachment relationship between a pregnant woman and the well-being of her developing fetus has proven important due to the potential link between prenatal attachment and parental behaviour both during pregnancy and after birth (Hassan & Hassan, 2017). The relationship between mother and child begins during pregnancy when the mother fantasizes and dreams of herself as a mother. Mothers want to be closer, and warmer, tell stories to their babies and try to imagine baby crying and parenting. According to (Sroufe, 2005), the quality of the relationship between the fetus and its mother is an important factor affecting the well-being of the fetus. When fetuses develop and move actively and have a comfortable relationship with their mothers, they generally have better growth.

Table 4, 5, and 6 shows that the majority of anxiety is mild with normal fetal movement frequency. This is because anxiety levels can control and control the well-being or movement of the fetus. If the individual cannot control stress by increasing attachment to the fetus, it will experience high anxiety that causes disruption of fetal movement. If pregnant women have a low attachment to the fetus will experience stress, give up easily and do not believe in their abilities. Conversely, if pregnant women have a high attachment to the fetus, they will be able to withstand the stress and anxiety reactions that the mother experiences during the process before delivery which can interfere with the welfare of the fetus. Thus, pregnant women can carry out their pregnancy and childbirth properly.

From these statements, it can be concluded that pregnant women with mild anxiety result in normal frequency of fetal movements. Conversely, pregnant women with severe anxiety result in abnormal fetal movement frequency. Measurements on the variables of anxiety level and frequency of fetal movements were carried out with 3x measurements or data collection with the aim that researchers get constant results, which are seen from anxiety variables with maternal routine factors or maternal psychological changes that may affect anxiety levels. Meanwhile, the frequency of fetal movement from fetal activity factors when approaching labour is the main indicator to monitor fetal wellbeing.

Conclusions

Most of the study respondents experienced mild levels of anxiety. Almost all study respondents with normal fetal movement frequency. The results of the analysis showed a significant relationship between the level of anxiety and the frequency of fetal movement in third-trimester pregnant women.

Third-trimester pregnant women may adapt to anxiety before labour begins since it is proven that the anxiety of third-trimester pregnant women can cause abnormalities in fetal movement. Third-trimester pregnant women can find any information on how to count fetal motion or movement so that they can independently assess fetal well-being through it. On the other hand, midwives should conduct an assessment of 3rd trimester pregnant women's anxiety, along with their fetal movement. Teaching pregnant women in the third trimester how to count fetal movement would be one of the best practices.

References

Abasi, E., Sc, M., Tahmasebi, H., & Zafari, M. (2012). Assessment on effective factors of maternal-fetal attachment in pregnant women. In *Life Science Journal*, *9*(1s), 68-75. http://www.lifesciencesite.com

Akbarzadeh, M., Rafiee, B., Asadi, N., & Zare, N. (2016). Comparative effect of attachment and relaxation training on the perception of fetal movement and mother's anxiety in primiparous women: A randomized controlled study. *Trends in Medical Research*, *11*(2), 62–68. https://doi.org/10.3923/tmr.2016.62.68

Argaheni, N. B. (2021). Efek Pandemi Covid-19 Terhadap Kecemasan Ibu Selama Kehamilan Systematic Review: The Covid-19 Pandemic Effects on Maternal Anxiety During Pregnancy. *PLACENTUM Jurnal Ilmiah Kesehatan Dan Aplikasinya*, *9*(2), 1-15. https://doi.org/10.20961/placentum.v9i2.50129

Bellussi, F., Po, G., Livi, A., Saccone, G., De Vivo, V., Oliver, E. A., & Berghella, V. (2020). Fetal Movement Counting and Perinatal Mortality: A Systematic Review and Meta-analysis. *Obstetrics and Gynecology*, *135*(2), 453–462.https://doi.org/10.1097/AOG.0000000000003645

Do, H. P., Baker, P. R. A., Van Vo, T., Murray, A., Murray, L., Valdebenito, S., Eisner, M., Tran, B. X., & Dunne, M. P. (2021). Intergenerational effects of violence on women's perinatal wellbeing and infant health outcomes: evidence from a birth cohort study in Central Vietnam. *BMC Pregnancy and Childbirth*, *21*(1). https://doi.org/10.1186/s12884-021-04097-6

Dunkel Schetter, C., & Tanner, L. (2012). Anxiety, depression and stress in pregnancy: Implications for mothers, children, research, and practice. *Current Opinion in Psychiatry*, *25*(2), 141–148. https://doi.org/10.1097/YCO.0b013e3283503680

Hassan, N. M. M., & Hassan, F. M. A. E. (2017). Predictors of Maternal Fetal Attachment among Pregnant Women. *IOSR Journal of Nursing and Health Science*, *6*(1), 95–106. https://doi.org/10.9790/1959-06010695106

Huizink, A. C., Delforterie, M. J., Scheinin, N. M., Tolvanen, M., Karlsson, L., & Karlsson, H. (2016). Adaption of pregnancy anxiety questionnaire–revised for all pregnant women regardless of parity: PRAQ-R2. *Archives of Women's Mental Health*, *19*(1), 125–132. https://doi.org/10.1007/s00737-015-0531-2

Kowalska, J. (2023). The Level of Stress and Anxiety in Pregnant Women Depending on Social Support and Physical Activity. *Journal of Clinical Medicine*, *12*(9). https://doi.org/10.3390/jcm12093143

Mangesi, L., Hofmeyr, G. J., Smith, V., & Smyth, R. M. D. (2015). Fetal movement counting for assessment of fetal wellbeing. *Cochrane Database of Systematic Reviews*, *10*. https://doi.org/10.1002/14651858.CD004909.pub3

Novitasari, T., Budiningsih, T. E., & Psikologi, J. (2013). Keefektivan Konseling Kelompok Pra-Persalinan Untuk Menurunkan Tingkat Kecemasan Primigravida Menghadapi Persalinan. *Developmental and Clinical Psychology*, *2*(2), 62-70 https://journal.unnes.ac.id/sju/index.php/dcp/article/view/2578

Puty, I., & Wibowo, A. (2012). Pengaruh Keikutsertaan Senam Hamil Terhadap Kecemasan Primigravida Trimester Ketiga Dalam Menghadapi Persalinan. *Jurnal Biometrika Dan Kependudukan*, *1*(1), 26–32.

Renny, W., Yuliastanti, Y., (2020). Pengaruh Stres Pada Ibu Hamil Trimester III Terhadap Aktivitas Janin Yang Dikandung Di Wilayah Puskesmas Grabag 1 Kabupaten Magelang. *Jurnal Kebidanan*, *12*(02), 146-156. https://doi.org/10.35872/jurkeb.v12i02.387

Rusmini, N. M., Armini, N. W., & Widya Ningtyas, L. A. (2023). Hubungan Tingkat Kecemasan Ibu Hamil Trimester III dengan Pilihan Cara Persalinan Oleh Ibu di Puskesmas Pembantu Batubulan Kangin. *Jurnal Ilmiah Kebidanan (The Journal Of Midwifery)*, *11*(1), 64–70. https://doi.org/10.33992/jik.v11i1.2216

Samutri, E. (2021). Apakah Aktivitas Hitung Gerakan Janin Memicu Kecemasan Ibu Hamil? *Jurnal Kesehatan*, *9*(1), 30–40. https://doi.org/10.35913/jk.v9i1.210

Saputri, I. S., & Yudianti, I. (2020). TINGKAT KECEMASAN IBU HAMIL TRIMESTER III BERDASARKAN KELOMPOK FAKTOR RESIKO KEHAMILAN. *Jurnal Midwifery Update (MU)*, *2*(1), 16-23. https://doi.org/10.32807/jmu.v2i1.72

Sroufe, L. A. (2005). Attachment and development: A prospective, longitudinal study from birth to adulthood. *Attachment and Human Development*, *7*(4), 349–367. https://doi.org/10.1080/14616730500365928

Tveit, J. V. H., Saastad, E., Stray-Pedersen, B., Børdahl, P. E., Flenady, V., Fretts, R., & Frederik, J. F. (2009). Reduction of late stillbirth with the introduction of fetal movement information and guidelines - A clinical quality improvement. BMC Pregnancy and Childbirth, 9. https://doi.org/10.1186/1471-2393-9-32

Yani, F. Y., Adila, D. R. A., & Roslita, R. (2021). Tingkat pengetahuan ibu tentang pemantauan gerakan janin pada ibu hamil dengan preeklampsia. *Jurnal Cakrawala Promkes*, *3*(1), 33–41. https://doi.org/10.12928/promkes.v3i1.2848

Yudianti, I., Amelia, D., Aristina, N. E., Primasari, N., (2022). Pregnant Women Empowerment In Monitoring Fetal Wellbeing Through Fetal Movement Count Mobile Application. *SEAJOM: The Southeast Asia Journal of Midwifery*, *8*(2), 45-54. https://doi.org/10.36749/seajom.v8i2.184

Zhang, Y., & Ma, Z. F. (2021). Psychological responses and lifestyle changes among pregnant women with respect to the early stages of the COVID-19 pandemic. *International Journal of Social Psychiatry*, *67*(4), 344–350. https://doi.org/10.1177/0020764020952116

EMBRIO JURNAL KEBIDANAN
p-ISSN: 2089-8789
e-ISSN: 2714-7886

Acupressure Technique Point P6 (Nei Guan) to Reduce Nausea and Vomiting and Point L14 (Hegu) to Reduce Anxiety in Pregnant Women

Siti Mudlikah

Universitas Muhammadiyah Gresik, Gresik, East Java, Indonesia

ARTICLE INFORMATION

Received: 11, July, 2023
Revised: 17, October, 2023
Accepted: 1, November, 2023

KEYWORD

Acupressure; Anxiety; Nausea; Pregnant women; Vomiting

Akupreseur; Cemas; Mual; Ibu hamil; Muntah

CORRESPONDING AUTHOR

Siti Mudlikah
Jl. Proklamasi No. 54, Trate, Kec. Gresi
mudlikah@umg.ac.id
0895-1440-5851

DOI

https://doi.org/10.36456/embrio.v15i2.7742

A B S T R A C T

Nausea, vomiting, and anxiety can affect the food intake of pregnant women, and nutritional deficiencies can disrupt the growth and development of the fetus in the womb. This study aims to determine the difference between pre-test and post-test after applying acupressure techniques at point P6 (Nei Guan) to reduce nausea and vomiting, and at point L14 (Hegu) to reduce anxiety. The research method used a pure experimental design. The population consisted of first-trimester pregnant women, with a sample of 30 pregnant women divided into three groups of 10 each. Groups 1 and 2 were given acupressure techniques at points P6 (Nei Guan) and L14 (Hegu) for 15 minutes every morning upon waking for 7 days, while group 3 received no treatment. Data on the acupressure technique was collected through observation, using a checklist instrument. Data on nausea and vomiting was obtained from a questionnaire. Anxiety data was obtained from the Hamilton Rating Scale for Anxiety (HRS-A). The Wilcoxon analysis was used. Group 1 had an average decrease of 1.20 in nausea and a decrease of 1.10 in anxiety. Group 2 had an average decrease of 1.20 in nausea and a decrease of 1.50 in anxiety. Group 1 showed no difference in nausea but showed a difference in anxiety. Group 2 showed a difference in both nausea and anxiety.

Mual muntah dan cemas mempengaruhi gizi ibu hamil, kekurnagan gizi dapat menganggu pertumbuhan dan perkembangan janin. Tujuan penelitian untuk mengetahui teknik akupresur titik P6 (Nei Guan) untuk menurunkan mual muntah dan titik L14 (Hegu) untuk menurunkan cemas. Metode penelitian menggunakan rancangan experiment murni, Populasi ibu hamil trimester pertama, Sampel 30 ibu hamil, terdiri 3 kelompok masing-masing 10 ibu hamil, Kelompok 1 dan 2 diberi teknik akupresur titik P6 (Nei Guan) dan titik L14 (Hegu) waktu 15 menit setiap bagun tidur pagi hari selama 7 hari, kelompok 3 tidak diberi perlakukan. Pengambilan observasi, dan ceklis. Data mual muntah diperoleh dari kuesioner. Data cemas diperoleh dari (HRS-A). Analisis Wilcoxon yang digunakan dalam penelitian ini. Kelompok 1 rata-rata penurunan mual 1,20 dan penurunan cemas 1,10. kelompok 2 rata-rata penurunan mual muntah 1,20 dan penurunan cemas 1,50. Kelompok 1 tidak ada perbedaan mual muntah dan ada perbedaan cemas. Kelompok 2 ada perbedaan mual muntah dan cemas.

Introduction

Pericardial point 6 (Nei Guan) acupressure is a massage technique that can stimulate the release of beta-endorphin in the pituitary and adrenocorticotropic (ACTH) inhibits the vomiting center and controls the intestines (Kusumaningsih, 2022). Early pregnancy symptoms such as nausea and vomiting can decrease appetite and cause malnutrition (Mudlikah & Yunita, 2022). Nausea and vomiting are still considered normal symptoms of pregnancy, called morning sickness in the first trimester of pregnancy

at 0-12 weeks (Fauziah et al., 2019). The peak of nausea and vomiting occurs at 9 weeks of age in the morning after waking up (Yuliani & Helena, 2020).

Nausea and vomiting during pregnancy begin at 6-8 weeks of gestation and decrease at 20 weeks of gestation (Fatwa, 2020). Predisposing factors for nausea and vomiting during pregnancy are influenced by internal factors such as maternal age, parity, history of nausea and vomiting, and multiple pregnancies, and external factors such as economy, culture, occupation and family support (Rudiyanti & Rosmadewi, 2019; Yusuf & Wahyuni, 2018).

Prolonged nausea and vomiting during pregnancy can lead to malnutrition (Asyura & Maulidiyah, 2019). The impact can cause complications for both mother and fetus including fetal complications: and growth disorders (Asyura & Maulidiyah, 2019). BBLR congenital abnormalities, stunting, and asphyxia (Mudlikah et al., 2022). Maternal complications include pre-eclampsia, bleeding, infection and others (Anggasari & Anggraini, 2018).

The cause of nausea and vomiting during pregnancy is not known for certain. Each pregnant woman has different characteristics of nausea and vomiting. Several factors are suspected to trigger nausea and vomiting including increased production of estrogen hormone which stimulates stomach acid, formation of HCG (human chorionic gonadotropin) placenta hormone, changes in liver glycogen metabolism and psychological factors in pregnant women (Yuliani & Helena, 2020). Psychologically, anxiety symptoms are experienced by more than 50% of pregnant women, especially first-time pregnancies due to the most common inability to adapt to physical and psychological changes in the pregnancy process. Excessive anxiety can cause stress, depression and pregnancy complications.

The impact of emesis gravidarum results in decreased appetite causing malnutrition in pregnant women which can cause complications from anemia, pre-eclampsia, bleeding and even maternal death in Indonesia (Utama, 2021). Results of the 2018 Basic Health Research show that pregnant women lack calorie energy by 17.3%, with an anemia prevalence of 48.9% despite exceeding the target with additional food intake. However, the causes of maternal death include pre-eclampsia, anemia, and unfulfilled nutritional needs during pregnancy (Kemenkes RI, 2019). Based on data from Dinkes Kab. In Sidoarjo, pregnant women with complications are pre-eclampsia 48%, bleeding 39%, infection 9%, and heart 4% (Dinas Kesehatan Kabupaten Sidoarjo, 2018).

Government strategies in reducing malnutrition rates include; improving nutrition for 1000 days for pregnant women with KEK, pregnant women's classes, early detection of complications and their handling. Nausea and vomiting have the potential to cause malnutrition so prevention and treatment are needed both pharmacologically and non-pharmacologically.

The acupressure technique is a complementary therapy technique that continues to be developed in the health world. Several research results using acupressure techniques point P6, to find out a decrease in nausea and vomiting (Sharifzadeh et al., 2018). The P6 (Nei Guan) acupressure technique is applied through a massage in the area of three fingers below the wrist for 7 minutes and can reduce symptoms of nausea and vomiting. This technique stimulates the regulatory system and endocrine, neurological, and hypothalamic activities to release endorphins, creating a sense of relaxation. Another opinion

suggests that acupressure intervention for 12 hours every day for 3 days helps reduce hospitalization for hyperemesis gravidarum (Lestari et al., 2022). The acupressure technique can also reduce nausea and vomiting in tuberculosis patients with a duration of 15 minutes over 5 days (Platini et al., 2021). Acupressure is also an alternative to preventing anemia in pregnant women (Ningrum, 2022). However, there is no clarity about the frequency, and duration of acupressure techniques and P14 to reduce anxiety. This study will combine the pressure on points P6 and L14, namely: 1) finding a new concept of the effect of P6 acupressure technique on nausea and vomiting and L14 on maternal anxiety, 2) finding a new theory concept of differences in acupressure techniques on points P6 and L14 before and after being carried out.

A preliminary study in 2022 obtained information from 10 first-trimester pregnant women all experiencing nausea and vomiting and pregnant women experiencing anxiety as many as 4 people (40%) and 6 people (60%) were not anxious. From the characteristics of pregnant women obtained middle school education for 3 people and high school education for 7 people. The results of anamnesis knowledge about how to overcome nausea and vomiting were 100% unaware.

Based on this background, efforts are needed to overcome nausea during pregnancy reducing nausea and preventing anxiety which will be carried out in this study about "Acupressure Technique Point P6 (Nei Guan) to Reduce Nausea and Vomiting and Point L14 (Hegu) to Reduce Anxiety in Pregnant Women.**"**

Method

The research method used is the Pure Experiment Design. The population studied consists of first-trimester pregnant women who meet the inclusion criteria, namely those experiencing physiological pregnancy and suffering from nausea and vomiting during the first trimester of pregnancy, Sample size of 30 pregnant women using a purposive sampling technique, consisting of 3 groups each with 10 pregnant women. Groups 1 and 2 were given the same intervention of applying the acupressure technique at points P6 and L14, ten times each, with a duration of 15 minutes over 7 days, every morning upon waking, group 3 was not given treatment. Acupressure technique data was obtained through observation of, a checklist instrument for each group. Nausea and vomiting data was obtained from direct interviews with a questionnaire, namely 0 = no nausea and vomiting, 1 = mild, 2 = moderate, and 3 = severe. Anxiety data was obtained from the measurement of the Hamilton Rating Scale For Anxiety (HRS-A) consisting of 14 symptom statements each detailed specifically with values as follows: 0 = no symptoms, 1 = mild symptoms, 2 = moderate symptoms, 3 = severe symptoms, 4 = very severe symptoms. Wilcoxon statistical test analysis was used in this research.

