# ANALYSIS OF FACTORS RELATED TO THE INCIDENT OF CHRONIC ENERGY DEFICIENCY (CED) IN PREGNANT WOMEN

**Lely Sulistianingrum[1], Amrina Octaviana[2], Risneni[3], Monica Dara Delia Suja[4]**

[1,2,3,4]Midwifery Department, Tanjungkarang Ministry of Health Polytechnic
email : lelysulistianingrum11@gmail.com

**ABSTRAK : ANALISIS FAKTOR YANG BERHUBUNGAN  DENGAN KEJADIAN KURANG ENERGI KRONIS (KEK) PADA IBU HAMIL**

Latar Belakang : Kurang energi kronis (KEK) pada kehamilan merupakan masalah gizi di Indonesia. Kontribusi dan terjadinya KEK pada ibu hamil akan memengaruhi tumbuh kembang janin. Ibu hamil dengan masalah gizi dan kesehatan berdampak terhadap kesehatan dan keselamatan ibu dan bayi serta kualitas bayi yang dilahirkan. Prevalensi risiko KEK di kota Bandar Lampung pada wanita hamil sebesar 17,36% dan wanita tidak hamil 17,02%. Salah satu puskesmas di Kota Bandar Lampung yakni Puskesmas Way Kandis di tahun 2022, terdapat ibu hamil dengan KEK sebanyak 48 ibu hamil.

Tujuan : Menganalisis faktor yang berhubungan dengan kejadian KEK pada ibu hamil di wilayah Puskesmas Way Kandis Kota Bandar Lampung.

Metode : Penelitian ini dilakukan dengan pendekatan *cross sectional,* dengan sampel ibu hamil KEK di Wilayah Puskesmas Korpri. Analisis statistik yang akan digunakan dalam penelitian ini adalah uji *chi-square.*

Hasil : hasil penelitian menunjukkan bahwa variabel yang paling berhubungan dengan kejadian KEK yaitu ibu hamil dengan Paritas > 2 anak dengan nilai p 0,001<0,05, kemudian ibu hamil dengan gizi kurang nilai p 0,001<0,05, dan ibu hamil dengan infeksi penyakit, nilai p 0,004 <0,05. Untuk variabel yang tidak berhubungan adalah umur, jarak kelahiran, serta usia kehamilan.

Kesimpulan : variabel yang paling berhubungan dengan kejadian KEK yaitu ibu hamil dengan Paritas > 2 anak dengan nilai p 0,001<0,05.

Saran : Pentingnya pendidikan kesehatan mengenai asupan gizi pada ibu hamil dalam mencegah terjadinya kejadian Kurang Energi Kronis (KEK) pada ibu hamil, dapat memengaruhi tumbuh kembang janin, sehingga dapat mencegah terjadinya komplikasi pada saat persalinan.

Kata kunci : Ibu hamil, KEK, malnutrisi


**ABSTRACT**

Background: Chronic energy deficiency (CED) in pregnancy is a nutritional problem in Indonesia. The contribution and occurrence of CED in pregnant women will affect the growth and development of the fetus. Pregnant women with nutritional and health problems have an impact on the health and safety of the mother and baby, as well as the quality of the baby born. The prevalence of CED risk in the city of Bandar Lampung in pregnant women is 17.36% and in non-pregnant women is 17.02%. One of the community health centers in Bandar Lampung City is the Community Health Center Way Kandis. In 2022, there were 48 pregnant women with CED.

Objective: To analyze factors related to the incidence of CED in pregnant women in the Way Kandis Community Health Center area, Bandar Lampung City.

Method: This research was conducted using a *cross-sectional approach* with a sample of KEK pregnant women in the Korpri Community Health Center area. The statistical analysis that will be used in this research is the *chi-square test.*

Results: The results of the study show that the variables most related to the incidence of CED are pregnant women with parity > 2 children with a p value of 0.001<0.05, then pregnant women with malnutrition with a p value of 0.001<0.05, and pregnant women with infectious diseases. with a p value of 0.004<0.05. Unrelated variables are age, birth interval, and gestational age.