Results

Table 1. It is known that group 1 had an average value of 2.20 for nausea and vomiting before intervention and an average value of 1.00 after intervention, resulting in a decrease in nausea and vomiting from before to after intervention by 1.20. Meanwhile, pregnant women's anxiety before

intervention had an average value of 2.60 and an average value of 1.50 after intervention, resulting in a decrease in anxiety by 1.10.

Table 1. Frequency Distribution of 3 Groups of Pregnant Women Based on Nausea, Vomiting and Pregnancy Anxiety

Variable	Group 1				Group 2				Group 3	
	Nauseous vomit		Anxious		Nauseous vomit		Anxious		Nauseous vomit	Anxious
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	10	10
N	10	10	10	10	10	10	10	10	2.40	1.20
Mean	2.20	1.00	2.60	1.50	2.40	1.20	2.50	1.00	.843	.789
Std. Deviation	.789	.667	.516	.527	.843	.789	.527	.667	2	2
Range	2	2	1	1	2	2	1	2	1	0
Minimum	1	0	2	1	1	0	2	0	3	2
Maximum	3	2	3	2	3	2	3	2	10	10

The results of group 2 showed that the average value for nausea and vomiting before intervention was 2.40 and after intervention was 1.20, indicating a decrease in nausea and vomiting from before to after by 1.20. Meanwhile, pregnant women's anxiety before intervention had an average value of 250 and an average value of 1.00 after intervention, indicating a decrease in anxiety by 1.40.

For Group 3, which did not receive any intervention, the average nausea and vomiting score remained the same at 170 for both the pre-test and post-test. However, for anxiety, the average pre-test score was 190 and the post-test score was 170, indicating a reduction in anxiety by 20 points.

Table 2. Rank Values for Acupressure Technique Against Nausea and Vomiting

		N	Mean Rank	Sum of Ranks
Group_1_Post_Nausea - Group_1_Pre_ Nausea	Negative Ranks	8[a]	4.50	36.00
	Positive Ranks	0[b]	.00	.00
	Ties	2[c]		
	Total	10		
Group_1_Post_Anxiety - Group _1_Pre_Anxiety	Negative Ranks	9[d]	5.00	45.00
	Positive Ranks	0[e]	.00	.00
	Ties	1[f]		
	Total	10		
Group_2_Post_Nausea - Group _2_Pre_ Nausea	Negative Ranks	10[g]	5.50	55.00
	Positive Ranks	0[h]	.00	.00
	Ties	0[i]		
	Total	10		
Group_2_Post_Anxiety - Group _2_Pre_Anxiety	Negative Ranks	10[j]	5.50	55.00
	Positive Ranks	0[k]	.00	.00
	Ties	0[l]		
	Total	10		
Group_3_Control_Pre_ Anxiety - Group_3_Control_Pre_ Nausea	Negative Ranks	1[m]	3.00	3.00
	Positive Ranks	4[n]	3.00	12.00
	Ties	5[o]		
	Total	10		

Based on the Ranks analysis in group 1, the negative value of nausea and vomiting pre-test and post-test was 4.50, indicating a decrease in nausea and vomiting from the pre-test to the post-test, and the positive rank value of 0 indicated no increase in pregnant women's nausea and vomiting. The negative rank value of anxiety was 5, indicating a decrease in anxiety from the pre-test to the post-test, and the positive rank value of 0 indicated no increase in anxiety.

In group 2, the negative value of nausea and vomiting was 5.50, indicating a decrease in nausea and vomiting from pre-test to post-test, and the positive rank value of 0 indicated no increase in nausea

and vomiting from pre-test to post-test. The negative rank value of anxiety was 5.50, indicating a decrease in anxiety from the pre-test to the post-test, and the positive rank value of 0 indicated no increase in anxiety. Group 3 had a negative value of 3.00 and a positive value of 3.00 as a control group for comparison.

Table 3. Analysis of Differences Before and After P6 and L14 Acupressure Technique.

Test Statistics					
	Group_1_Post_ Nausea - Group_1_Pre_ Nausea	Group_1_Post_ Anxiety Group_1_Pre_ Anxiety	Group_2_Post_ Nausea - Group_2_Pre_ Nausea	Group2_Post_ Anxiety Group_2_Pre_ Anxiety	Group_3_K control_Pre_ Anxiety cGroup_3_Kontrol_P re_ Nausea
Z	-2.585[b]	-2.810[b]	-2.972[b]	-2.913[b]	-1.342[c]
Asymp. Sig. (2-tailed)	.010	.005	.003	.004	.180

The results of the Wilcoxon test analysis in group 1 showed that the Asymp Sig (2-tailed) value of nausea and vomiting was $0.010 \geq \alpha = 0.05$, indicating no difference in nausea and vomiting before and after P6 acupressure technique was applied, while the Asymp Sig (2-tailed) value of anxiety was $0.005 \leq 0.05$, indicating a difference in anxiety before and after L14 acupressure technique was applied. In group 2, the Asymp Sig (2-tailed) value of nausea and vomiting was $0.003 \leq 0.05$, indicating a difference in nausea and vomiting before and after P6 acupressure technique was applied, while the Asymp Sig (2-tailed) value of anxiety was $0.004 \leq 0.05$, indicating a difference in anxiety before and after L14 acupressure technique was applied. Group 3 served as a control group.

Discussion

The results of the nausea and vomiting study in group 1 showed that the average value before intervention was 2.20 and after intervention was 1.00, indicating a decrease in nausea and vomiting from before to after by 1.20. Meanwhile, the average value of anxiety in pregnant women before intervention was 2.60 and after intervention was 1.50, indicating a decrease in anxiety by 1.10. In group 2, the average value of nausea and vomiting before intervention was 2.40 and after intervention was 1.20, indicating a decrease in nausea and vomiting from before to after by 1.20. Meanwhile, the average value of anxiety in pregnant women before intervention was 250 and after intervention was 1.00, indicating a decrease in anxiety by 1.40. Group 3 was not intervened with an average value of nausea and vomiting at 0.843 and anxiety at 0.789.

Nausea and vomiting usually occur during the first trimester, usually in the morning and peak at 9 weeks of pregnancy (Yuliani & Helena, 2020). Factors that influence it include an increase in estrogen hormone production, the formation of HCG (human chorionic gonadotropin) placenta hormones, changes in liver glycogen metabolism, and psychological factors of pregnant women (Yuliani & Helena, 2020; Divall et al., 2017). Predisposing factors for nausea and vomiting include knowledge, economic status, culture, occupation, and family support (Yusuf & Wahyuni, 2018). According to previous studies, knowledge is related to nausea and vomiting during pregnancy (Amarlini, 2020). However, other opinions suggest that knowledge is not related to nausea and vomiting in pregnant women (Mudlikah & Ningrum, 2019). Due to nausea and vomiting, there is a decrease in appetite which

increases the risk of energy calorie deficiency (KEK) indicated by weight loss and mid-upper arm circumference (MUAC) of less than 23.5 cm.

Anxiety occurs due to changes in hormone levels that stimulate nerve tension to become unstable triggers for nausea and vomiting (Yuliani & Helena, 2020). Anxiety easily arises due to the failure of the adaptation process of pregnancy which is exacerbated by depression that impacts the health problems of mothers, babies, and complications (Kartikasari, 2018). According to previous studies, severe anxiety is more likely to lead to depression (Hart et al., 2018). Anxiety factors are influenced by pregnant women under the age of 20, family support, knowledge, stress, depression, education, economic status, personality type, gender and environment (Emami-Sahebi et al., 2018).

The acupressure technique is a complementary therapy using traditional science and technology (Rahmayati et al., 2017). The goal is to provide stimulation through pressure points on the body to reduce nausea and vomiting, improve blood circulation, increase stamina, and reduce pain (KEMENKES, 2015; Anita, 2018), and can also reduce anxiety or stress in pregnant women (Senudin, 2019). How to apply pressure points using fingers or blunt objects. Pressure on point P6 is located on the inside of the arm near the wrist by placing three fingers on the wrist and then placing the thumb from a distance of three fingers then pressing between muscle tissue and bone (Rahmanindar et al., 2021). Meanwhile, pressure on point L14 is located between the first metacarpal bone in the middle between the thumb and index finger bone pressed with a rotating motion that functions to manage emotions. According to previous opinions, L14 can reduce emotions during childbirth (Santiasari, 2020).

The results of this study combined P6 and L14 were performed 3 times a week for 15 minutes after waking up. Group 1 analysis showed no difference in nausea and vomiting before and after being given the P6 acupressure technique and there was a difference in anxiety before and after being given the L14 acupressure technique. Group 2 showed a difference in nausea and vomiting before and after being given the P6 acupressure technique and anxiety showed a difference in anxiety before and after being given the L14 acupressure technique. Group 3 is the control group. Another opinion is that intervening with pressure on point P6 alone for 7 minutes for 4 days a week results in a decrease in nausea and vomiting in the first trimester of pregnant women, reduces hyperemesis gravidarum, cancer, and chemotherapy (Juwita, 2015; Rahmanindar et al., 2021; Ismuhu et al., 2020).

This study resulted in the concept theory that group 1 showed no difference in nausea and vomiting before and after intervention because nausea and vomiting are influenced by several factors so applied research with a larger sample size and longer and regular intervention time is needed. Group 2 showed a difference in influence before and after intervention, and pressure on point 6 in group 2 according to the source of nausea and vomiting to provide good effectiveness in reducing nausea and vomiting. Pressure on L14 in group 1 and group 2 before and after intervention provides an effective influence in reducing anxiety. The results of this study indicate that there is no difference in pregnancy-related nausea and vomiting between Group 1 and Group 2 in the pre-and post-acupressure intervention at point P6 (Nei Guan). The same intervention was given for 15 minutes every morning upon waking for 7 days, but the results showed no difference. This condition is influenced by several factors,

including the varying wake-up times, differing sleep durations, and different activities that can affect the physical condition of pregnant women, which in turn can affect the condition of the stomach and stimulate nausea and vomiting.

Several non-pharmacological alternative therapies for reducing nausea and vomiting in previous studies can use hypnotherapy methods, and yoga exercises in prenatal classes. This study can help government programs in improving the nutrition of pregnant women and efforts to prevent malnutrition and pregnancy complications and prevent child stunting (Alfarisi et al., 2019).

Conclusions

The combination of acupressure techniques on points P6 and L14 was performed 3 times a week for 15 minutes each after waking up in the first trimester of pregnancy, group 1 showed no difference in the effect of reducing nausea and vomiting before and after intervention, group 2 showed a difference in the effect of reducing nausea and vomiting before and after intervention. Meanwhile, anxiety during pregnancy in groups 1 and 2 showed a difference in the effect of reducing anxiety before and after intervention.

Acknowledgements

Acknowledgements to LPPM Muhammadiyah University of Gresik for providing the opportunity and time to conduct research for posyandu cadres and pregnant women as research subjects.

References

Alfarisi, R., Nurmalasari, Y., & Nabilla, S. (2019). Status Gizi Ibu Hamil Dapat Menyebabkan Kejadian Stunting Pada Balita. *Jurnal Kebidanan Malahayati*, *5*(3), 271–278. https://doi.org/10.33024/jkm.v5i3.1404

Amarlini, R. (2020). Relationship Between Knowledge And Attitudes Of Pregnant Women And The Occurrence Of Vomiting In First Trimester Pregnancy In Poskesdes Ampalu Kota Pariaman Bidan Helfiati, Amd. Keb. *Jurnal Surya Medika (JSM)*, *6*(1), 70–76. https://doi.org/10.33084/jsm.v6i1.1620

Anita, A. (2018). Pengaruh Akupresur Lo4 (He Kuk) Dan Thai Cong Terhadap Tingkat Nyeri Persalinan Kala I Pada Ibu Bersalin, Jurnal Kesehatan *9*(3), 471-477. https://doi.org/10.26630/jk.v9i3.1166

Anggasari, Y., & Anggraini, F. D. (2018). Pengaruh Status Gizi Dengan Kejadian Preeklampsia Ibu Hamil Trimester Iii Di Puskesmas Sidotopo Wetan. *The Indonesian Journal of Health Science*, *10*(2), 92. https://doi.org/10.32528/ijhs.v10i2.1861

Asyura, S., & Maulidiyah, M. (2019). Factors That Influence Pregnant Women ' s Nutritional Status In The Working Area Of Kruengraya Puskesmas District , Mesjid Raya District , Aceh Besar District. *Journal of Healthcare Technology and Medicine*, *5*(1), 186–192. https://doi.org/10.33143/jhtm.v5i1.1025

Dinas Kesehatan Kabupaten Sidoarjo. (2018). Profil Kesehatan Kabupaten Sidoarjo Tahun 2018. *Dinas Kesehatan Sidoarjo*, 68.

Divall, B., Spiby, H., Nolan, M., & Slade, P. (2017). Plans, preferences or going with the flow: An online exploration of women's views and experiences of birth plans. *Midwifery*, *54*, 29–34. https://doi.org/10.1016/j.midw.2017.07.020

Emami-Sahebi, A., Elyasi, F., Yazdani-Charati, J., & Shahhosseini, Z. (2018). Psychological

interventions for nausea and vomiting of pregnancy: A systematic review. *Taiwanese Journal of Obstetrics and Gynecology*, *57*(5), 644–649. https://doi.org/10.1016/j.tjog.2018.08.005

Fatwa, T. H. (2020). Pengaruh Rebusan Jahe Terhadap Keluhan Mual Muntah Ibu Hamil. *Jurnal Medika Hutama*, *2*(01), 218-223. https://jurnalmedikahutama.com/index.php/JMH/article/view/77

Fauziah, Q., Wiratmo, P. A., & Sutandi, A. (2019). Hubungan Status Gravida Terhadap Tingkat Keparahan mual dan myntah pada ibu hamil. *Binawan Student Journal (BSJ)*, *1*(3), 160–166. https://doi.org/10.54771/bsj.v1i3.81

Hart, J., Furber, C., Chisholm, A., Aspinall, S., Lucas, C., Runswick, E., Mann, K., & Peters, S. (2018). A mixed methods investigation of an online intervention to facilitate student midwives' engagement in effective conversations about weight-related behaviour change with pregnant women. *Midwifery*, *63*, 52–59. https://doi.org/10.1016/j.midw.2018.05.001

Ismuhu, S. R., Rakhmawati, Wi., & Fitri, S. Y. R. (2020). Akupresur: alternatif mengurang mual dan muntah akibat kemoterapi literature riview. *Journal of Nursing Care*, *3*(3), 150–160. https://doi.org/10.24198/jnc.v3i3.24502

Juwita, L. (2015). Literature Review: Terapi Komplementer Akupresur Pada Titik Perikardium 6 Dalam Mengurangi Mual dan Muntah Pada Kehamilan. *Jurnal Ners Lentera*, *3*(1), 40–50. http://jurnal.wima.ac.id/index.php/NERS/article/view/712

Kartikasari, R. I. (2018). Derajat Kecemasan Ibu Hamil Dengan Kejadian Mual Muntah Pada Trimester 1. *Jurnal Riset Kebidanan Indonesia*, *2*(2), 69–74. https://doi.org/10.32536/jrki.v2i2.27

KEMENKES. (2015). *Panduan Akupresur mandiri bagi pekerja*.

Kemenkes RI. (2019). Laporan Akuntabilitas Kinerja 2018. *Direkorat Gizi Masyarakat*, *1–52*(9), 1689–1699.

Kusumaningsih, M. R. (2022). AKUPRESSURE SEBAGAI TERAPI MUAL MUNTAH PADA IBU HAMIL . *Scientific Proceedings of Islamic and Complementary Medicine*, *1*(1), 29–40. https://doi.org/10.55116/SPICM.V1I1.5

Lestari, A. D., Sadila, A. S., Nara, A. D., Ayu, A., Putri, F., Febriani, A. N., & Barokah, A. F. (2022). AKUPRESUR MENGURANGI MUAL MUNTAH DALAM KEHAMILAN : Literature Review. *Journal of Midwifery*, *3*(1), 8–15. https://doi.org/10.36082/jmswh.v3i1.566

Mudlikah, S., & Ningrum, N. I. (2019). Hubungan Pengetahuan dan Sikap Ibu Hamil terhadap Mual Muntah Kehamilan dengan Waktu Mual Muntah Kehamilan di Puskesmas Sumobito Kota Jombang. *Jurnal Kebidanan Midwiferia*, *5*(1), 1–6. https://doi.org/10.21070/mid.v5i1.2480

Mudlikah, S., & Yunita, N. (2022). Cemas dan Berat Badan Ibu Hamil Terhadap Kejadian Emesis Gravidarum. *Jurnal Ilmu Kesehatan*, *6*(2), 409–415. http://dx.doi.org/10.33757/jik.v6i2.551

Mudlikah Siti,munisah,Yunita Nourma,B Ghurotul, Hariyani Ervin, S. T. (2022). Peningkatan Asupan Nutrisi Ibu Hamil Emesis Gravidarum Melalui Dukungan Suami / Keluarga Dan Kenaikan Berat Badan. *DedikasiMU : Journal Of Community Service*, *4*(3), 341-348. http://dx.doi.org/10.30587/dedikasimu.v4i3.4310

Ningrum, N. P. (2022). Effect of Acupressure at ST 36 & SP 6 Points on Hemoglobin Levels among Adolescent Girls: Preliminary Study. *EMBRIO*, *14*(2), 192–196. https://doi.org/10.36456/embrio.v14i2.5970

Platini, H., Pebrianti, S., & Kosim. (2021). Akupresur Dapat Mengurangi Keluhan Mual Dan Muntah Pada Pasien Tuberkulosis. *Journal of Nursing Care*, *4*(2), 115–121. https://jurnal.unpad.ac.id/jnc/article/view/27516

Rahmanindar, N., Zulfiana, E., & Harnawati, R. A. (2021). Akupresur Dalam Mengurangi Hiperemesis Kehamilan. *Oksitosin : Jurnal Ilmiah Kebidanan*, *8*(1), 1–9. https://doi.org/10.35316/oksitosin.v8i1.672

Rahmayati, E., Irawan, A., & Sormin, T. (2017). Pengaruh Terapi Komplementer Akupresur terhadap Mual Muntah Pasca Operasi di RSUD Dr. H. Abdul Moeloek Provinsi Lampung. *Jurnal*

Kesehatan, *8*(3), 382–388. https://doi.org/10.26630/jk.v8i3.649

Rudiyanti, N., & Rosmadewi, R. (2019). Hubungan Usia, Paritas, Pekerjaan dan Stres dengan Emesis Gravidarum di Kota Bandar Lampung. *Jurnal Ilmiah Keperawatan Sai Betik*, *15*(1), 7. https://doi.org/10.26630/jkep.v15i1.1253

Santiasari, R. N. (2020). Intervensi Terapi Akupresure (Titik L14) pada Nyeri Persalinan Kala I Aktif. *Jurnal Keperawatan*, *9*(2), 33–42. https://doi.org/10.47560/kep.v9i2.261

Senudin, P.K., (2019). *Effect of Therapy Acupressure To the Levels Anxiety and Levels of Endorphin in Pregnant Women.* [Master's thesis, Universitas Hasanuddin] Repositori Universitas Hasanuddin. http://repository.unhas.ac.id:443/id/eprint/4957

Sharifzadeh, F., Kashanian, M., Koohpayehzadeh, J., Rezaian, F., Sheikhansari, N., & Eshraghi, N. (2018). A comparison between the effects of ginger, pyridoxine (vitamin B6) and placebo for the treatment of the first trimester nausea and vomiting of pregnancy (NVP). *Journal of Maternal-Fetal and Neonatal Medicine*, *31*(19), 2509–2514. https://doi.org/10.1080/14767058.2017.1344965

Utama, R. P. (2021). Status Gizi dengan Kejadian Anemia Pada Ibu Hamil. *Jurnal Ilmiah Kesehatan Sandi Husada*, *10*(2), 689–694. https://doi.org/10.35816/jiskh.v10i2.680

Yuliani, B., & Helena, A. (2020). Hubungan Perubahan Fisik Dan Psikologis Dengan Aktivitas Dan Respon Seksual Ibu Hamil Primigravida Trimester I. *Dinamika Kesehatan: Jurnal Kebidanan Dan Keperawatan*, *11*(2), 482–495. https://doi.org/10.33859/dksm.v11i2.645

Yusuf, N., & Wahyuni, S. (2018). Faktor-Faktor Yang Mempengaruhi Kejadian Hiperemesis Gravidarum (Studi Kasus di Rumah Sakit Umum Daerah dr Zainoel Abidin Banda Aceh). *Majalah Kesehatan Masyarakat Aceh (MaKMA)*, *1*(2), 94–100. https://doi.org/10.32672/makma.v1i2.823

EMBRIO JURNAL KEBIDANAN
p-ISSN: 2089-8789
e-ISSN: 2714-7886

Qualitative Study of Perinatal Mental Health Services: Experiences and Perspectives of Health Workers and Patients

Evi Diliana Rospia[1], Dwi Kartika Cahyaningtyas[1], Siti Mardiyah WD[2], Cahaya Indah Lestari[2]

[1]Midwifery Profesional Study Program, Faculty of Health Sciences, Universitas Muhammadiyah Mataram, Indonesia
[2]Midwifery Undergraduate Study Program, Faculty of Health Sciences, Universitas Muhammadiyah Mataram, Indonesia

ARTICLE INFORMATION

Received: 14, July, 2023
Revised: 25, October, 2023
Accepted: 1, November, 2023

KEYWORD

Experiences; Health workers; Mental health; Perinatal; Patients

Pengalaman; Petugas kesehatan; Kesehatan Mental perinatal; Pasien

CORRESPONDING AUTHOR

Evi Diliana Rospia
Jl. KH. Dahlan No. 1, Pagesangan, Kota Mataram
diliana.evi@gmail.com
+6287720316812

DOI

https://doi.org/10.36456/embrio.v15i2.7773

A B S T R A C T

The perinatal period is a transitional period that is vulnerable to changes in women's relationships with partners, family, friends, and wider social networks. This study aims to determine how perinatal mental health services are based on the experiences of health workers and patients. This research is qualitative research with a case study design. The informants in this study were 6 informants, namely 2 health workers and 4 patients with a history of perinatal mental health disorders. The instruments used in this study were structured interview guidelines, interviews were conducted in health facilities and patients' homes. Thematic data analysis using the Collaizi protocol. Qualitative data from this study raised six themes, namely "symptoms of perinatal mental health disorders", "causes of perinatal mental health disorders", "management of mental health disorders", "prevention of perinatal mental health disorders", "barriers to perinatal mental health services", and "support". Pregnant, maternity and postpartum women are vulnerable to mental health problems, especially if a woman is faced with family neglect and lack of husband's support during pregnancy. It is important for health workers, especially midwives, to examine women's problems more comprehensively during antenatal care.

Masa perinatal merupakan masa transisi yang rentan terhadap perubahan hubungan perempuan dengan pasangan, keluarga, teman, dan jejaring sosial yang lebih luas. Penelitian ini bertujuan mengetahui bagaimana pelayanan perinatal mental health berdasarkan pengalaman petugas kesehatan dan pasien. Penelitian ini merupakan penelitian kualitatif dengan desain studi kasus. Informan dalam penelitian ini adalah 6 informan yaitu 2 orang petugas kesehatan dan 4 pasien dengan riwayat gangguan perinatal mental health. Instrumen yang digunakan dalam penelitian ini adalah pedoman wawancara terstruktur, wawancara dilakukan di fasilitas kesehatan dan rumah pasien. Analisis data secara tematik menggunakan protokol Collaizi. Data kualitatif dari penelitian ini mengangkat enam tema yaitu "gejala gangguan perinatal mental health", "penyebab gangguan perinatal mental health", "penatalaksanaan gangguan kesehatan mental", "pencegahan gangguan perinatal mental health", "hambatan pelayanan perinatal mental health", dan "dukungan". Wanita hamil, bersalin, dan nifas rentan mengalami gangguan kesehatan mental, terutama jika seorang wanita dihadapkan pada pengabaian keluarga dan kurangnya dukungan suami selama hamil. Penting bagi tenaga kesehatan khususnya bidan untuk mengkaji permasalahan perempuan secara lebih komprehensif pada saat pemeriksaan kehamilan.

Introduction

The perinatal period is a transitional period that is vulnerable to changes in women's relationships with partners, family, friends, and wider social networks (Taylor et al., 2022). For many women, the perinatal period is a time of great social, emotional and physical vulnerability and has a profound impact on identity, mental health and well-being (Doucet et al., 2012; Healey et al., 2013). Mild to moderate health impairments can have serious adverse effects on both mother and child, including an increased risk of preterm birth and low birth weight, developmental delays, impaired mother-child bonding, and poor child mental health (Kingston et al., 2012)

The prevalence of depression in the pregnancy and postpartum periods in low- and middle-income countries (LMIC) was 19.2% and 18.7%, which is almost double that of high-income countries of 9.2% before birth and 9.5% postnatally (Woody et al., 2017). Estimates suggest that between 15% and 25% of women have mental health problems (Fisher et al., 2012), with the most common depressive and anxiety disorders (Coates et al., 2018; Leach et al., 2014; Sidebottom et al., 2014). The latest research with samples from basic health research in Indonesia states that the overall prevalence of depression 6 months postpartum is 4.0%, with a higher prevalence in urban areas (5.7%) than in rural areas (2.9%) (Syamantha Putri et al., 2023)

The World Health Organization Comprehensive Mental Health Action Plan program is a comprehensive, integrated and responsive mental and social health care and implementation of strategies for the promotion, prevention and referral of integrated maternal and child mental health. (World Health Organization, 2018). Perinatal mental health care in the UK has been developed by the National Collaborating Centre for Mental Health, following a process agreed upon with the *National Institute for Health and Care Excellence* (NICE), with the involvement of the NHS says that the most important part of is the delivery of high-quality, evidence-based care in the preconception, antenatal and postnatal processes (NHS England, NHS Improvement, 2018).

Antenatal and postnatal services in New South Wales, Australia show that screening for depression and timely referral for assessment for at-risk mothers are effective strategies to improve women's mental health outcomes (Ogbo et al., 2018), Clinical staff in obstetrics and gynaecology practice must prepare appropriate medical therapy (Melville et al., 2014; Ogbo et al., 2018). The best practice for early detection is through regular depression screening with anxiety screening in midwives' practices (Accortt & Wong, 2017), But several barriers prevent women from seeking mental health during the perinatal period, including stigma, lack of time, fear of being prescribed medication, lack of knowledge about whether their symptoms are 'normal' or 'abnormal', and fear their worries will be dismissed (Nagle & Farrelly, 2018)

Barriers also occur in mental health management including non-integrated services, lack of local guidelines or policies, continuity of care, the structure of service programs, clinical support and supervision and accessible educational resources, scarcity of referral resources, expansion of the scope of practice (Bayrampour et al., 2018). Midwives' barriers to perinatal mental health management include

training, knowledge, and confidence, broken referral flows, lack of special services, stigma, time, and midwives' perception that PMH is not within the scope of practice (Viveiros & Darling, 2019).

In Indonesia, community mental health services are regulated in the Decree of the Minister of Health Number 406/MENKES/SK/VI/2009 (Kemenkes, 2010). Permenkes Number 39 of 2016 Mental health problems are enormous and pose a significant health burden (Permenkes, 2016). *Community Health Workers* (CHW) in Indonesia it is encouraged to examine mental health problems experienced by pregnant women and postpartum mothers, which are stated in two policy documents, namely the Integrated Antenatal Care Guidelines (Kemenkes, 2010) and Manual Guide to CHW (Kemenkes, 2012). However, despite the policies and guidelines available, very little data shows that CHW conducts mental health screenings on women. The prevalence of maternal mental health problems in Indonesia is still poorly documented.

Strategic district-level policies on mental health training for CHW are a major factor in maximizing problem service PMH in Indonesia. Training programs for CHW have been incorporated into strategic planning annually, focusing on early detection and referral. This training is designed as an extension provided for doctors and nurses. Training at the district level is more likely to be followed by CHWs because they have the autonomy to hold related training KIA for CHWs in the area by entering the issue PMH in the program (Surjaningrum et al, 2018). Given the importance of the role of maternal and child health practitioners, especially in conducting early screening of maternal mental health in the perinatal period, the author is interested in researching the Qualitative Study of Perinatal Mental Health Services: Experiences and Perspectives of Health Workers and Patients.

Method

This study uses a case study design that investigates contemporary phenomena in a real-life context (Yin, 2016). In this qualitative study investigates the Experiences and Perspectives of Healthcare Workers and Patients On perinatal mental health. Sample. We conducted a study at the Labuapi Health Center, West Lombok Regency in May 2022, involving health workers, namely midwives, mental health nurses and patients. Participants who were willing to be included in the study were recruited through purposive sampling. The inclusion criteria for health workers are as follows: nurses or midwives, working at the Labuapi Health Center.

The researcher provides a detailed explanation of the research and explains the procedure to each prospective participant before conducting the research, prospective participants who are willing will fill in their identity on the approval sheet. The researcher maintained the ethical principles of participant autonomy, voluntariness, anonymity and confidentiality during the study.

After the prospective participant is willing to become a participant, the researcher conducts a personal in-depth interview according to the time and place determined by the participant. Interviews were conducted in Indonesian and using interview guidelines with several questions, the questions asked delved into the perspective and experience of participants' Experiences and Perspectives of Health Workers and Patients on perinatal mental health. The duration of the interview is 25-60 minutes with an

average of 40 minutes. We listen and check each recording to maintain the credibility of the audio after the interview is over.

After potential participants are willing to become participants, researchers conduct in-depth personal interviews at the time and place determined by the participant. Interviews were conducted in Indonesian. An interview guide was developed by the researcher, regarding participants' experiences and perspectives. This guide does not refer to standard SOPs, however, in preparing the interview guide, researchers read a lot of literature and previous research that examines experiences and perspectives regarding mental health disorders during the perinatal period. The interview guide has 20 questions for health workers and 19 questions for patients. The questions asked explored participants' perspectives and experiences. The experiences and perspectives of health workers are related to the services provided to patients, while the questions for patients relate to experiences and perspectives on mental health disorders that have been or are being experienced as well as services that have been received from health workers related to mental health disorders. Before conducting the research, the researcher tested the interview guide or pilot study on 2 participants as a test of the validity of the interview guide, the aim being whether the questions that had been prepared were clear enough and could be understood by the informants. Interview duration is 25-60 minutes with an average of 40 minutes. We listen to and check each recording to maintain the credibility of the audio after the interview is complete.

Data analysis in this study, first, the researchers transcribed the interview results verbatim, and we then used thematic analysis using the protocol from Collaizi. This method consists of seven rare (Polit & Beck 2012). The process of transcription and analysis is carried out in Indonesian. The use of Indonesian makes it easier for researchers to understand the true meaning of these words by considering the use of language and its context. The researchers conducted regular and ongoing discussions to verify conformity and obtain equivalence from conceptual meanings and terminology. This process also allows for clarifying the information of the data and ensuring the accurate meaning of the data from the transcript.

The strength of qualitative research is inseparable from how researchers ensure the quality of the research process itself (Lincoln & Guba, 1985; Merriam, 1998). Strategies to increase research power through trustworthiness such as credibility, transferability, dependability and confirmability, in this case, researchers spend a lot of time on data collection and analysis, record interviews to maintain audio quality and perform transcripts verbatim. The analysis process and data are written systematically to minimize lost interplay. Dependency is enhanced by maintaining an audit trail to allow for showing evidence of thematic sources. In addition, all researchers review descriptions and experiences and agree with the study's findings to ensure data transfer capabilities.

Results

Qualitative data from this study raises six themes, namely "symptoms of perinatal mental health disorders", "causes of perinatal mental health disorders", "management of perinatal mental health

disorders", "prevention of perinatal mental health disorders", "support of perinatal mental services" and "barriers to perinatal mental health services".

a. Clinical Symptoms of Perinatal Mental Health Disorders

1) Withdrawing from daily activities

The informant described shutting himself in his room and not liking to hear noise

"shut myself in the room until you don't come out because of thoughts …" (I4S, 27 Years Old, Patient)

2) Inner conflict

Describe the inner conflicts experienced by patients related to parenting

"Sometimes if my child cries, sometimes I get asked but after a long time I also feel sorry if he sleeps I apologize" (I4I, 27 Years Old, Patient)

3) The patient feels sad

Describe the experience of health workers related to the symptoms experienced by patients with perinatal mental health disorders

"Usually, for the first anxiety, they often feel sad or scared …." (I2D, 27 Year, Mental Health Program Holder Nurse)

4) Pain that does not heal

Health workers say that prolonged symptoms and pain that does not heal are signs and symptoms

"……..There are changes always with the same complaints, for example, come another week come complaints with those same complaints Usually we study the psychic because usually if for anxiety affects Physical symptoms such as acid reflux, prolonged heartburn, and insomnia" (I2D, 27 27 Year, Mental Health Program Holder Nurse)

b. Causes of Perinatal Mental Health Disorders

1) Unwanted pregnancy

The cause of patients experiencing perinatal mental health disorders, health workers say that one of the causes of perinatal mental health disorders is unwanted pregnancy due to rape cases

"Pregnancy case means outside (hmmmm) There was no husband, so she was a rape victim" (I1R, 32 Year, Midwife)

In addition, patients mentioned that one of the factors causing perinatal mental health disorders is unwanted pregnancy

"It feels so shocking because I haven't wanted it yet but I am already pregnant, confused about what to do" (I6M, 25 Years Old, Patient)

2) The state of the economy

One of the causes of perinatal mental health disorders is the economic situation in a family

"…….One of the factors is The household they shared was already congenital from there too ee What kind of nature, yes, his mother, the model is like that …… Because she is one place, one house because there is no house, depression is stress, the results of money are mediocre and her husband again yes never mind" (I1R, 32 Years Old, Midwifery)

3) No spousal support at the time of pregnancy

Husband support during pregnancy is a determining factor for mothers experiencing perinatal mental health disorders.

"There is no support from all around, including the husband …… Until I said it, it's not surprising that I have so many women affected with baby blues If it happens like that, if there is procurement first, there is no support from the closest people" (I4I, 27 Years, Patient)

c. Management of Perinatal Mental Health Disorders

1) Home Visit

The mental health program team conducts home visits after a patient is declared to have perinatal mental health disorders.

"The first one is that he used to be from the Maternal and Child Health Room, for example, he came with his complaint of anxious symptoms, Well later, usually from the midwife, inform the programmer first Only later will it be handed over to the programmer to overcome his psychiatric problems, for example, if necessary, we will visit home there, there we give the same counselling if we need treatment later we give medicine" (I2D, 27 years old, Mental Health Program Holder Nurse)

2) Provide counseling

Providing counselling is one of the management of perinatal mental health disorders

"it is indeed data that has been looked forward to suggestions as to what is next at the time of counselling, his family, especially what to do when at home" (I1R, 32 Years, Midwife)

3) Therapeutic administration

Health workers provide therapy to patients with perinatal mental health disorders

"First, for the medicine, if for example insomnia, yes, we give CTM drugs in low doses first, if, for example, we still can't also have his family" (I2D, 27 years old, Mental Health Program Holder Nurse)

4) Refer to the hospital

Health workers make referrals to hospitals if patients do not improve with the administration of drugs.

"…….The flow is that registration continues to the poly and later continues there in the patient's anamnesis if there is it leads to anxiety and being unable to take drugs, for example from here we just refer to the hospital....." (I2D, 27 years old, Mental Health Program Holder Nurse)

5) Evaluation of patient progress

The final stage of the management of perinatal mental health disorders is to evaluate the patient's progress.

"We asked the midwife in the village also how the patient's condition until giving birth..... Well, usually from the midwife in the village, right, also the source of information, right, they are Posyandu (Integrated Services Post), well, we will ask the midwife again if there are

patients..... "Oh yes" so the midwife in the village provides more complete information (I1R, 32 years old, Midwife)

d. Prevention of Perinatal Mental Health Disorders

1) Patient screening

Health officials say another strategy is through information from families and village officials such as cadres and cades.

"her accompanying family will tell her that this patient is indeed this mother and We will also ask like at home, if she is alone at home....." (I1R, 32 years old, Midwife).

Information through the village head is as follows

"Just like other diseases.....quickly we get information from the person in charge of the posyandu (Integrated Services Post) from the village head or what is fast if there is a case it is fast....." (I1R, 32 years old, Midwife)

In addition, health workers at the puskesmas will provide information to the mental program team regarding patient screening

"If indeed this has not been netted in the soul programmer, we inform whether he has entered what he has entered..... tell programmers to look forward to him who walks" (I1R, 32 years old, Midwife)

2) Screening and early detection

Another perinatal mental health disorder service mentioned by health workers is early detection

"There we have no SRQ form, For ages 18 years and over, the same SDQ format for school children is usually us for early detection which we first use in the unit, If there are patients who lead mental disorders, we can do screening to fill in SRQ form later there we can judge Whether this patient needs psychiatric treatment or not other than at the Puskesmas (Public Health Center) Kita also goes to the Posyandu (Integrated Services Post) for screening at the Posyandu (Integrated Services Post) According to the schedule" I2D, 27 years old, Mental Health Program Holder Nurse)

3) Prevention of perinatal mental health disorders in pregnancy and subsequent puerperium.