Conclusion: The variable most related to the incidence of CED is pregnant women with parity > 2 children, with a p value of 0.001 <0.05.

Suggestion: The importance of health education regarding nutritional intake for pregnant women in preventing the occurrence of chronic energy deficiency (KEK) in pregnant women can affect the growth and development of the fetus so that it can prevent complications during childbirth.

**Lely Sulistianingrum, Amrina Octaviana, Risneni, Monica Dara Delia Suja**

## INTRODUCTION

Chronic energy deficiency (CED) in pregnancy is a nutritional problem in Indonesia. The contribution and occurrence of CED in pregnant women will affect the growth and development of the fetus. Pregnant women with nutritional and health problems have an impact on the health and safety of the mother and baby, as well as the quality of the baby born. The condition of pregnant women with Chronic Energy Deficiency (CED) risks reducing the muscle strength that helps the birth process, which can result in prolonged labor and postpartum bleeding, even maternal death. The risk to babies can result in fetal death (miscarriage), prematurity, birth defects, low birth weight (LBW) babies, and even baby death. The causes of the high prevalence of CED that are most often found in society are behavioral factors such as lifestyle, eating patterns, and socio-economic factors.

Chronic energy deficiency in pregnant women, which is characterized by an upper arm circumference of 23.5 cm, is one of the nutritional problems in Indonesia that is often experienced by pregnant women. Pregnant women who suffer from CED have the risk of giving birth to babies with low birth weight, stunted fetal brain growth and development, which is associated with a decrease in the child's intelligence in the future, and the possibility of abnormal birth length is also associated with stunting (Alfarisi et al., 2019).

The maternal mortality rate (MMR) based on SUPAS in 2015 was 305 per 100,000 live births. The 2020 Lampung Province Health Profile Report states that the number of maternal deaths has increased compared to 2019, namely from 110 cases to 115 cases. One of the main causes of AKI is bleeding. By early detection and analyzing the factors related to the incidence of CED in pregnant women, it is hoped that we can reduce the risk of bleeding during childbirth, thereby reducing the maternal Mortality Rate.

## RESEARCH METHODS

This research is quantitative research using a *cross-sectional approach*. This research was carried out by collecting data on the independent variable and the dependent variable once at the same time. The population in this study were 70 pregnant women in the Way Kandis Community Health Center area, Bandar Lampung City. The research employed a total sampling technique. The sample that will be used in this research are pregnant women in the Way Kandis health center area, with a minimum sample size of 70 pregnant women. The inclusion criteria for this study were pregnant women who lived in the working area of the Way Kandis Community Health Center and were willing to take part in the research. This research was carried out in June–December 2023. Data collection was carried out by filling out questionnaires, which were distributed directly through posyandu and home visits. Analysis data bivariate use test statistics *chi-square.*

## RESEARCH RESULTS
### Univariate analysis

The following are the characteristics of pregnant women at the Way Kandis Community Health Center in Bandar Lampung:

**Table 1.**
**Characteristics of Pregnant Women at Way Kandis Community Health Center Bandar Lampung in 2023**

| Characteristics | Frequency | Percentage (%) |
|---|---|---|
| Mother's Age | | |
| 20-29 years old | 46 | 65.7 |
| 30-39 year | 23 | 32.9 |
| >39 years | 1 | 1.4 |
| Education | | |
| middle/high school | 48 | 68.6 |
| College | 22 | 31.4 |
| Work | | |
| Work | 24 | 34.3 |
| Doesn't work | 46 | 65.7 |
| Family Income | | |
| ≤ Minimum wage | 28 | 40.0 |
| >UMR | 42 | 60.0 |
| Parity | | |
| Primipara | 25 | 35.7 |
| Multiparous | 45 | 64.3 |

Based on Table 1, it is known that most respondents aged 20-29 years were 46 people (65.7%). Regarding education, there were 48 people (68.6 % ) with junior high school/high school education, most of the respondents' jobs were not working, 46 people (65.7%). There were 42 people (60%) whose income was > UMR, and there were 45 people (64.3%) who were multiparous.
**Bivariate analysis**

For internal factors related to the incidence of CED in pregnant women at the Way Kandis Community Health Center, Bandar Lampung, can be seen in the table below :