Midwives state to prevent perinatal mental health disorders in pregnancy and subsequent postpartum

"We usually ask about the history of pregnancy, before, giving birth, complications, condition, or Previously she gave birth where lived, where her husband worked, where the husband worked, or not, patients will usually tell stories because we usually have different methods, so that patients tell a lot of stories" (I1R, 32 years, Midwife)

Involving mental health nurses in the prevention of subsequent mental health disorders

"We now have a class for pregnant women, now in class for pregnant women, including there is a mental program also entering.....these childbirth disorders that we prioritize, the programmer will provide counselling on the conditions that occur during pregnancy, childbirth and postpartum and the effect is like that" (I1R, 32 years old, Midwife)

e. Support for perinatal mental health services

Support from the health office for mental health program holders is to provide training.

"There was the first training yesterday about the mental program at the Puskesmas held by the district health office of the same province, there was the first training for early detection of patients with mental disorders (I2D, 27 years old, Mental Health Program Holder Nurse)

Midwives said that the training would prioritize mental health program holders

"If the program itself does not all have to be trained, so people who are indeed the ones who must be prioritized, so innate programmers who convey to midwives to other staff" (I1R, 32 years old, Midwife)

f. Barriers in Perinatal Mental Health Disorders Services

1) The family ignored the patient's complaints

The patient shared her experience of complaining, but the family responded by saying that being a mother is a normal thing if you feel tired

"Sometimes I say to my parents.....I was tired like that until my mother said "Yes so child, yes be a mother) that's how she says" (I4I, 27 years old, patient)

In addition, midwives also stated that families and communities consider that symptoms of mental disorders are common and are hereditary factors

".....people are embarrassed to make the family seem to cover up and people's knowledge is also still lacking "Ah bias is that he is innate or indeed his family used to like this, he is stressed, anyway considered normal" it has not been socialized" (I1R, 32 years old, Midwife)

2) Mental health services have not been integrated into the ANC

Midwives stated that perinatal mental health services have not been integrated into antenatal care services

"Yes, if there is no Puskesmas yet, there are general practitioners and mental health programmers in Puskesmas..... There is no form of early detection of mental health disorders .....so those trained are nurses" (I1R, 32 years old, Midwife)

In addition, midwives mentioned that many patients who may experience health problems in the perinatal period have not been detected

"while in labuapi there are only mothers like that but not many" (I1R, 32 years old, Midwife)

According to the psychiatric nurse, the initial screening of patients has not been carried out comprehensively in MCH services

"The first thing is that she used to be in the maternal and child health room, for example, she came with her complaints of anxious symptoms, well later, usually from the midwife, informed the programmer first, then it will be handed over to the programmer to overcome his psychiatric problems, for example, if necessary, home visits, we will visit there, there we give counselling if necessary, treatment, we will give medicine" (I2D, 27 Years Old, Mental Health Program Holder Nurse)

3) Negative stigma of society

Another obstacle mentioned by health workers is the negative stigma of society, that patients feel ashamed if the surrounding community knows the patient is referred to a mental hospital, the community thinks that the patient is crazy

"Usually if in this for example .....sometimes they are embarrassed about the impression that if they go there it must be considered a crazy person now that is the obstacle is to want to know with their neighbours' families" (I1R, 32 Years, Midwife)

In addition, health officials said that there has been no socialization related to mental disorders to cadres, cadus, or village heads.

"..... Initial screening is what we need to know, so far it has not been too social, for example, cadres of village head cadres or community leaders have not been too socialized with mental disorders, I1R, 32 years old, Midwife)

Discussion

The qualitative results of this study raised six themes, namely "symptoms of perinatal mental health disorders", "causes of perinatal mental health disorders", "management of perinatal mental health disorders", "prevention of perinatal mental health disorders", "support of perinatal mental services" and "obstacles to perinatal mental health services",

The perinatal period is a transitional period that is vulnerable to changes in women's relationships with partners, family, friends, and wider social networks (Jonsdottir et al., 2017). For many women, the perinatal period is a time of great social, emotional and physical vulnerability and has a profound impact on identity, mental health and well-being (Doucet et al., 2012; Healey et al., 2013)

Prevention of perinatal mental health disorders is early detection, early screening, family information, cadre and cadre information. Identification of cases of perinatal depression is often facilitated in universal services with tools such as the self-administered Edinburgh Postnatal Depression Scale, the Patient Health Questionnaire or two depression screening questions (Whooley Question) (Howard & Khalifeh, 2020).

The strategy of health workers in detecting patients with mental health disorders is initial screening, family information and cadre and cadre information. Management of perinatal mental health disorders is to make home visits, provide counselling, refer to the hospital, provide therapy, and evaluate patient development. Research on the effectiveness of various perinatal mental health service delivery models is still in its early stages. The public health and clinical challenge for general and perinatal psychiatry is to develop services designed to provide personalized treatment with timely assessment and treatment for perinatal mental disorders, including unnecessary avoidance of treatment at the expense of evidence-based psychological therapy while identifying which women with moderate to severe disease would benefit from psychotropic prophylaxis/treatment and/or childcare support (Howard & Khalifeh, 2020)

Collaborative care models in psychiatric settings that link maternity, primary care, generic community psychiatric care and specialist perinatal mental health care need to be developed and

evaluated for women with perinatal mental health disorders (Howard & Khalifeh, 2020). In the theme of patient recovery, there is a sub-theme of women wanting to be noticed, "from my experience learning", family support, and self-encouragement. Barriers to perinatal mental health services found that the family sub-theme does not ignore patient complaints, services have not been integrated in the ANC, initial screening has not been comprehensive, negative stigma of society, patients lack knowledge, and patients are not cooperative.

Some research suggests that the barriers that prevent patients from accessing mental health services are complex and related (Smith et al., 2019), including the stigma associated with mental health (Clement et al., 2015). stigma and fear of being seen as a 'bad' or 'failure' mother makes women reluctant to reveal their mental health problems and seek help (Baldisserotto et al., 2020; Forde et al., 2020). According to a British study, mothers who scored depressed on the EPDS but reported that they did not feel depressed (Corrigan et al., 2015)

From the health worker side, it was found that systematic and comprehensive screening services did not exist and were obstacles to procedures in perinatal mental health disorder services (Tripathy, 2020; Viveiros & Darling, 2019). Health workers are not equipped with knowledge of PMH (Howard, et al 2014). The support theme was obtained sub-theme of mental health nurse training, prioritizing mental health nurses in self-development activities. In practice, many countries do not have practitioners specially trained for the perinatal period (Howard & Khalifeh, 2020)

Conclusions

The qualitative results of this study concluded several themes, namely from the perspective of patients and health workers that symptoms of perinatal mental health disorders such as withdrawal from daily activities, inner conflict, feeling sad, and pain that does not heal. The causes of mental health disorders are unwanted pregnancy, economic factors, and lack of support from the husband during pregnancy. From the perspective of health workers, handling perinatal mental health disorders, carrying out home visits, providing counselling, providing therapy, making referrals, and evaluating the patient's condition. Prevention of perinatal mental health disorders, namely patient examination, screening and early detection, prevention during pregnancy, and support for mental health services for mental health program holders is by providing training. From the perspective of health workers, the obstacles to mental health services are that families ignore patient complaints, health services such as screening have not been integrated into antenatal care services at the KIA Polyclinic, negative community stigma.

Pregnant, maternity and postpartum women are vulnerable to mental health problems, especially if a woman is faced with family neglect and lack of husband's support during pregnancy. It is important for health workers, especially midwives, to examine women's problems more comprehensively during antenatal care. From the research results obtained, the author also hopes that stakeholders such as the health department and community health centres will review the existing antenatal care services in each local community health center area, there needs to be improvements in antenatal care services such as integrating mental health services in ANC examinations, provide training to midwives at child health

clinics to carry out early detection through early detection formats for mental health disorders such as EPDS (Edinburgh Postnatal Depression Scale), SRQ (Self Reporting Questionnaire), in preventing and conducting mental health screening during the perinatal period.

Acknowledgements

The researcher would like to thank LPPM University of Muhammadiyah Mataram and all who have contributed to this research

References

Accortt, E. E., & Wong, M. S. (2017). It Is Time for Routine Screening for Perinatal Mood and Anxiety Disorders in Obstetrics and Gynecology Settings. *Obstetrical and Gynecological Survey*, *72*(9), 553–568. https://doi.org/10.1097/OGX.0000000000000477

Baldisserotto, M. L., Miranda Theme, M., Gomez, L. Y., & dos Reis, T. B. Q. (2020). Barriers to Seeking and Accepting Treatment for Perinatal Depression: A Qualitative Study in Rio de Janeiro, Brazil. *Community Mental Health Journal*, *56*(1), 99–106. https://doi.org/10.1007/S10597-019-00450-4

Bayrampour, H., Hapsari, A. P., & Pavlovic, J. (2018). Barriers to addressing perinatal mental health issues in midwifery settings. *Midwifery*, *59*, 47–58. https://doi.org/10.1016/j.midw.2017.12.020

Clement, S., Schauman, O., Graham, T., Maggioni, F., Evans-Lacko, S., Bezborodovs, N., Morgan, C., Rüsch, N., Brown, J. S. L., & Thornicroft, G. (2015). What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychological Medicine*, *45*(1), 11–27. https://doi.org/10.1017/S0033291714000129

Coates, D., Saleeba, C., & Howe, D. (2018). Profile of consumers and their partners of a perinatal and infant mental health (PIMH) service in Australia. *Health & Social Care in the Community*, *26*(1), e154–e163. https://doi.org/10.1111/HSC.12489

Corrigan, C. P., Kwasky, A. N., & Groh, C. J. (2015). Social Support, Postpartum Depression, and Professional Assistance: A Survey of Mothers in the Midwestern United States. *The Journal of Perinatal Education*, *24*(1), 48. https://doi.org/10.1891/1058-1243.24.1.48

Doucet, S., Letourneau, N., & Blackmore, E. R. (2012). Support needs of mothers who experience postpartum psychosis and their partners. *Journal of Obstetric, Gynecologic, and Neonatal Nursing : JOGNN*, *41*(2), 236–245. https://doi.org/10.1111/J.1552-6909.2011.01329.X

Fisher, J., de Mello, M. C., Patel, V., Rahman, A., Tran, T., Holton, S., & Holmesf, W. (2012). Prevalence and determinants of common perinatal mental disorders in women in low- and lower-middle-income countries: a systematic review. *Bulletin of the World Health Organization*, *90*(2), 139. https://doi.org/10.2471/BLT.11.091850

Forde, R., Peters, S., & Wittkowski, A. (2020). Recovery from postpartum psychosis: a systematic review and metasynthesis of women's and families' experiences. *Archives of Women's Mental Health*, *23*(5), 597–612. https://doi.org/10.1007/S00737-020-01025-Z

Healey, C., Morriss, R., Henshaw, C., Wadoo, O., Sajjad, A., Scholefield, H., & Kinderman, P. (2013). Self-harm in postpartum depression and referrals to a perinatal mental health team: an audit study. *Archives of Women's Mental Health*, *16*(3), 237. https://doi.org/10.1007/S00737-013-0335-1

Howard, L. M., & Khalifeh, H. (2020). Perinatal mental health: a review of progress and challenges. *World Psychiatry*, *19*(3), 313. https://doi.org/10.1002/WPS.20769

Jonsdottir, S. S., Thome, M., Steingrimsdottir, T., Lydsdottir, L. B., Sigurdsson, J. F., Olafsdottir, H., & Swahnberg, K. (2017). Partner relationship, social support and perinatal distress among pregnant Icelandic women. *Women and Birth*, *30*(1), e46–e55. https://doi.org/10.1016/J.WOMBI.2016.08.005

Kementerian Kesehatan RI. (2010). *Kesehatan Jiwa*. Jakarta

Kingston, D., Tough, S., & Whitfield, H. (2012). Prenatal and postpartum maternal psychological distress and infant development: a systematic review. *Child Psychiatry and Human Development*, *43*(5), 683–714. https://doi.org/10.1007/S10578-012-0291-4

Leach, L. S., Christensen, H., & Mackinnon, A. (2014). Pregnancy and levels of depression and anxiety: a prospective cohort study of Australian women. *The Australian and New Zealand Journal of Psychiatry*, *48*(10), 944–951. https://doi.org/10.1177/0004867414533013

Melville, J. L., Reed, S. D., Russo, J., Croicu, C. A., Ludman, E., LaRocco-Cockburn, A., & Katon, W. (2014). Improving Care for Depression in Obstetrics and Gynecology. *Obstetrics & Gynecology*, *123*(6), 1237–1246. https://doi.org/10.1097/AOG.0000000000000231

Nagle, U., & Farrelly, M. (2018). Women's views and experiences of having their mental health needs considered in the perinatal period. *Midwifery*, *66*, 79–87. https://doi.org/10.1016/j.midw.2018.07.015

NHS England, NHS Improvement, N. C. C. for M. H. (2018). *The Perinatal Mental Health Care Pathways*. https://www.rcpsych.ac.uk/docs/default-source/improving-care/nccmh/nccmh-the-perinatal-mental-health-care-pathways-short-guide.pdf?sfvrsn=4f52dbb3_2

Ogbo, F. A., Eastwood, J., Hendry, A., Jalaludin, B., Agho, K. E., Barnett, B., & Page, A. (2018). Determinants of antenatal depression and postnatal depression in Australia. *BMC Psychiatry*, *18*(1), 1–11. https://doi.org/10.1186/s12888-018-1598-x

Sidebottom, A. C., Hellerstedt, W. L., Harrison, P. A., & Hennrikus, D. (2014). An examination of prenatal and postpartum depressive symptoms among women served by urban community health centers. *Archives of Women's Mental Health*, *17*(1), 27–40. https://doi.org/10.1007/S00737-013-0378-3/METRICS

Smith, M. S., Lawrence, V., Sadler, E., & Easter, A. (2019). Barriers to accessing mental health services for women with perinatal mental illness: systematic review and meta-synthesis of qualitative studies in the UK. *BMJ Open*, *9*(1). https://doi.org/10.1136/BMJOPEN-2018-024803

Surjaningrum, E. R., Minas, H., Jorm, A. F., & Kakuma, R. (2018). The feasibility of a role for community health workers in integrated mental health care for perinatal depression: A qualitative study from Surabaya, Indonesia. *International Journal of Mental Health Systems*, *12*(1), 1–16. https://doi.org/10.1186/s13033-018-0208-0

Syamantha Putri, A., Wurisastuti, T., Yunita Suryaputri, I., & Mubasyiroh, R. (2023). Postpartum Depression in Young Mothers in Urban and Rural Indonesia. *Journal of Preventive Medicine and Public Health*, *56*(3), 272. https://doi.org/10.3961/JPMPH.22.534

Taylor, B. L., Nath, S., Sokolova, A. Y., Lewis, G., Howard, L. M., Johnson, S., & Sweeney, A. (2022). The relationship between social support in pregnancy and postnatal depression. *Social Psychiatry and Psychiatric Epidemiology*, *57*(7), 1435. https://doi.org/10.1007/S00127-022-02269-Z

Tripathy, P. (2020). A public health approach to perinatal mental health: Improving health and wellbeing of mothers and babies. *Journal of Gynecology Obstetrics and Human Reproduction*, *49*(6), 101747. https://doi.org/10.1016/J.JOGOH.2020.101747

Viveiros, C. J., & Darling, E. K. (2019). Perceptions of barriers to accessing perinatal mental health care in midwifery: A scoping review. *Midwifery*, *70*, 106–118. https://doi.org/10.1016/j.midw.2018.11.011

Woody, C. A., Ferrari, A. J., Siskind, D. J., Whiteford, H. A., & Harris, M. G. (2017). A systematic review and meta-regression of the prevalence and incidence of perinatal depression. *Journal of Affective Disorders*, *219*, 86–92. https://doi.org/10.1016/j.jad.2017.05.003

World Health Organization. (2018). *Guidelines for the management of physical health conditions in adults with severe mental disorders*. http://apps.who.int/iris/bitstream/handle/10665/275718/9789241550383-eng.pdf

Yin, Robert K. (2016). *Qualitative Research from Start to Finish second edition*. The Guilford Press

EMBRIO JURNAL KEBIDANAN
p-ISSN: 2089-8789
e-ISSN: 2714-7886

The Effect of Baby Massage on Baby Weight Gain

Rochmawati, Sri Hayuningsih, Hellena Yollanita*

Universitas Gunadarma, Depok, West Java, Indonesia

ARTICLE INFORMATION

Received: 9, March, 2023
Revised: 26, October, 2023
Accepted: 22, November, 2023

KEYWORD

Baby; Baby Weight; Massage

Bayi; Berat badan; Pijat,

CORRESPONDING AUTHOR

Rochmawati
Yogyakarta, Indonesia
ramadhan.rochmawati@staff.gunadarma.ac.id
+6282117585567

DOI

https://doi.org/10.36456/embrio.v15i2.7048

A B S T R A C T

The most essential anthropometric measurement, body weight is consistently employed to assess the well-being of infants across all age categories. An infant that is in good health exhibits growth in both height and weight. Baby massage is highly beneficial for optimizing the growth and development of children, including increasing food assimilation to hasten the onset of hunger and encouraging more frequent breastfeeding to promote weight gain in infants. Used as an analytic One Group Pre-test – Post-test Design approach. This study was located at TPMB (Independent Midwife Practice Place) Dian Dwi, Bogor Regency, which was carried out in October - December 2022. Sampling was carried out by total sampling, namely all samples available at the time of the study, namely 23 babies. According to the results of the statistical test, the increase in the infant's weight prior to and following the massage differed significantly. Based on the results of interval estimation, it can be deduced that 95% of respondents consider the average body weight following a baby massage to be between 5.35 and 5.09. The findings yielded a p-value of 0.000 (count < α), which indicates that newborn massage has a significant impact on the weight of infants aged 1-12 months at α = 5%. The impact of newborn massage on infant weight gain is substantial.

Sebagai pengukuran antropometrik yang terpenting, berat badan dipakai pada setiap kesempatan memeriksa kesehatan bayi pada semua kelompok umur. Bayi yang sehat ditunjukkan dengan bertambahnya tinggi dan berat badan Pijat bayi memiliki manfaat dalam mengoptimalkan pertumbuhan dan perkembangan anak, termasuk untuk meningkatkan penyerapan makanan sehingga bayi lebih cepat lapar dan bayi akan lebih sering menyusu kepada ibunya, sehingga berat badan pada bayi meningkat Jenis penelitian yang digunakan adalah analitik dengan One Group Pre-test – Post-test Design *Penelitian ini berlokasi di TPMB (Tempat Pratek Mandiri Bidan) Dian Dwi Kabupaten Bogor, yang dilaksanakan pada bulan Oktober – Desember 2022. Pengambilan sampel dilakukan dengan cara total sampling, yaitu seluruh sampel yang ada saat penelitian yaitu sebanyak 23 bayi. Berdasarkan hasil uji statistic, peningkatan berat badan bayi sebelum dan sesudah dilakukan pemijatan ada perbedaan yang signifikan. Hasil estimasi interval dapat disimpulkan bahwa 95% diyakini bahwa rata-rata berat badan sesudah diberikan pijat bayi adalah antara 5,35-5,09. Hasil uji statistik didapatkan nilai p=000 (hitung < α) yang artinya pijat bayi memiliki dampak signifikan terhadap berat badan bayi usia 1-12 bulan pada α =5%. Terdapat pengaruh yang signifikan pijat bayi terhadap kenaikan berat badan bayi.*

Introduction

The baby's growth and development period is a golden age as well as a critical period of a person's development. The baby's growth and development are important things that parents must pay attention

to, which include body length, motor and sensory movements of the child, as well as weight (Aguayo & Menon, 2016; WHO & UNICEF, 2018).

Weight is the most essential anthropometric parameter, consistently employed to assess the well-being of infants across all age cohorts. A robust infant is distinguished by weight and height gains (de Onis & Branca, 2016; Bommer et al., 2019). According to Permenkes No. 2 of 2020 concerning child Anthropometric standards, underweight is measured through the weight index according to age (BB / U). This status indicates an indication of nutritional problems in general. Measurements at Posyandu (Integrated Health Service) every month usually use this index (Litbangkes, 2021; Rahayu et al., 2018; Assaf & Juan, 2020).

In the study conducted from 2019 to 2021 by the Health Research and Development Agency (Balitbangkes) of the Ministry of Health in Indonesia, the prevalence of underweight toddlers (underweight according to age) increased from 16.3% to 17%. while in Bogor Regency real data as of February 2022, the number of toddlers aged 0-59 months was 438,365, and the number of toddlers weighed was 365,001 (83.26%) (Darmawan, 2019). Then determine the nutritional status with underweight results of 18,863 (5.17%) (Litbangkes, 2021; World Health Organization (WHO), 2013).

The baby's weight is greatly influenced by its birth weight, as well as the nutritional intake provided (de Onis & Branca, 2016; Rahayu et al., 2018). To optimize the absorption of nutrient intake in babies, one way can be baby massage. As an element of touch therapy, baby massage ensures that the infant remains in constant physical contact, instills a sense of security, and reinforces the bonds of affection between the parents and the infant (Jabraeile et al., 2016).

Baby massage is highly beneficial for optimizing the growth and development of children, including increasing food assimilation to induce earlier hunger and encouraging more frequent breastfeeding to support the infant's weight gain by the mother (Astriana & Suryani, 2017; Amir et al., 2010). An elevated body mass signifies a favorable nutritional condition. A sufficient intake of essential nutrients enables the body to attain a state of optimal nutrition, thereby facilitating physical development. Sufficient nourishment can promote a harmonious growth process that enables the transportation of oxygen and nutrients, thereby enabling cells to expand and perform their typical functions (Akombi et al., 2017; Sitorus et al., 2021).

Baby massage provides very broad benefits and has a long-term impact on the nutritional status of the baby. Based on the description above, the research area still has infants with malnutrition status and many stunting incidents so this research needs to be done., This research aims to see the effect of baby massage on baby weight gain. With this study can know the effect of massage on a baby's weight gain. The difference with previous studies, in this study the duration and frequency of doing massage.

Method

This study employs the One Group Pre-test – Post-test Design as a pre-experiment. Specifically, a pretest (01) was administered to the experimental group, which was subsequently subjected to an intervention (X). An intervention group posttest (02) was administered after a period of time had passed.

Utilized research design is analytics with a pre-post group configuration. The investigation will be conducted from October to December 2022 at TPMB (Place of Independent Midwifery Practice) Dian Dwi, Bogor Regency.

The population of this study was all babies in TPMB (Place of Independent Midwifery Practice) Dian Dwi, Bogor Regency, which was held in October – December 2022. Sampling was carried out by means of total sampling, namely all samples available during the study, namely as many as 23 babies The researcher intervened to the group to be given a baby massage. The inclusion criteria in the population were infants aged 1-12 months, healthy, not on medication, and did not have allergies to massage oils, while the exclusion criteria in this study were infants who could not continue massage therapy on an ongoing basis. The treatment given is a baby massage 2 times a week and each session is 15 minutes done for 1 full month comparing baby weight before and after the baby massage is carried out in October – December 2022 at TPMB (Place of Independent Midwifery Practice) Dian Dwi Bogor Regency.

The independent variable in the study was baby massage, and the bound variable was the baby's weight gain. The research instruments used in this study were respondents' identity sheets, and observation sheets (weight gain questionnaires).

Both univariate and bivariate analyses were performed on the data. The univariate variables under consideration are the gender and age of the infant. The interpretation of the results obtained is utilized to present each variable in the form of a table. Utilize bivariate analysis to demonstrate the impact of newborn massage on pre-treatment and post-treatment weight gain in infants. The weight of participants in the intervention group was assessed on two separate occasions: during data collection, prior to the implementation of baby massage, and one month later, following the completion of baby massage. The data were analyzed utilizing SPSS version 20 (IBM Corp, USA) in conjunction with a paired t-test that had a 0.05 standard deviation. The examination compares the weight gain of the infant prior to and subsequent to the massage.

Results

Table 1. Baby Weight Distribution Before Massage (n=23) at TPMB Dian Dwi, Bogor Regency in 2022

Variabel	Mean	SD	Min-Mak	95% Cl
Baby Weight	4.86	0.84	3.5-5.9	4.49-5.22

Before massage, the mean body weight of infants is 4.86 kg, with a standard deviation of 0.84 kg (Table 1). The minimum mass is 3.5 kilograms and the maximum is 5.9 kilograms. It can be deduced from the interval estimation results that the average body weight prior to performing an infant massage is estimated to be between 4.49 and 5.22 percent of the time.

Table 2. Distribution of Baby Weight After Massage (n=23) at TPMB Dian Dwi, Bogor Regency in 2022

Variabel Penelitian	Mean	SD	Min-Mak	95% Cl
Baby Weight	5.72	0.85	4.3-6.9	5.35-6.08

An SD of 0.85 indicates that the mean body weight of infants following massage is 5.72 kg, as shown in Table 2. With a minimum weight of 4.3 kg and a maximum weight of 6.9 kg. It can be deduced

from the interval estimation results that 95% of respondents consider the average body weight following a baby massage to be between 5.35 and 5.09.

Table 3. The Effect of Baby Massage on Weight Gain in TPMB Dian Dwi, Bogor Regency in 2022

Baby Weight	Mean	SD	SE	ρ Value	N
Before Massage	4.86	0.84	0.17	0.000	23
After Massage	5.72	0.85	0.18		

As shown in Table 3, the mean body weight of an infant prior to receiving a massage is 4.86 kg, with a standard deviation of 0.84. Subsequent to receiving a massage, the body weight increases by 0.66 kg to 5.43 kg. The statistical analysis yielded a p-value of 0.000, suggesting that newborn massage does indeed contribute to the increase in infant weight at TPMB. Dian Dwi, Regency of Bogor, 2022.

Discussion

On the basis of the analysis results, it was determined that the mean body weight of the participants was 5.72 kg following the massage, compared to 4.86 kg prior to the treatment. The comparison of the mean body weight prior to and subsequent to the massage reveals a reduction of 0.66 kilograms.

A statistical analysis revealed that there was a statistically significant disparity between the weight gain of the infant prior to and subsequent to the massage. On the basis of the interval estimation results presented in Table 3, it is possible to conclude that the average body weight following an infant massage is estimated to be between 5.35 and 5.09 percent, 95% of the time. The statistical test yielded a value of $p = 000$ (count $< \alpha$), which indicates that at $\alpha = 5\%$, it is possible to conclude that newborn massage has a significant impact on the weight of infants between the ages of one and twelve months.

There are several factors that can affect weight gain in babies, including maternal knowledge about nutrition, health status, and infant psychology, as well as personal factors, economic statutes and food culture have a considerable responsibility for the health status of babies (R&D, 2021). In particular, this study proves that giving a baby massage can help optimize the growth of the baby by increasing the baby's weight.

This is in accordance with what was stated by Roesli (Hutasuhut, 2019) who said that one of the benefits of baby massage is to increase the weight of the baby and cause positive biochemical and physical effects. In addition, the benefits of baby massage are the strength and flexibility of the mind, body and emotions can be increased so that quality sleep is obtained in the baby (Lestari et al., 2021; OMS & UNICEF, 2020).

This is supported by the results of research by Ulfa et al. (2019) showing that there is an effect of infant massage stimulation on increasing the body weight of babies with a history of BBLR in the work area of the Cermee health center, Bondowoso Regency with a total of 15 babies.

According to the findings of the investigation carried out by Fitriyanti et al. (2019) the average initial body weight (pre-test) was 5180.88 and the average second body weight (post-test) was 5535.29. The statistical analysis of the T-test results ($p = 0.000 < 0.05$) indicates that there is no significant effect of newborn massage on the weight gain of infants. Touch will stimulate blood circulation and increase

energy, massage is useful not only for babies but also for adults though, with massage can stimulate the increase in food input so that it can increase baby weight (Fauziyah & Wijayanti, 2018; Astriana & Suryani, 2017).

The effect of massaging, with or without the use of oils, on the growth of premature neonates is still unknown, according to the findings of additional research. Research indicates that oil can serve as a source of heat and nutrition for preterm neonates; however, the precise impact of oil on their growth remains uncertain. Recent research indicates that the optimal complement to neonate massage is oil. By applying oil during massage, friction is eliminated, long rubbing with a suitable and continuous pressure is possible, and the oil softens the skin and eliminates or entirely reduces dryness (Jabraeile et al., 2016).

Conclusions

The results that can be concluded from this study are that there is a significant effect of baby massage on weight gain. There need to be additional complementary obstetric services for newborns in the form of baby massage to increase the weight of the baby.

References

Aguayo, V. M., & Menon, P. (2016). Stop stunting: Improving child feeding, women's nutrition and household sanitation in South Asia. *Maternal and Child Nutrition*, *12*(S1), 3–11. https://doi.org/10.1111/mcn.12283

Akombi, B. J., Agho, K. E., Hall, J. J., Wali, N., Renzaho, A. M. N., & Merom, D. (2017). Stunting, wasting and underweight in Sub-Saharan Africa: A systematic review. In *International Journal of Environmental Research and Public Health*, *14*(8), 863. https://doi.org/10.3390/ijerph14080863

Amir, Y., Hasneli, Y., & Erika. (2010). Hubungan Pemberian ASI Ekslusif terhadap Tumbuh Kembang Bayi. *Jurnal Ners Indonesia*, *1*(1), 90–98. https://doi.org/10.31258/jni.1.1.90-98

Assaf, S., & Juan, C. (2020). Stunting and Anemia in Children from Urban Poor Environments in 28 Low and Middle-Income Countries. *Nutrients*, *12*(11), 3539. https://doi.org/10.3390/nu12113539

Astriana, & Suryani, I. L. (2017). Pengaruh Pijat Bayi Terhadap Peningkatan Berat Badan Pada Bayi Di Bps Masnoni Teluk Betung Utara Kota Bandar Lampung. *Holistik Jurnal Kesehatan*, *11*(2), 72–76. https://doi.org/10.33024/hjk.v11i2.102

Bommer, C., Vollmer, S., & Subramanian, S. V. (2019). How socioeconomic status moderates the stunting-age relationship in low-income and middle-income countries. *BMJ Global Health*, *4*(1), 1–10. https://doi.org/10.1136/bmjgh-2018-001175

Darmawan, D. (2019). profil kesehatan Indonesia 2019. In *Journal of Chemical Information and Modeling*.

de Onis, M., & Branca, F. (2016). Childhood stunting: A global perspective. *Maternal and Child Nutrition*, *12*, 12–26. https://doi.org/10.1111/mcn.12231

Fauziah, A., & Wijayanti, H.N. (2018). Pengaruh Pijat Bayi Terhadap Kenaikan Berat Badan Dan Kualitas Tidur Bayi Di Puskesmas Jetis Yogyakarta. *PLACENTUM: Jurnal Ilmiah Kesehatan Dan Aplikasinya*, *6*(2), 33. https://doi.org/10.20961/placentum.v6i2.22834

Fitriyanti, Y. E., Arsyard, G., & Sumiaty, S. (2019). Pengaruh Pijat Bayi terhadap Peningkatan Berat Badan. *Jurnal Bidan Cerdas (JBC)*, *2*(2), 100. https://doi.org/10.33860/jbc.v2i2.199

Hutasuhut, A. S. (2019). *Pengaruh Pijat Bayi terhadap Pertumbuhan (Berat Badan) Bayi Usia 1-3 Bulan di Wilayah Kerja Puskesmas Pematang Pasir Kota Tanjung Balai Tahun 2018*. [Thesis,

Politeknik Kesehatan Medan]. Politeknik Kesehatan Medan Repository. http://ecampus.poltekkes-medan.ac.id/xmlui/handle/123456789/737

Jabraeile, M., Rasooly, A., Farshi, M., & Malakouti, J. (2016). Effect of olive oil massage on weight gain in preterm infants: A randomized controlled clinical trial. *Nigerian Medical Journal*, *57*(3), 160. https://doi.org/10.4103/0300-1652.184060

Lestari, K. P., Nurbadlina, F. R., Wagiyo, & Jauhar, M. (2021). The effectiveness of baby massage in increasing infant's body weight. *Journal of Public Health Research*, *10*(s1), 1–5. https://doi.org/10.4081/jphr.2021.2332

Litbangkes, H. (2021). Tiga Aspek Pelaksanaan SSGI 2021. *Badan Penelitian Dan Pengembangan Kesehatan*.

OMS, & UNICEF. (2020). The baby-friendly hospital initiative for small, sick and preterm newborns. In *Report reflects the activities of the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF)*. https://www.who.int/publications/i/item/9789240005648

Rahayu, A., Yulidasari, F., Putri, A. O., & Anggraini, L. (2018). *Study Guide - Stunting dan Upaya Pencegahannya bagi Mahasiswa Kesehatan Masyarakat*. CV. Mine

Sitorus, S. B. M., Ni Made Ridla Nilasanti Parwata, & Noya, F. (2021). Pengaruh Pendampingan Terhadap Pengetahuan dan Keterampilan Kader Posyandu dalam Deteksi Dini Stunting. *Poltekita : Jurnal Ilmu Kesehatan*, *15*(3), 283–287. https://doi.org/10.33860/jik.v15i3.459

Ulfa, R. B., Munir, Z., & Kholisotin, K. (2019). Efektifitas Stimulasi Pijat Bayi terhadap Peningkatan Berat Badan Bayi Usia 0-4 Bulan dengan Riwayat BBLR. *Citra Delima : Jurnal Ilmiah STIKES Citra Delima Bangka Belitung*, *3*(2), 155–162. https://doi.org/10.33862/citradelima.v3i2.89

WHO, & UNICEF. (2018). Implementation Guidance: Protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services: implementing the revised Baby-friendly Hospital Initiative. In *World Health Organization and the United Nations Children's Fund (UNICEF)*. https://www.who.int/publications/i/item/9789241513807

World Health Organization (WHO). (2013). Postnatal care of the mother and newborn 2013. *World Health Organization*, 1–72. https://www.who.int/publications/i/item/9789241506649

EMBRIO JURNAL KEBIDANAN
p-ISSN: 2089-8789
e-ISSN: 2714-7886

Effectiveness of EDUWAP in Increasing Knowledge about Stunting

Cahaya Indah Lestari[1], Rizkia Amilia[1], Catur Esty Pamungkas[1], Evi Diliana Rospia[2], Dwi Kartika Cahyaningtyas[2]*

[1]S1 Midwifery Study Program, Faculty of Health Sciences, University of Muhammadiyah Mataram, Mataram, Indonesia
[2]Midwifery Professional Education Program, Faculty of Health Sciences, University of Muhammadiyah Mataram, Mataram, Indonesia

ARTICLE INFORMATION

Received: 5, July, 2023
Revision: 3, November, 2023
Received: 22, November, 2023

KEYWORDS

Knowledge; Stunting; Teenagers; WhatsApp

Pengetahuan;, Stunting; Remaja;, WhatsApp

CORRESPONDING AUTHOR

Cahaya Indah Lestari
University of Muhammadiyah Mataram
cahayaisnaini2011@gmail.com
+6282341924721

DOI

https://doi.org/10.36456/embrio.v15i2.7654

A B S T R A C T

The prevalence of stunting in Indonesia is 24.4%, East Lombok Regency is around 43.52%. Teenagers are a potential group as agents of behavior change. For this reason, teenagers need to be given education to increase their knowledge and build awareness of the impact of stunting in the future. This research aims to determine the effectiveness of EDUWAP (Education via WhatsApp) in increasing teenagers' knowledge about stunting. The type of research used was Quasy Experimental pretest and posttest with a control group. The population in this study were all young women at SMA Negeri 1 Aikmel in March 2023, with a sample of 30 people who were divided into 2 groups with 15 members each and used a purposive sampling technique. Data collection was carried out using a questionnaire to determine the level of knowledge of young women about stunting before and after the intervention. The post-test statistical results of the experimental group and control group using the Mann-Whitney technique showed Asymp. signature. (2-tailed) 0.012 < 0.050 with a mean rank for the experimental group of 19.00 and a mean rank for the control group of 12.00. So it can be concluded that there is a significant difference in the post-test results of the experimental group and the control group which influences the increase in knowledge in the experimental group before and after being given treatment towards increasing teenagers' knowledge about stunting.