**Table 2.**
**Internal Factor Analysis of the Incidence of CED in Pregnant Women**
**at the Way Kandis Community Health Center, Bandar Lampung in 2023**

| Independent Variable | KEK incident | | | | p value |
| | SEZ | | Not KEK | | |
| | N | % | N | % | |
|---|---|---|---|---|---|
| Age | | | | | |
| 20-29 years old | 16 | 22.8 | 30 | 42.8 | 0.767 |
| 30-40  year | 8 | 11.4 | 15 | 21.4 | |
| >39 years | 0 | 0 | 1 | 1.4 | |
| Parity | | | | | |
| Primipara | 1 | 1.4 | 24 | 34.2 | 0.001 |
| Multiparous | 24 | 34.2 | 21 | 30 | |
| Birth Distance | | | | | |
| < 2 years | 16 | 22.8 | 37 | 52.8 | 0.202 |
| >2 years | 8 | 11.4 | 9 | 17 | |
| Nutritional status | | | | | |
| Malnutrition | 24 | 34.2 | 6 | 8.5 | 0.001 |
| Good Nutrition | 2 | 2.8 | 38 | 54.2 | |
| Disease Infection | | | | | |
| There is | 3 | 4.2 | 1 | 1.4 | 0.004 |
| There isn't any | 20 | 28.6 | 46 | 65.7 | |
| Gestational Age | | | | | |
| TM I | 5 | 7.14 | 10 | 14.2 | 0.862 |
| TM II | 13 | 18.5 | 22 | 31.4 | |
| TM III | 6 | 8.5 | 14 | 20 | |

**Table 3**
**Analysis of External Factors on the Incidence of CED in Pregnant Women**
**at the Way Kandis Community Health Center, Bandar Lampung in 2023**

| Independent Variable | KEK incident | | | | p value |
| | SEZ | | Not KEK | | |
| | N | % | N | % | |
|---|---|---|---|---|---|
| Education | | | | | |
| middle/high school | 21 | 30 | 27 | 38.6 | **0.014** |
| College | 3 | 4.2 | 19 | 27.1 | |
| Family Income | | | | | |
| >UMR | 11 | 15.7 | 31 | 44.2 | **0.081** |
| <UMR | 13 | 18.6 | 15 | 21.4 | |
| Work | | | | | |
| Work | 5 | 7.14 | 19 | 27.1 | **0.087** |
| Doesn't work | 19 | 27.1 | 27 | 38.6 | |

Table 2 shows that the variables most related to the incidence of CED are pregnant women with parity > 2 children with a p value of 0.001< 0.05 , then pregnant women with malnutrition with a p value of 0.001<0.05, and pregnant women with infectious diseases, p value 0.004<0.05. Unrelated variables are age, birth interval, and gestational age .

Based on table 3, it is known that the external variable factor, namely education, is most related to the incidence of CED in pregnant women with a p value of 0.014< 0.05 . The results of this research are

in line with Idealistiana's research in Bekasi, with a p value of 0.002, which shows a significant relationship between education and the incidence of CED in pregnant women. In the educational aspect, it cannot be imagined that the higher a person's level of education, the easier it will be to accept and value new information that is introduced, and ultimately the

more knowledge he will have. On the other hand, if the level of education is low, it will hinder the development of a person's attitude towards accepting newly introduced information and values. Most of the education found was junior high school so knowledge and experience were lacking.

**Table 4.**
**Analysis of internal and external factors most related to the incidence of CED in pregnant women at the Way Kandis Community Health Center, Bandar Lampung City**

| Independent Variable | p value | POR | CI 95% | |
| --- | --- | --- | --- | --- |
| | | | Lower | On |
| Parity | 0.001 | 0.290 | 2,533 | 4,571 |
| Nutritional status | 0.001 | 0.696 | 3,784 | 12,467 |
| Disease Infection | 0.004 | 0.116 | 0.664 | 2,990 |
| Education | 0.013 | 0.087 | 2,541 | 7,637 |

Based on table 4, it shows that the factors most related to the incidence of CED in pregnant women are maternal parity p-value (0.001), Nutritional Status p-value (0.001) and disease infection with p-value (0.004) respectively.