Prevalensi stunting di Indonesia sebesar 24,4%, Kabupaten Lombok Timur sekitar 43,52%. Remaja merupakan kelompok yang potensial sebagai agen perubahan perilaku. Untuk itu remaja perlu diberikan edukasi untuk menambah pengetahuan dan membangun kesadaran akan dampak stunting di masa depan. Tujuan penelitian ini adalah untuk mengetahui efektivitas EDUWAP (Edukasi melalui WhatsApp) dalam meningkatkan pengetahuan remaja tentang stunting. Jenis penelitian yang digunakan adalah Quasy Eksperimental pretest dan posttest dengan kelompok kontrol. Populasi dalam penelitian ini adalah seluruh remaja putri SMA Negeri 1 Aikmel pada bulan Maret 2023, dengan sampel sebanyak 30 orang yang dibagi menjadi 2 kelompok dengan masing-masing anggota 15 orang dan menggunakan teknik purposive sampling. Pengumpulan data dilakukan dengan menggunakan kuesioner untuk mengetahui tingkat pengetahuan remaja putri tentang stunting sebelum dan sesudah intervensi. Hasil statistik post-test kelompok eksperimen dan kelompok kontrol dengan menggunakan teknik Mann-Whitney menunjukkan Asymp . tanda tangan. (2-tailed) 0,012 < 0,050 dengan mean rank kelompok eksperimen sebesar 19,00 dan mean rank kelompok kontrol sebesar 12,00. Jadi dapat disimpulkan terdapat perbedaan yang signifikan hasil post-test kelompok eksperimen dan kelompok kontrol yang mempengaruhi peningkatan pengetahuan pada kelompok eksperimen sebelum dan sesudah diberikan perlakuan terhadap peningkatan pengetahuan remaja tentang stunting.

Introduction

According to data from the World Health Organization (WHO), Indonesia is the fifth country with the highest prevalence of stunted toddlers in Southeast Asia (Unicef & WHO, 2020). The 2021 Indonesian Nutrition Status Survey report also shows that the prevalence of stunting in Indonesia is 24.4%. This figure is still above the threshold set by WHO, namely 20%. The target for reducing stunting by 2024 is 14%, which means reducing the prevalence of stunting by 10% in 3 years. Meanwhile, Basic Health Research (Rikesdas) shows that the stunting (short) rate in NTB Province has decreased from 48.3% (2010) to 45.3% (2013) and decreased again to 33.49% in 2018. Meanwhile, the District East Lombok is in the range of 43.52% or higher than the provincial average (Wahyudi S. 2021)**.**

Quoted from SMA Negeri 1 Aikmel is one of the schools that is committed to contributing to efforts to prevent stunting so several related activities are centered at the school, one of which is the National Action for Nutrition Movement with the NTB Provincial Health Service which held on November 3, 2022. Several outreach activities related to stunting and other health are often carried out at SMAN 1 Aikmel with resource persons from the NTB Province BKKBN, UPT BLUD Aikmel Health Center, and other related agencies, but all use simple outreach methods (SMA Aikmel, 2023).

It is important to reduce stunting as early as possible to avoid long-term negative impacts such as the growth and development of stunted children. Stunting has an impact on brain development so children's intelligence levels are not optimal. This risks reducing productivity in adulthood. Stunting also makes children more susceptible to disease. Children who experience stunting have a higher risk of suffering from chronic diseases in adulthood. Therefore, nutritional management during adolescence is very important. Teenagers are a potential group that can be relied upon as agents of behavior change. The involvement of teenagers in overcoming stunting is important because teenagers are at the forefront of innovation and agents of change**.** It is at this stage of the adolescent life cycle that it is very important to intervene to prevent the prevalence of stunting. One of them is by providing information about nutritional knowledge so that teenagers can understand the nutritional needs needed (Andiani et al. 2022), efforts to meet nutrition at 1000 HPK should provide information from an early age to prospective mothers regarding the problem of stunting. Through this health education, teenagers will be able to form a good understanding regarding nutritional awareness behavior to prevent stunting (Watson et al. 2019).

In the research of Andiani, et al (2021), the results obtained were that the majority of respondents' knowledge levels were in the poor category, 37 people, and a small number were in the good category, 13 people. This is based on the lack of sufficient information regarding stunting both in the school environment and where teenagers live. Teenagers' low knowledge about stunting and its impact on the future will result in teenagers not paying attention to it. For this reason, teenagers need to be given education to increase their knowledge and build awareness of the impact of stunting in the future. Social media is an important and effective vehicle for providing education to its target audience, namely teenagers. On social media, the content uploaded is the main message regarding adolescent nutrition, and adolescent reproductive health in order to produce a superior generation and adolescent participation in stunting prevention activities. The development of digital technology in Indonesia and the popularity

of social media among teenagers make social media a suitable platform for spreading messages and generating dialogue among teenagers (Widayati & Augustinah 2019)**.**

This research aims to determine the effectiveness of EDUWAP (Education via WhatsApp) in increasing teenagers' knowledge about stunting at SMA Negeri 1 Aikmel in 2023.

Method

This research is quantitative research with a pretest and posttest with a control group quasi-experimental research type involving an experimental group and a control group. The experimental group will be given education about stunting visually using *WA (*WhatsApp Messenger*)* and the control group will be given simple counselling. The population in this study were all young women from SMA Negeri 1 Aikmel in 2023, with a sample size of 30 people. which was divided into 2 groups with 15 members each and using a purposive sampling technique, namely taking samples according to the research objectives. Sample characteristics that can be included in the inclusion criteria for this research include: young women who have a smartphone and the WhatsApp Messenger application, are willing to be research subjects, and do not have any disorders/disabilities. This research was conducted on young women at SMA Negeri 1 Aikmel in March 2023. Data collection to determine the level of knowledge of young women about stunting before and after intervention used a questionnaire from Ayu Namirah Filayeti (2019) which was tested for validity and reliability (Filayeti, 2019). Data analysis uses Mann Whitney for data that is not normally distributed and to determine the effectiveness of EDUWAP in increasing teenagers' knowledge about stunting. This research is worth doing. Researchers obtained the Al-Azhar Islamic University ethics code number 51/EC-04/FK-66/UNIZAR/III/2023.

Results

Table. 1 Distribution of Teenagers' Knowledge Level (Group 1) Before and After Being Given Education about Stunting Through Simple Counseling.

Variable		*Prat*		*Posttest*	
		F	**%**	**F**	**%**
Knowledge level					
	Not enough	2	13.33	0	0.00
	Enough	11	73.33	4	26.67
	Good	2	13.33	11	73.33
Total		15	100.0	15	100.0

Source: Primary data, March 2023

Based on Table 1, it can be seen that before simple counselling about stunting was carried out, the level of knowledge was low as many as 2 people (13.33%), quite good knowledge as \ as many as 11 people (73.33%), and quite good knowledge as many as 2 people (13.33%). Meanwhile, after carrying out simple counselling about stunting, it was found that 11 people had good knowledge (73.33%), 4 people had sufficient knowledge (26.33%), and there were no respondents with poor knowledge.

Table 2. Distribution of Teenagers' Knowledge Level (Group 2) Before and After Being Given Education about Stunting Through Simple Counseling.

Variable		*Prat*		*Posttest*	
		F	**%**	**F**	**%**
Knowledge level					
	Not enough	8	53.33	0	0.00
	Enough	6	40.00	7	46.67
	Good	1	6.67	8	53.33
Total		15	53.33	15	0.00

Source: Primary data, March 2023

Based on Table 2, it can be seen that before the implementation of EDUWHAP (Education via WhatsApp) regarding stunting, there were 8 respondents (53.33%) who had a low level of knowledge, 6 people (40%) who had a sufficient level of knowledge and only 1 person (40%) who have a low level of knowledge. people (6.67%). Meanwhile, after carrying out EDUWHAP (Education via Whatsapp) regarding stunting, it was seen that 8 respondents (53.33%) had a good level of knowledge, 7 respondents (46.67%) had sufficient knowledge and no respondents had insufficient knowledge.

Table 3. Pretest and Posttest Results of the Experimental Group

Group	N	Mean±SD	*p-value*
Prat	15	19.93	0.002
Posttest	15	11.07	

Source: Primary data, March 2023

The posttest statistical test for the experimental group using the Mann-Whitney technique obtained a p-value of 0.002<0.05, meaning that there was a significant difference between the pretest and posttest results of the group, so it was concluded that providing information with EDUWAP could influence adolescent progress. knowledge about stunting.

Table 4. Control Group Pretest and Posttest Results

Group	N	Mean±SD	*p-value*
Prat	15	20.27	0.001
Posttest	15	10.73	

Source: Primary data, March 2023

The pretest and posttest statistical tests for the control group using the Mann-Whitney technique produced a p-value of 0.001 <0.05, meaning that there was a significant difference, meaning that counselling could influence increasing teenagers' knowledge about stunting, the level of teenagers' knowledge beforehand and after being given education about stunting via WhatsApp.

Discussion

Stunting is a condition where the growth and development of children under 1000 HPK are affected by chronic malnutrition. The causes of stunting are divided into two, namely primary and secondary causes. The main causes include hereditary factors (familial stunting), pathological disorders, hormonal deficiency disorders, and chromosomal abnormalities. Secondary causes such as intrauterine growth retardation, chronic malnutrition, chronic diseases, endocrine disorders and psychosocial disorders (UNICEF, 2021)**.**

Stunting is also caused by many factors and it is not only nutritional problems during pregnancy and toddlerhood that can cause stunting. One of them is the mother's knowledge about health and nutrition before and during pregnancy and during childbirth. According to Notoatmodjo (2016),

knowledge is the result of knowing someone after he feels an object. After carrying out simple counselling in group A about stunting, the results showed that there was an increase in the level of knowledge of respondents from sufficient to good in the number of 11 respondents (73.33%) and those who previously had a poor level of knowledge to adequate in the number of 4 people (26.33%). This finding is in line with research which states that a combination of lecture and discussion methods is the right method for education (Vinci et al. 2022)**.**

On group B, carried out EDUWHAP (Education through WhatsApp) regarding stunting. The activities consist of providing materials condolences through videos, and comics obtained from www.komik.pendidikan.id and providing material in ppt form via the *WhatsApp* (WA) social media group. This shows that providing education through social media is quite effective in increasing teenagers' knowledge. Evaluation related to adolescent understanding given via the WA group and carried out through pre-post test measurements so you can get a percentage idea increasing knowledge of teenagers before and after providing the material and the results occur enhancement the respondent's previous level of knowledge not enough become Good a total of 8 people (53.33%) and 7 people (46.67%) have level knowledge enough. Results study This in line with Results study is also in line with research by Reni, et al (2020) which states that There has been an increase in teenagers' previous knowledge of 30% to 85% for PUP material and an increase of 59% for stunting material et al., 2020), strengthened with research findings stating that educational methods using videos and FGD (discussion and team-based learning) are very effective in increasing knowledge in line with previous research (Supriyatni et al., 2021)**.**

The level of knowledge about something can be different for each individual. This can be obtained from many factors which can influence a person's level of knowledge, starting from internal factors (age and IQ/Intelligence Quotient) as well as external factors (education, work, information, experience and environment (Nursalam& Pariani, 2021).

Additionally, according to Notoadmojo (2016), Improvement own knowledge is influenced by several factors including mass media besides several other factors, namely education, personal or other people's experiences and environment. Social media as media which is popular and frequently used by teenagers all over the world has the potential to be used as a means of health promotion reproduction in adolescents (Pfeiffer et al., 2018).

Knowledge about nutrition is what is known about food including healthy food, healthy food for certain age groups (for example women of preconception childbearing age), and how to choose, process and prepare food properly. Women of childbearing age who have Good nutritional knowledge will be able to choose the right type of food for themselves both in terms of quantity and quality of what they consume. Thus nutritional knowledge is one of the protective factors in preparing for pregnancy or preconception (Dewi et al., 2020).

The experimental group statistical test using Mann-Whitney obtained Asymp results. S. (2-tailed) 0.02 < 0.05 with mean rank, meaning there is a significant difference that providing information via WhatsApp (EDUWAP) can influence teenagers' knowledge about stunting. Statistical tests for the

control group using the Mann-Whitney technique obtained a p-value of 0.01 < 0.05, meaning that providing information through counselling methods can influence teenagers' knowledge about stunting.

Providing education through online media can increase young women's knowledge about stunting. In line with the research results Supriyatni et al. (2021)which state that education influences knowledge and efforts to prevent stunting. According to Notoatmodjo (2016), Education is carried out to improve health status, prevent disease, and improve or restore health. Education focuses on the ability to implement health behavior.

Problems that occur with stunting, especially in the first 1000 days of life, can have an impact on Human Resources (HR), which in the short term will result in suboptimal growth, apart from that it can hinder cognitive and motor development and be less than optimal. physical size accompanied by disturbances in the system. metabolism. Meanwhile, in the long term, stunting also has an impact on decreased intellectual capacity, structural disorders, inactive nerve function and brain cells and can result in a decrease in the ability to absorb learning at school age which can affect productivity in adulthood. Apart from that, poor nutrition or stunting also causes growth disorders (short and/or thin) and increases the risk of non-communicable diseases such as diabetes mellitus (DM), hypertension, coronary heart disease and stroke (Fitriani et al., 2022)**.**

Stunting prevention can be done by providing knowledge to teenagers and women in the form of prevention and promotion. It is hoped that adolescent nutrition education can contribute to the awareness of adolescents as prospective parents regarding the health of mothers and children at important moments in their lives, including breaking the chain of stunting problems. The success of nutrition education is strongly supported by the media used. Various educational media have been developed in nutrition education. However, several studies state that Android-based educational media is more effective than other media in increasing nutritional knowledge and behavior (Wulansari et al., 2021)**.**

Apart from that, the use of media in the educational process must be adjusted to the characteristics of the respondent. The use of media in the form of the WhatsApp application is certainly not suitable for use in rural communities that do not have smartphones. Only suitable for use in groups of teenage smartphone users. Meanwhile, the use of pocketbooks and printed media (simple counselling) is certainly not suitable for illiterate teenagers. However, it is suitable for teenagers who attend Islamic boarding schools (Islamic boarding schools or Islamic boarding schools) which limit the use of smartphones. This finding is in accordance with previous research, namely that audiovisual media has been proven to be effective in increasing target knowledge (Supriyatni et al., 2021)**.**

Conclusion

There was a significant difference *in the post-test results* of the experimental group (EDUWHAP) and the control group (simple counselling) which influenced the increase in knowledge in the experimental group before and after being given treatment towards increasing teenagers' knowledge about stunting.

Recommendation: It is hoped that adolescent nutrition education can contribute to the awareness of adolescents as prospective parents regarding the health of mothers and children at important moments in their lives, including breaking the chain of stunting problems. The success of nutrition education is strongly supported by the media used. The choice of information media can be adjusted to the characteristics of the information recipient. WhatsApp media and simple socialization can increase teenagers' knowledge about stunting.

References

Andiani, A., Lestari, T., Rahayu, A., Surasno, D.M., Supriyatni, N., Djafar, M.A.H., & Musiana, M.. (2022). "Penyuluhan Pengetahuan Gizi Remaja Pada Siswa SMU Katolik Bintang Laut Kota Ternate Tahun 2021." *Jurnal Biosainstek* 4(1), 42–46. https://doi.org/10.52046/biosainstek.v4i1.955.

Bappenas. (2019). *Pedoman Pelaksanaan Intervensi Penurunan Stunting Terintegrasi Di Kabupaten/Kota.* Kementerian Perencanaan dan Pembangunan Nasional/ Badan Perencanaan dan Pembangunan Nasional.

Dewi, R. K., Rosidi, A., Riyadi, H., Margawati, A., & Khomsan, A. (2020). PERILAKU GIZI-KESEHATAN IBU BALITA PADA MASYARAKAT ADAT SAMIN DI JAWA TENGAH. *Jurnal Kesehatan*, *11*(3). https://doi.org/10.35730/jk.v11i3.642

Filayeti, A.N. (2019). *Hubungan Pengetahuan Tentang Stunting Dengan Karakteristik Mahasiswa Preklinik Fakultas Kedokteran UIN Syarif Hidayatullah Jakarta*. [Thesis, UIN Syarif Hidayatullah Jakarta]. Institutional Repository UIN Syarif Hidayatullah Jakarta. https://repository.uinjkt.ac.id/dspace/handle/123456789/49134

Fitriani, Barangkau, Masrah Hasan, Ruslang, Eka Hardianti, Khaeria, Resti Oktavia, and Selpiana. (2022). Cegah Stunting Itu Penting!. *Jurnal Pengabdian Kepada Masyarakat Sosiosaintifik (JurDikMas)*, *4*(2), 63–67. https://doi.org/10.54339/jurdikmas.v4i2.417

Larasati, N.N., Wahyuningsih, H.P., & Margono. (2018). *FAKTOR-FAKTOR YANG BERHUBUNGAN DENGAN KEJADIAN STUNTING PADA BALITA USIA 25-59 BULAN DI POSYANDU WILAYAH PUSKESMAS WONOSARI II TAHUN 2017*. [Thesis, Poltekkes Kemenkes Yogyakarta]. Repository POLKESYO. http://eprints.poltekkesjogja.ac.id/id/eprint/1719

Notoatmodjo. (2016). *Pendidikan dan Perilaku Kesehatan*. Rineka Cipta.

Nursalam & Pariani, S. (2001). *Pendekatan Praktis: Metodologi Riset Keperawatan*. Sagung Seto.

Pfeiffer, B., Clark, G. F., & Arbesman, M. (2018). Effectiveness of Cognitive and Occupation-Based Interventions for Children With Challenges in Sensory Processing and Integration: A Systematic Review. *The American journal of occupational therapy : official publication of the American Occupational Therapy Association*, *72*(1), 7201190020p1–7201190020p9. https://doi.org/10.5014/ajot.2018.028233

SMA AIKMEL. "Selamat Datang Di Website Resmi SMA NEGERI 1 AIKMEL." Retrieved November 3, 2023. (https://sman1aikmel.sch.id/).

Septiani R.E., Mulyaningsih, T., & Mulyanto, M. (2023). The Effect of Macroeconomics and Access to Health Service on Stunting in Indonesia | Health Science Journal of Indonesia. *HSJI: Health Science Journal of Indonesia*, *14*(1). https://hsji.kemkes.go.id/index.php/hsji/article/view/6440

Supriyatni, N., Andiani A., Rahayu, A., & Lestari, T. (2021). Pemberdayaan Masyarakat Melalui Kelompok Dukungan Sebaya (KDS) Pada Orang Dengan HIV/AIDS Di Kota Ternate Provinsi Maluku Utara Tahun 2020. *Jurnal Biosainstek*, *3*(1), 21–26. https://doi.org/10.52046/biosainstek.v3i1.604

UNICEF, WHO. (2020). *Levels and Trends in Child Malnutrition: Key Findings of the 2020 Edition*. United Nations Children's Fund. https://www.unicef.org/reports/joint-child-malnutrition-

estimates-levels-and-trends-child-malnutrition-2020

UNICEF. (2021). *Strategi Komunikasi Perubahan Sosial Dan Perilaku: Meningkatkan Gizi Remaja Di Indonesia*. UNICEF Jakarta

Vinci, A.S., Bachtiar, A., & Parahita, I.S. (2022). EFEKTIVITAS EDUKASI MENGENAI PENCEGAHAN STUNTING KEPADA KADER: SYSTEMATIC LITERATURE REVIEW." *Jurnal Endurance: Kajian Ilmiah Problema Kesehatan* *7*(1), 66–73. https://doi.org/10.22216/jen.v7i1.822

Wahyudi S., Suntono, Anang Z. 2021. "Provinsi Nusa Tenggara Barat Dalam Angka 2021." *Naskah Data Statistik NTB 2021* 1 (Katalog: 1102001.52), 1–511.

Watson, F., Minarto, Sukotjo, S., Rah, J.H., & Maruti, A.K. (2019). *Kajian Sektor Kesehatan Pembangunan Gizi Di Indonesia*. Direktorat Ksehatan dan Gizi Masyarakat Kedeputian Pembangunan Manusia, Masyarakat dan Kebudayaan Kementrian PPN/ Bappenas.

WHO. (2016) *Childhood Stunting: Context, Causes and Consequences - Conceptual Framework*. WHO. https://www.who.int/publications/m/item/childhood-stunting-context-causes-and-consequences-framework

Widayati, W., & Augustinah, F. (2019). "Pemanfaatan Media Sosial Sebagai Sarana Promosi Makanan Ringan Kripik Singkong Di Kabupaten Sampang." *DIALEKTIKA : Jurnal Ekonomi Dan Ilmu Sosial* 4(2), 1–20. https://doi.org/10.36636/dialektika.v4i2.345.

Wulansari, M., A. W. Sinrang, S. Syarif, M. Ahmad, B. Bahar, & M. Maddepungeng. (2021). The effectiveness of android-based education media of growth and development care towards mother's knowledge improvement. *International Journal of Health & Medical Sciences*, *4*(2), 238-245. https://doi.org/10.31295/ijhms.v4n2.1715.

EMBRIO JURNAL KEBIDANAN
p-ISSN: 2089-8789
e-ISSN: 2714-7886

Effectiveness of Digital Partographs on Clinical Decision-Making in the Delivery Process by Midwives

Widya Maya Ningrum

Universitas Galuh Ciamis West Java, Indonesia

ARTICLE INFORMATION

Received: 17, February, 2023
Revised: 23, November, 2023
Accepted: 28, November, 2023

KEYWORD

Labour; Digital partograph,Clinical Decision Making

Persalinan; Partograf digital, Pengambilan Keputusan Klinis

CORRESPONDING AUTHOR

Widya Maya Ningrum
Jl Ah Nasution Andalusia Almeria 19 Mangkubumi Tasikmalaya
widyamayaningrum@gmail.com
+6281323559944

DOI

https://doi.org/10.36456/embrio.v15i2.6971

A B S T R A C T

A partograph can be used as an early warning system that will help make early decisions when a mother should be referred, expedite or end monitoring of the fetus and mother during childbirth, as well as help find the presence of fetal or maternal problems. A digital partograph is a form of application where the use of digital paper instead of manual paper for monitoring is authentically designed by researchers. The use of partographs through devices that can be used as a tool to assist with medical care and facilitate it during tracking by the workforce can be downloaded from the Google Play Store. The purpose of this study is to analyze the use of Android-based digital partographs for clinical decision-making in the delivery process. The research method used in this study is a comparative study by looking at the differences between the two variables studied, namely the use of digital partographs with manuals for clinical decision-making in the delivery process with a crossectional approach. The results of data analysis using Man Whitney on the aspects of ease, speed, and relevance of the data obtained a p-value of < 0.05 meaning that there is a significant difference between manual partographs and digital partographs from the aspects of ease, speed, and relevance of data to clinical decision making in the delivery process.

Partograf dapat digunakan sebagai deteksi dini yang akan membantu pengambilan keputusan lebih awal kapan seorang ibu harus dirujuk, dipercepat atau diakhiri pemantauan janin dan ibu selama persalinan, serta membantu menemukan adanya masalah janin atau ibu. Partograf digital adalah partograf bentuk aplikasi berbasis android, merupakan inovasi dari lembar partograf yang sudah ada yang berbentuk kertas, digunakn untuk pemantauan yang dirancang secara otentik oleh para peneliti. Penggunaan partograf melalui perangkat yang dapat diterapkan sebagai alat untuk membantu perawatan medis dan memudahkannya selama pemantauan tenaga kerja yang dapat diunduh di Google Play Store. Tujuan penelitian ini yaitu untuk menganalisis penggunaan partograf digital berbasis android untuk pengambilan keputusan klinik pada proses persalinan. Metode penelitian yang digunakan pada penelitian ini yaitu studi komparatif dengan melihat perbedaan antara kedua variable yang diteliti yaitu penggunaan partograf digital dengan manual terhadap pengambilan keputusan klinik pada proses persalinan dengan pendekatan crossectional. Hasil analisis data menggunakan Man whitney pada aspek kemudahan, kecepatan dan relevansi data diperoleh nilai p Value < 0,05 artinya ada perbedaan yang signifikan antara partograf manual dan partograf digital dari aspek kemudahan, kecepatan dan relevansi data terhadap pengambilan keputusan klinik pada proses persalinan.

Introduction

Monitoring childbirth, mechanisms and care for childbirth is important to pay attention to in order to monitor the welfare of the mother and fetus (Iravani et al., 2015; Marwiyah & Pusporini, 2017).

Monitoring is carried out to assess the progress of childbirth, early detection of emergencies and to make clinical decisions, care, and medical measures (Ulfa, 2021; Abebe, 2013; Madden et al., 2016). A partograph is a tool recommended by WHO as the most standardized and most effective delivery monitoring tool. The partograph can be used as a detection system that will help make an early decision on when a mother should be referred, expedited or ended fetal and maternal monitoring during childbirth, as well as help find the presence of fetal or maternal problems (Lawrence et al., 2013; WHO, 2013; Khonje, 2012). The development of partographs is very rapid and the last modification in 2000 was made simpler and easier to use, the latent phase was eliminated and the depiction of the partograph started from the active phase i.e. at the time of the opening of the cervix 4 cm (Iravani et al., 2015). Partographs as a protocol in labor management have been shown to reduce long labor from 6.4% to 3.4%. Emergency Surgery cesarea section decreased from 9.9% to 8.3% and stillbirth from 0.5% to 0.3%(Jayne Marshall, 2014; Raven et al., 2012).

Midwives as health workers who are closest to the community and directly provide services to the community have an important role in relation to the forgery (Kepmenkes, 2020; Abebe, 2013). In accordance with the Midwife Competency standards, each Midwife must have basic skills in the use of partographs and labor monitoring so that it can improve the degree of health of mothers and babies and reduce MMR and AKB. However, the utilization of partographs is currently very low, with the following factors influencing its utilization: little or no knowledge of partographs (85.4%), unavailable (70%), staff shortage (61.5%), and the fact that it is time-consuming to use (30%) (Dorathy et al., 2018). The results of research conducted in Bandung Regency stated that there is no relationship or relationship between the length of work and midwife compliance when using a partograph, this happens because, in reality, midwives use a partograph not as a tool for monitoring the delivery process, but as more widely used as a reporting tool (Dorathy et al., 2018).

So far, the analysis of decision-making by midwives is based on recording in the partograph, however, based on several studies, it is said that there are still many midwives who do not complete the data in the partograph properly and systematically, therefore along with the development of technology and some research related to information technology that can help facilitate the work of health workers, especially can speed up recording, Reporting and making clinical decisions in the delivery process, an update of the partograph tool in the form of an android-based application is needed so that it can facilitate and analyze the situation and condition of the mother during childbirth and help overcome referral delays.

A digital partograph is a form of Application where the use of digital instead of manual paper for monitoring is authentically designed by researchers. the use of partographs through devices that can be applied as a tool to help with medical care and facilitate it during workforce monitoring which can be downloaded on the Google Play Store. To improve the quality of the digital partograph used, an updated version of the digital partograph has been released, namely version 3.0. In this version, there are bug fixes, design changes, additional info features, and additional features for backing up and restoring data. With the upgrade of the digital partograph application, it is hoped that users, especially midwives, can

use it more easily and quickly, and the quality will be better. Based on this, the purpose of this study is to analyze the use of Android-based digital partographs for clinical decision-making in the delivery process.

Method

The research method used in this study was a comparative study by looking at the differences between the two variables studied, namely the use of digital partographs with manuals for clinical decision-making in the delivery process with a crossectional approach. The research site at TPMB Tasikmalaya City, the time for research and data collection starts in January to August 2022. The instrument used is a questionnaire in the form of a statement choice test, with 5 alternative answers. The insufficiency of the statement test is carried out in the following way: Strongly agree (SS); 5, Agree (ST): 4, Almost agree (HS); 3, Disagree (TS): 2, Strongly Disagree (STS): 1.

The population in this study was Midwives with Independent Practice Places in Tasikmalaya City Area by taking purposive samples. The number of samples taken is 40 client data from the delivery examination which will be divided into 2 groups, namely, the case and control groups. The inclusion in this study is that labor mothers with active phases, and mothers with uncomplicated childbirth.

Midwives in intervention groups were given training on the use of digital partograph applications and control group midwives were given refreshing the use of manual (conventional) partographs. Then the midwife performs childbirth assistance using each type of partograph. After the two groups filled out the questionnaire as many as 30 questions (aspects of ease, security, speed, and relevance of the data). The data results were processed and analyzed using computer analysis, for testing the effectiveness of digital and manual partographs using Mann Whitney.

Results

Table 1. An Overview of The Effectiveness of The Aspects of Ease, Speed, and Relevance of Data to Clinical Decision-Making in The Delivery Process Using Manual Partographs and Digital Partographs

Variable		n	Median	Min-Maks
Manual Partograph				
	Ease Aspects	20	23	20-24
	Speed Aspect	20	20	20-21
	Data Relevance Aspects	20	13	12-15
Digital Partograph				
	Ease Aspects	20	24	20-25
	Speed Aspect	20	21	20-24
	Data Relevance Aspects	20	15	12-15

Source: personal data 2022

Table 1 shows that the description of the aspects of ease, speed, and relevance of the data to clinical decision-making using a manual partograph has a median value on the ease aspect of 23, speed 20, and data relevance of 13, while in the use of a digital partograph obtained the median value of the convenience aspect 24, speed 21, and data relevance 15.

Table 2. Effectiveness of Manual Partographs and Digital Partographs towards Clinical Decision-Making in the Delivery Process

Aspects of Decision-Making	*n*	*p*
Ease Aspects of Manual Partograph and Digital Partograph	20	0.017
Speed Aspects of Manual Partograph and Digital Partograph	20	0.017
Relevance Aspects of Manual Partograph and Digital Partograph Data	20	0.017

Source: personal data 2022

Table 2 shows the results of data analysis using Man Whitney on the aspects of ease, speed, and relevance of the data obtained p value < 0.05 meaning that there is a significant difference between manual partographs and digital partographs from the aspects of ease, speed, and relevance of data to clinical decision making in the delivery process.

Discussion

Clinical decision-making is a problem-solving process and as a determinant of the care to be provided to the patient, the decision must be accurate, comprehensive, and safe, both for the patient and his family and the officer providing relief care. In addition to skills, accuracy and speed of time also greatly affect the observation of clinical decisions, and the importance of quick response in screening problems that occur in the process of childbirth (Jayne Marshall, 2014). Aspects The decision-making taken includes the convenience aspect, the speed aspect, and the data relevance aspect, the results showed that the data analysis using the Mann-Whitney Test on the aspect of ease, speed, and relevance of the data obtained a p-value of < 0.05 means that there is a significant difference in effectiveness between digital and manual partographs. WHO currently recommends the use of a developmental childbirth monitoring instrument from the partograph, for the prevention of unnecessary interventions during labor, and improved labor management known as The Labour Care Guide (World Health Organization, 2020).

Midwives as delivery helpers should be aware of partographs used in normal childbirth assistance and that normal childbirth care is sought to maintain survival and provide a high degree of health for mothers and babies through integrated and complete efforts with minimal intervention for the principle of safety and quality of service maintained at an optimal level (Abebe, 2013). With a partograph, it is hoped that it can help midwives make clinical decisions (Kepmenkes, 2020; World Health Organization, 2018).

Partographs, both manual and digital, are graphic records of labor progress to monitor the condition of the mother, fetus and the progress of childbirth detect any problems or deviations, and become a guide to carry out care or other obstetric actions. The android-based digital partograph is designed by researchers to make it easier for midwives or other health care providers to monitor the delivery process It can be used at any time and is easy to carry and quick access because it is installed on the midwife's cellphone.

The use of partographs as an early warning system will help make early decisions to determine when a mother should be referred, accelerated, or ended by the management of the fetus and mother during childbirth (World Health Organization, 2020). The use of a partograph at the time of childbirth assistance by the midwife is very important. Midwives who do not comply with the use of partographs

have an impact on the health of the mother and fetus. The impact of negligence in filling the partograph is the non-detection of abnormalities that may arise at the time of delivery, such as fetal distress, hypertension, dystocia labor, and bleeding because 15% of complications in childbirth are unpredictable (Marwiyah & Pusporini, 2017).

In this case, the midwife is one of the health workers who are directly involved in childbirth assistance so behavior and actions when providing care are very important, but it is still found that midwives do not use a partograph in monitoring childbirth. From the results of the researchers' survey, there are still some midwives who conduct an examination of the progress of childbirth (opening) not directly filling in the partograph sheet but on observation paper or patient status. In the digital partograph application, the menu displayed is made in such a way as the WHO partograph, covering labor monitoring from the aspects of mother, baby, and labor progress. Data input is done digitally, if there are abnormal data findings, there will be signs of problems in maternal labor, so that midwives can quickly respond to handle these problems.

Conclusions

There is a significant difference between manual partographs and digital partographs in the aspects of ease, speed, and relevance of data to clinical decision-making in the delivery process. To support further data, further research is needed on the effectiveness of the use of digital partographs on the quality of obstetric care services in childbirth.

References

Abebe, F. (2013). Assessment of Knowledge and Utilization of the Partograph among Health Professionals in Amhara Region, Ethiopia. *Science Journal of Clinical Medicine*, *2*(2), 26. https://doi.org/10.11648/j.sjcm.20130202.11

Dorathy, D. T., Rebirth, D., Benjamin, E. E., & Sebastian, T. (2018). Effectiveness of Structured Teaching Programme on the Knowledge and Practice of Partograph among Nurse Midwives. *International Journal of Nursing Education*, *10*, 24–27.

Iravani, M., Janghorbani, M., Zarean, E., & Bahrami, M. (2015). An overview of systematic reviews of normal labor and delivery management. *Iranian Journal of Nursing and Midwifery Research*, *20*(3), 293–303. http://www.ncbi.nlm.nih.gov/pubmed/26120327%0Ahttp://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC4462052

Jayne Marshall, M. R. (2014). *Myles Textbook for Midwives* (Vol. 17). Elsevier.

Kepmenkes. (2020). *Standar Profesi Bidan* (Kepmenkes No. 320 tahun 2020). Kementerian Kesehatan Republik Indonesia https://ibi.or.id/doc/KEPMENKES_320_TAHUN_2020_TENTANG_STANDAR_PROFESI_BIDAN.pdf

Khonje, M. (2012). *Use and Documentation of Partograph in Urban Hospitals in Lilongwe- Malawi: Health Workers' Perspective*. [Master's Thesis, University of Oslo]. DUO Research Archive UIO. http://urn.nb.no/URN:NBN:no-31361

Lawrence, A., Lewis, L., Hofmeyr, G. J., & Styles, C. (2013). Maternal positions and mobility during first stage labor. *Cochrane Database of Systematic Reviews*, *2013*(10), Art. No. CD003934. https://doi.org/10.1002/14651858.CD003934.pub3

Madden, K., Middleton, P., Am, C., Matthewson, M., & Jones, L. (2016). Hypnosis for pain management during labor and childbirth. *Cochrane Database of Systematic Reviews*, *2016*(5), Art. No.: CD009356. https://doi.org/10.1002/14651858.CD009356.pub3

Marwiyah, N., & Pusporini, L. S. (2017). Package of Birthing Ball, Pelvic Rocking, and Endorphin Massage (BPE) Decrease The First Step Labor Pain. *Indonesian Nursing Journal of Education*, *2*(1), 65–70. http://dx.doi.org/10.24990/injec.v2i1.124

Raven, J. H., Tolhurst, R. J., Tang, S., & van den Broek, N. (2012). What is quality in maternal and neonatal health care? *Midwifery*, *28*(5), e676–e683. https://doi.org/10.1016/j.midw.2011.09.003

Ulfa, R. M. (2021). Effect of the Use of Birth Balls on the Reduction of Pain and Duration of Labor During the First Stage of Active and Second Stage of Labor in Primigravida Maternity. *Science Midwifery*, *9*(2), 418–430. https://midwifery.iocspublisher.org/index.php/midwifery/article/view/122

WHO. (2013). *Department of Maternal, Newborn, Child and Adolescent Health*. *September*, 1–3.

World Health Organization. (2018). *WHO recommendations: Intrapartum care for a positive childbirth experience*. WHO. https://www.who.int/publications/i/item/9789241550215

World Health Organization. (2020). *WHO Labour Care Guide: User's Manual*. WHO. https://www.who.int/publications/i/item/9789240017566

EMBRIO JURNAL KEBIDANAN
p-ISSN: 2089-8789
e-ISSN: 2714-7886

Effectiveness of Massage Therapy and Gentle Yoga with Prenatal Depression

Indriyani Makmun

Universitas Muhammadiyah Mataram, Mataram, Indonesia

ARTICLE INFORMATION

Received: 6, July, 2023
Revised: 24, November, 2023
Accepted: 28, November, 2023

KEYWORD

Gentle Yoga; Prenatal Massage; Prenatal Depression; Pregnant women

Gentle yoga; Pijat hamil; Depresi kehamilan; Ibu hamil

CORRESPONDING AUTHOR

Indriyani Makmun
Lingkar Permata Residence No A-8 Kota Mataram
ndry.ani88@gmail.com
+6281914312001

DOI

https://doi.org/10.36456/embrio.v15i2.7662

A B S T R A C T

Depression is a psychological health problem that is often seen throughout the world, It hinders the functioning, creativity, happiness, and satisfaction of individuals, reduces their quality of life, and causes disruption of activities in doing their work. Depression is prevalent during pregnancy and affects women 10% to 49%. Women who are depressed are more likely to give birth prematurely and neonatal conditions are more likely to have low birth weight or low birth weight or low birth weight of <2500 grams) The purpose of the study is to find out how effective massage therapy and gentle yoga are against prenatal depression in, Mataram City in 2023. This study was conducted by conducting massage therapy and gentle yoga prenatal gentle yoga where the movement can reduce the level of depression, especially among pregnant women at high-risk ages. The research method carried out using Quasi Experiment with pretest posttest nonequivalent one-group design is research whose conclusions are obtained by comparing data before and after the intervention. The results showed a significant difference before and after massage therapy and gentle yoga interventions against depression in pregnant women, with a p-value of 0.000<0.005. Conclusion: There was a difference in average scores before and after gentle yoga and massage therapy interventions for prenatal depression.