**DISCUSSION**

The number of parities shows the level of repeated pregnancies, so there are many risks. It can be said that physically, a high parity number reduces the ability of the uterus as a medium for fetal growth. Damage to the blood vessels of the uterine wall affects the circulation of nutrients to the fetus, where the amount of nutrients will be reduced compared to subsequent pregnancies. Too much parity will also be detrimental to the mother's health. The mother does not get the opportunity to repair her own body; the mother needs sufficient energy to recover after giving birth to her child. By re-containing food, it causes nutritional problems for the mother and fetus or unborn baby. Parity affects the nutritional status of pregnant women because it can influence the optimization of the mother and fetus in the pregnancy they face. In mothers with high parity, reduced vascularization or atrophic changes in the decidua due to previous births so that blood flow to the placenta is insufficient can disrupt its function, which will have an impact on fetal growth.

Research conducted by Imas shows that there is a relationship between parity and the incidence of CED in pregnant women at the Pasundan Garut Community Health Center. The results of this research are also in line with research conducted by Eka Widya, showing that there is a relationship between parity and the incidence of CED in pregnant women in the working area of the

Sidopoto Health Center, Surabaya (P-value is 0.000). The results of this study are also in line with research conducted by Ekowati, which showed that there was a relationship between parity and KEK in pregnant women in Situbondo (P = 0.044).

This research is in line with research by Marsedi et al. in Tanjung Pinang; there is a significant relationship between nutritional status and the incidence of CED in pregnant women, with a p value of 0.006 <0x7E> 0.05. In general, the incidence of CED is influenced by all nutrients that can contribute to this incident; however, the influence of energy and protein intake is the strongest predictor of the incidence of CED. Pregnant women need more nutrients than before pregnancy. This is because, apart from pregnant women needing nutrients for the fetus they are carrying, the fetus grows by taking nutrients from the food consumed by the mother and from the nutritional stores in the mother's body. Especially for pregnant women who experience CED, they need intensive treatment through specific and sensitive nutritional interventions on an ongoing basis.

The results of Swastika Renjani's research in Banda Aceh showed a significant relationship between infectious diseases and the incidence of CED, p value 0.000. The effect of infectious diseases with CED depends on the magnitude of the impact caused; if the infection is still acute and the degree of infection is still low, it does not have much influence on the nutritional status of pregnant women. On the other hand, if the infection is chronic and lasts a long time, it can affect the mother's nutritional status. In this study, infection was still low, so it did not have much impact on the nutritional status of pregnant women. Pregnant women who are sick, especially

those experiencing infectious diseases, will increase their body's metabolism, so the body will need more energy obtained from food. Because mothers who are sick and have a weak body condition are usually affected by a decreased appetite so that the food intake that should be given cannot be fulfilled, causing weight loss.

Infectious diseases can act as a precursor to malnutrition due to decreased appetite, lack of absorption in the digestive tract, or increased nutritional requirements due to disease. The relationship between infectious diseases and nutritional conditions is reciprocal, namely a cause-and-effect relationship. Infectious diseases can facilitate nutritional conditions, and poor nutritional conditions can facilitate infections and infectious diseases related to nutritional status, namely tuberculosis, diarrhea, and malaria.

## CONCLUSION

Based on the results of related research and the discussion above, it is concluded that the factors related to the incidence of CED in pregnant women are parity, nutritional status and infectious diseases. The importance of cross-sectoral collaboration between health workers, community leaders, cadres, sub-districts, and local city health offices in handling nutritional intake in pregnant women so that it can prevent the occurrence of CED in pregnant women.

## SUGGESTION

The importance of health education regarding nutritional intake for pregnant women in preventing the occurrence of Chronic Energy Deficiency (CED) in pregnant women, can affect the growth and development of the fetus, so that it can prevent complications during childbirth.