Depresi merupakan masalah kesehatan psikologis yang sering terlihat diseluruh dunia, yang menghambat fungsi, kreativitas, kebahagiaan, kepuasan individu, mengurangi kualitas hidup mereka, dan menyebabkan terganggunya aktivitas dalam melakukan pekerjaannya. Depresi lazim terjadi selama kehamilan dan mempengaruhi wanita 10% hingga 49%. Wanita yang mengalami depresi lebih cenderung melahirkan sebelum waktunya dan kondisi neonatus lebih cenderung memiliki berat badan lahir rendah atau BBLR yaitu <2500 gram) Tujuan Penelitian yaitu Mengetahui Bagaimana Efektifitas Massage Therapy dan Gentle Yoga Terhadap Prenatal Depression di Kota Mataram Tahun 2023. Penelitian ini dilakukan melakukan massage therapy dan gentle yoga prenatal gentle yoga dimana Gerakan tersebut dapat menurunkan tingkat depresi khusunya ibu hamil dengan usia risiko tinggi Metode penelitian yang dilakukan menggunakan Quasi Eksperiment dengan desain pretest postest non-equivalent one group design yaitu penelitian yang kesimpulan hasilnya di dapat dengan cara membandingkan data sebelum dan setelah intervensi. Teknik dalam pengambilan sampel pada penelitian ini adalah total sampling. Hasil Penelitian menunjukan terdapat perbedaan yang signifikan sebelum dan setelah diberikan intervensi massage therapy dan gentle yoga terhadap depresi pada ibu hamil, dengan nilai p value 0.000<0.005. Kesimpulan: Terdapat perbedaan nilai rata-rata sebelum dan setelah diberikan intervensi gentle yoga dan massage therapy terhadap prenatal depression.

Introduction

Pregnancy is a natural process dreamed by women to get offspring, Physiological and psychological changes in pregnancy occur due to an increase in the hormones estrogen, progesterone and adrenaline so that it can cause psychological changes that occur in pregnant women, especially primigravida and reproductive age with a high risk, mothers often silent and even tend to hide their ambivalence or negative feelings and accept or reject physical changes that occur Even experiencing levels of stress and depression that tend to appear, (Makmun et al., 2022).

Depression is a psychological health problem that is often seen throughout the world, which hinders the functioning, creativity, happiness, and satisfaction of individuals, reduces their quality of life, and disrupts activities in doing their work (El-Said Khaerunisa; Limoa; Palupessy, 2020).

Ten percent to forty-nine percent of pregnant women experience depression. Depressed women are more prone to give birth before their due date and to have low birth weights (birth weights under 2,500 grams) and neonatal problems. One of the main causes of newborn illness and mortality in the United States is low birth weight babies. Fetal growth retardation affects up to 20% of low birth weight babies, and it lasts the entire first year of life. The necessity for studying the underlying mechanisms of low birth weight and preterm birth is highlighted by the considerable morbidity and long-term health implications associated with these conditions. Additionally, research is required on treatments for managing pregnancies that pose a danger, such as prenatal depression (Field et al., 2013).

Pregnancy-related anxiety, antenatal depressive symptoms, and perceived stress have been identified as risk factors for adverse mother-infant birth outcomes, including prematurity, according to research by Lalani et al. (2021). Numerous studies, including meta-analyses, have demonstrated an association between elevated levels of pregnancy-related anxiety and preterm birth over the last two decades. As per the findings of Hall et al. (2020), bias may be present in the results. Additional rigorous investigation is required to comprehensively assess the effects of massage therapy on the mental health symptoms of expectant women, encompassing both immediate and long-term effects. Exercise implications: Pregnant women may find massage therapy to be a viable and acceptable method for alleviating symptoms of anxiety and depression. Additional research is required to examine the efficacy and safety of massage prior to making practice recommendations.

According to a study by Field et al. (2013), pregnant women who had been diagnosed with severe depression were either assigned to receive 12 weeks of massage therapy twice per week by both partners or were maintained as a control group receiving standard prenatal care. In contrast to the control group, the female massage therapy participants exhibited not only a reduction in depressive symptoms by the conclusion of the treatment phase but also decreased levels of depression and cortisol in the postpartum phase. Infants born to these mothers also exhibit reduced rates of preterm birth, low birth weight, and decreased cortisol levels.

Depression during pregnancy can also cause growth retardation and can negatively impact cognitive, motor, and emotional development during infancy and childhood, Furthermore, prenatal

depression is one of the main risk factors for postpartum depression, which will eventually bear a high risk of development during infancy and early childhood (Buttner et al., 2015).

Additionally, yoga has been linked to a decrease in prematurity. From the time of 20 weeks gestation until delivery, expectant women who participated in the prenatal yoga study were able to engage in breathing exercises, meditation, and function-based yoga postures. The number of infants born in the yoga group weighing more than 2500 grams was substantially greater, while the incidence of preterm labor was considerably reduced (Aprilia & Richmond, 2019). Pregnant women are assisted in their labor and delivery through the implementation of physical exercise regimens, the Lamaze method, prenatal yoga, relaxation yoga, and melancholy reduction measures. To prevent pregnancy complications, the technical implementation unit of health services has programmed exercise during pregnancy as a form of implementation (Bakri, 2021).

Massage therapy is an effective method for alleviating pain, anxiety, depression, and tension in a variety of patient populations during pregnancy. Psychosocial stress and melancholy are significant risk factors that can have adverse effects on both the health of the expectant mother and the development and growth of the fetus (Schetter et al., 2012). Furthermore, infants delivered to mothers experiencing prenatal depression are at a higher frequency of necessitating intensive care. The head circumference and birth weight of infants born to depressed mothers are both inferior to those born to fit mothers (McDougal et al., 2018).

Based on data obtained from the 2020 Mataram City Health Profile, it was recorded that the number of pregnant women was 9,700 people. Ampenan 785 people, Pejeruk 551 people, Tanjung Karang, 1,336 people, Karang Pule 1,328 people, Mataram 699 people, Selaparang 689 people. The coverage of pregnant women in the area that has a history of primigravida is the first-time pregnant mothers with a higher level of stress in facing childbirth in the Selaparng Area by 50% (Dinas Kesehatan Kota Mataram, 2020).

From preliminary study data conducted in the Selaparang area, Monjok Village, 15 pregnant women stated that in the lead-up to childbirth they were afraid of the labor process that would be passed so that sometimes it had an impact on anxiety and confusion that often arose when the estimated day of birth of their baby was approaching. This makes pregnant women often experience discomfort felt during pregnancy, namely pain in the extremities, and back pain caused by changes in body shape, patients often feel tightness, and posture is increasingly difficult to move. With this condition, it is hoped that the provision of Prenatal gentle yoga can manage the mother's breathing, control complaints that are often felt, and then provide massage therapy so that every pregnant woman can relax the tension that often arises and the anxiety felt is reduced. Based on the explanation above, the author is interested in raising the case of the application of "Massage Therapy and Gentle Yoga Against Prenatal Depression in Monjok Village, Mataram City in 2023".

Method

This type of research is a quasi-experimental method with a pretest-posttest nonequivalent one-group design, which is research whose conclusions can be obtained by comparing data before and after the intervention. The study subjects were 30 pregnant women who had excessive anxiety or depressive symptoms during pregnancy. The sampling technique in this study was Total sampling. The sampling was taken based on inclusion and exclusion criteria where the inclusion criteria were Women with excessive anxiety measured using the Hamilton Rating Scale for Depression (HRSD) questionnaire. The study sample used was based on all ages and maternal parity.

This study used an intervention group, where the group of mothers who were given massage therapy and gentle yoga were selected based on inclusion and exclusion criteria, there were inclusion criteria for pregnant women who had been screened related to the level of depression and anxiety felt. The selection of inclusion and exclusion criteria was carried out after researchers obtained data on the number of pregnant women. On the first day, pregnant women are given prenatal gentle yoga for 60 minutes where with yoga the mother can focus more on managing discomfort and can provide positive affirmations. Furthermore, on the third day, the mother is given massage therapy on her body to provide a sense of relaxation and comfort felt by the mother during pregnancy. The duration of the therapeutic massage is given for 30 minutes. The data collection method uses a depression measurement scale, namely the Hamilton Rating Scale for Depression (HRSD) by doing a pretest (first day) and then on the third day after the gentle intervention given a posttest. Data analysis was used to determine the difference between before and after massage therapy and prenatal gentle yoga in pregnant women with depression using paired sample t-tests. This research test is ethically feasible with Ethical Clearance from NTB Provincial Hospital with No: 037.3/18/KEP/2023.

Results

Table 1. Frequency Distribution of Respondents' Characteristics in Pregnant Women in Monjok Village, Mataram City

Characteristic	F	%
Age		
<20 years	6	20
20-35 years	13	43.3
>35 years	11	36.7
Total	**30**	**100.0**
Level of Education		
Low	8	26.7
High	22	73.3
Total	**30**	**100.0**
Parity		
Primigravida	21	70.0
Multigravida	9	30.0
Total	**30**	**100.0**

Source: primary data, June 2023

Based on table 1 shows that the number of <20 years old is 6 people (20%), 20-35 years old is 13 people (43.3%) and >35 years old is 11 people (36.7%). In the characteristics of respondents based on the level of education who have low education as many as 8 people (26.7%) and higher education as

many as 22 people (73.3%). The characteristics of respondents with parity, in primigravida mothers amounted to 21 people (70%) and multigravida mothers amounted to 9 people (30%).

Table. 2 Frequency Distribution of Prenatal Depression before and after Prenatal Gentle Yoga and Massage Therapy

Variabel	*Pretest*		*Posttest*	
	F	**%**	**F**	**%**
Prenatal Depression				
Usual	14	46.6	29	96.7
Mild depression	16	53.3	1	3.3
Moderate depression	0	0.0	0	0.0
Major depression	0	0.0	0	0.0
Total	**30**	**100.0**	**30**	**100.0**

Source: primary data, June 2023

Based on Table 2 before the prenatal gentle yoga and massage therapy intervention, it can be seen that the level of depression in pregnant women can be seen that the normal category is 14 people (46.6%), and respondents who have mild depression category as many as 16 people (53.3%) and moderate and severe depression categories do not exist.

Table 3. Average Difference Before and After Massage Therapy and Prenatal Gentle Yoga on Prenatal Depression

Kelompok	N	Mean±SD	*95% Confidence Interval*		*p-value*
			Min	**Max**	
Yoga Prenatal and *Massage Therapy*					
Pretest	30	1.53±0.50	0.31	0.68	0.000
Posttest	30	1.03±0.18			

Source: primary data, June 2023

Based on table 3 above, shows that the level of depression of pregnant women before being given prenatal yoga and massage therapy interventions averaged a score of 1.53, and after being given interventions with an average score of 1.03. This shows that there is a decrease in the level of depression or anxiety felt by pregnant women by an average of 0.50 after being given the intervention. The results of the Paired t-test analysis showed significant differences or changes before and after prenatal gentle yoga and massage therapy. A paired t-test probability value with 0.000 results means that there is a difference between before and after treatment, namely yoga intervention and massage therapy given to pregnant women, with indigo p-value 0.000< 0.05.

Discussion

This study showed that there was a decrease in stress or depression patterns felt by mothers before and after gentle yoga and massage therapy. Prenatal gentle yoga and massage therapy are non-pharmacologic therapies that can be done by pregnant women to be able to empower themselves during pregnancy, provide positive affirmations to mothers during pregnancy, and strengthen the mother's body so that mothers feel more calm and comfortable during pregnancy. The manipulation technique of massage consists of pulling and stretching movements that give Benefits to the circulatory system, lymph, and nerves. This therapy is used to relieve muscle tension improve blood circulation and stimulate the lymphatic system (lymph). Therefore, massage therapy is believed to be very effective for dealing with stress, increasing relaxation, relieving muscle pain, increasing muscle flexibility, reducing

headaches, improving the immune system, and improving sleep quality (Profil Kesehatan Indonesia, 2020), while Prenatal yoga also effectively provides benefits for pregnant women (Iyengar & Khatab, 2015). Many studies have proven that doing prenatal yoga has benefits for pregnant women, including a study by Battel et al. (2018) that resulted in a significant reduction in anxiety after prenatal yoga in the intervention group.

Pregnant women who experience anxiety or insecurity regarding childbirth can typically attribute the condition to a number of factors, which encompass the following: In the analysis, maternal anxiety, life stress, a history of depression, lack of social support, unintended pregnancy, domestic violence, low income, low education, smoking, and poor relationship quality were identified as potential risk factors for depressive symptoms during pregnancy. Anxiety frequently co-occurs with depression; thus, the effectiveness of prenatal yoga in reducing anxiety among expectant women was also examined; the findings indicated that yoga could substantially reduce anxiety levels in this population, irrespective of the presence or absence of depression. Multivariate analyses consistently reveal significant associations between depressive symptoms and the following factors: life stress, domestic violence, and lack of social support (Mueller & Gruwald, 2021).

In order to differentiate the effectiveness of prenatal yoga over massage therapy as a treatment for depression during pregnancy, we compared the two modalities in a study. Yoga and massage therapy may be effective in reducing anxiety and depression in expectant women, with or without depression, according to the most recent research. According to the findings of the subgroup analysis, yoga demonstrated efficacy in alleviating anxiety and depression among expectant women diagnosed with depression, but did not yield similar results for those without depression. We recommend that depressed expectant women seek professional assistance. Based on our findings, yoga and massage therapy, among several others, are safe and effective interventions for pregnant women with depression. Consult with a psychiatrist before deciding whether yoga is the most effective treatment for a particular condition (Lin et al., 2022).

Conclusions

The frequency of prenatal depression before prenatal gentle yoga and massage therapy intervention has a value in the category of mild depression (8-13) and no depression or normal (<7), After being given prenatal intervention, gentle yoga, and massage therapy, there was a significant difference, namely the highest score in the normal category, namely with a score range of <7 or 0-7. There were differences in average scores before and after gentle yoga and massage therapy interventions for prenatal depression.

References

Aprilia, Y., & Richmond. (2019). *Yoga: Tools for mind and body balance*. Gramedia Widiasaran Indonesia.

Bakri, K. R. R., Usman, A. N., Syamsuddin, S., Idris, I., & Limoa, E. (2021). The effectiveness of gentle prenatal yoga on the recovery of depression level in pregnant women aged. *Gaceta sanitaria*, *35*

Suppl 2, S310–S313. https://doi.org/10.1016/j.gaceta.2021.10.042

Battel, C. L., Uebelacker, L. A., Magee, S. R., Sutton, K. A., & Miller, I. W. (2015). Potential for prenatal yoga to serve as an intervention to treat depression during pregnancy. *Women's health issues: official publication of the Jacobs Institute of Women's Health*, *25*(2), 134–141. https://doi.org/10.1016/j.whi.2014.12.003

Buttner, M. M., Brock, R. L., O'Hara, M. W., & Stuart, S. (2015). Efficacy of yoga for depressed postpartum women: A randomized controlled trial. *Complementary therapies in clinical practice*, *21*(2), 94–100. https://doi.org/10.1016/j.ctcp.2015.03.003

Dinas Kesehatan Kota Mataram. (2020). *Profil Kesehatan Kota. In 1* (1st ed.). Dinas Kesehatan.

El-Said, K., Syamsuddin, S., Idris, I., Limoa, E., Pelupessy, N., & Syam, A. (2020). The effectiveness of prenatal gentle yoga on the recovery of depression level in primigravid and multigravid pregnant women. *International Journal of Health & Medical Sciences*, *3*(1), 92-97. https://doi.org/10.31295/ijhms.v3n1.169

Field, T., Diego, M., Delgado, J., & Medina, L. (2013). Yoga and social support reduce prenatal depression, anxiety, and cortisol. *Journal of bodywork and movement therapies*, *17*(4), 397–403. https://doi.org/10.1016/j.jbmt.2013.03.010

Hall, H. G., Cant, R., Munk, N., Carr, B., Tremayne, A., Weller, C., Fogarty, S., & Lauche, R. (2020). The effectiveness of massage for reducing pregnant women's anxiety and depression; systematic review and meta-analysis. *Midwifery*, *90*, 102818. https://doi.org/10.1016/j.midw.2020.102818

Iyengar, G. S., & Khatab, K. (2015). *Iyengar yoga for motherhood; Safe practice for expectant and new mothers*. Sterling Publishing Company, Incorporated

Lalani, S., Dosani, A., Forcheh, N., Premji, S. S., Siddiqui, S., Shaikh, K., Mian, A., & Yim, I. S. (2021). Perceived stress may mediate the relationship between antenatal depressive symptoms and preterm birth: A pilot observational cohort study. *PLoS ONE*, *16*(5 May), 1–21. https://doi.org/10.1371/journal.pone.0250982

Lin, I. H., Huang, C. Y., Chou, S. H., & Shih, C. L. (2022). Efficacy of Prenatal Yoga in the Treatment of Depression and Anxiety during Pregnancy: A Systematic Review and Meta-Analysis. *International Journal of Environmental Research and Public Health*, *19*(9). https://doi.org/10.3390/ijerph19095368

Makmun, I., Harahap, A.P., Amini, A., Amilia, R., & Adiputri, N.W.A. (2022). Implications of Prenatal Gentle Yoga on Low Back Pain among Women in the Second and Third Trimesters of Pregnancy. *Embrio*, *14*(2), 221–226. https://doi.org/10.36456/embrio.v14i2.5710

McDougal, L., Jackson, E. C., McClendon, K. A., Belayneh, Y., Sinha, A., & Raj, A. (2018). Beyond the statistic: Exploring the process of early marriage decision-making using qualitative findings from Ethiopia and India. *BMC Women's Health*, *18*(1), 1–16. https://doi.org/10.1186/s12905-018-0631-z

Mueller, S. M., & Grunwald, M. (2021). Effects, Side Effects and Contraindications of Relaxation Massage during Pregnancy: A Systematic Review of Randomized Controlled Trials. *Journal of clinical medicine*, *10*(16), 3485. https://doi.org/10.3390/jcm10163485

Profil Kesehatan Indonesia. (2020). *Health Information System*. Kemenkes RI.

Schetter, C. D., & Tanner, L. (2012). Anxiety, depression and stress in pregnancy: implications for mothers, children, research, and practice. *Current opinion in psychiatry*, *25*(2), 141–148. https://doi.org/10.1097/YCO.0b013e3283503680.