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# CAUSING FACTORS OF EARLY MARRIAGE IN LHOKSEUMAWE CITY PUSONG VILLAGE

**Fatiyani[1], Rayana Iswani[2], Erlina[3], Aida Fitriani[4]**

[1,2,3,4]Poltekkes Kemenkes Aceh
Email correspondence fatiyani@poltekkesaceh.ac.id

**ABSTRAK: FAKTOR PENYEBAB PERNIKAHAN DINI DI DESA PUSONG KOTA LHOKSEUMAWE**

Latar Belakang: Pendorong utama terjadinya pernikahan dini masih yaitu tradisi dan kekuatan opini masyarakat, khususnya di pedesaan. Dampak dari pernikahan dini dapat meningkatkan angka kematian ibu, dan pernikahan dini menyebabkan banyak masalah kesuburan.

Tujuan: Menganalisis Analisis Alasan dan Penyebab Pernikahan Dini pada Remaja Aceh di Kota Loksmawe.

Metode: Penelitian kualitatif menggunakan model interpretatif untuk menganalisis pernikahan dini pada remaja putri. Survei dilakukan di kota Loksmawe. Peneliti mengamati tiga kasus orang yang menikah dini. Analisis data melibatkan pengklasifikasian orang dan peristiwa ke dalam kategori dan tanggal sesuai dengan karakteristiknya.

Hasil: Hasil penelitian menunjukkan bahwa penyebab terjadinya pernikahan dini di kota Loksemawe adalah adat istiadat masyarakat seperti remaja putri tidak bersekolah, kriminalitas (perselingkuhan), ketakutan akan pernikahan (cinta), kehamilan pranikah dan kurangnya pengetahuan tentang kesehatan reproduksi.

Kesimpulan: Untuk mengurangi pernikahan dini, setiap pemuda harus menjalani wajib belajar 12 tahun untuk menekan tingginya angka pernikahan dini dan mengurangi minat pemuda untuk menikah di usia muda.

Saran: Bekerjasama dengan organisasi terkait, secara rutin dan berkesinambungan melakukan kampanye penyadaran masyarakat mengenai usia pernikahan yang ideal.

Kata Kunci : Kualitatif, Pernikahan Dini, Remaja

## ABSTRACT

Background: The main drivers of early marriage are still traditions and the power of public opinion, especially in rural areas. The impact of early marriage can increase maternal mortality rates, and early marriage causes many fertility problems.

Purpose: To analyze the Analysis of Reasons and Causes of Early Marriage among Acehnese Adolescents in Loksmawe City.

Methods: Qualitative research using an interpretive model to analyze early marriage among adolescent girls. The survey was conducted in Loksmawe City. Researchers observed three cases of people who married early. Data analysis involved classifying people and events into categories and dates according to their characteristics.

Results: The results of the study showed that the causes of early marriage in Loksemawe City were community customs such as adolescent girls not attending school, crime (infidelity), fear of marriage (love), premarital pregnancy and lack of knowledge about reproductive health.

Conclusion: To reduce early marriage, every young person must undergo 12 years of compulsory education to reduce the high rate of early marriage and reduce the interest of young people to marry at a young age.

Suggestions: In collaboration with related organizations, routinely and continuously conduct public awareness campaigns regarding the ideal age of marriage.

Keywords: Qualitative, Early Marriage, Teenagers

## INTRODUCTION

Everyone on this earth wants to have children. For this to happen, a developmental process is needed to continue the lineage, namely so that the couple through marriage can give birth to children according to their wishes (Amelia et al., 2017; Apriana et al., 2024; Friscila et al., 2022; Isnaini & Sari, 2019). Most girls who marry before the age of 18 come from poor families and live below the poverty line. Nearly 80% of girls experience domestic

violence (beating, slapping, threats) and health problems. Most girls who marry before the age of 18 can experience pregnancy problems, and cases of death have also been reported. Girls under the age of 15 are five times more likely to die in childbirth than women in their 20s. Birth rates are high among people under the age of 18. Teenage brides often show signs of sexual abuse and stress, including feelings of hopelessness, helplessness, and depression (Afriani & Mufdlilah, 2016; Karolina et al., 2024; Nurhikmah et al., 2021)

Marriage is a marriage promise made by two people for the purpose of formal marriage. It is based on religious norms, legal norms, and social norms. There are many types of wedding ceremonies depending on ethnic traditions, religions, cultures, and social classes. The application of certain customs and rules may also be related to certain religious rules and laws. Early marriage is a marriage carried out by parties who are not yet 17 years old. If a man or woman marries under the age of 17, then it can be said to be an early marriage. In Indonesia, early marriage is widespread not only in rural areas but also in urban areas (Fitriani et al., 2024; Karolina et al., 2024; Mubasyaroh, 2016).

The Marriage Law specifies that the ideal age for marriage is 21 for men and 19 for women, as this marks their entry into adulthood and readiness to fulfill their roles and responsibilities as spouses. Despite this, early marriages are still prevalent, involving individuals who may not yet be fully mature or prepared from a legal or psychological perspective (Arbainah et al., 2024).

Obviously, there are several reasons for them to marry early. The results of this research show that the power of tradition and community opinion, especially in rural areas, is still a driving force for several other girls. Among the few countries where early marriage is practiced, two countries, Bangladesh and Pakistan, have experienced gender discrimination, in Bangladesh 73% of girls are married before the age of 18 and up to 27% of girls are between the ages of 12 and 14, while boys- men of the same age. age is only 2.8%. Almost the same thing happened in Pakistan. The above shows that early marriage occurs in several countries or places and is also influenced by local culture. In fact, early marriage will have two impacts on the perpetrator, two negative impacts and will affect the perpetrator's personal and social life (Friscila, Hasanah, et al., 2023). Therefore, if it is not predicted, it cannot be denied that early marriage does not bring happiness to the family, nor the purpose of the marriage itself, but on the contrary also brings losses, perhaps even

suffering for the perpetrator (Fitriani et al., 2024; Friscila, Wijaksono, et al., 2023).

Afghans face a significantly higher risk of pregnancy-related deaths, with rural areas experiencing a mortality rate five times greater than that in urban centers. This increase in maternal mortality is largely attributed to widespread early marriage, which leads to various health complications for women. Beyond the higher death rates, early marriage also contributes to fertility issues. One major health concern associated with early marriage and early childbirth is obstetric fistula, an abnormal connection between the birth canal and internal organs like the rectum. Fistulas can result in severe medical problems including urinary incontinence, bladder infections, infertility, and kidney failure (Parapat, 2019)

Data from various districts and cities in Indonesia reveals that early marriage is prevalent across many regions. Notably, early marriage is prominent in Serdang Bedagai Regency (North Sumatra), Bogor City (West Java), and Pasuruan Regency (East Java). Several areas exhibit high rates of early marriage, including East Java (39.43%), Kalimantan (35.48%), Jambi (30.63%), West Java (36%), and Central Java (27.84%) (Kementerian Kesehatan Republik Indonesia, 2021).

## RESEARCH METHODS

This research uses a qualitative approach with an interpretive model, where social symbolic meaning can be observed through human actions and interactions. This qualitative research aims to analyze early teenage marriages through continued interaction through interviews, observations and documents.

The method of selecting research subjects and informants in this study was not directed at the number but based on the principles of suitability and sufficiency, therefore this study sought research subjects and informants to be included in the study. The research subjects were young women who had undergone early marriage who were willing to provide information based on predetermined criteria and based on the objectives of the study, in addition the research informants were the subject's family, the Head of KUA Banda Sakti and the Head of the Family Welfare Division of the Women's Empowerment Office of Lhokseumawe City.

## RESEARCH RESULTS

Based on the results of interviews with respondents, the factors causing teenagers to marry at an early age were reflected in six themes, namely local community habits, not going to school, fear of

committing sin (adultery), having a partner, being pregnant out of wedlock, and lack of knowledge about reproductive health.

**Local Community Habits**
Subject I statement follows.
*"Hino merasa tertekan untuk menikah segera karena di sini umumnya orang cepat menikah, dan dia khawatir akan disebut perawan tua. Meski begitu, orang tuanya setuju karena dia sendiri sudah ingin menikah dan orang tuanya juga mendukung keputusannya."*

Likewise, the statement from subject III is as follows:
*"Di sini, orang-orang sering menikah pada usia 14-15 tahun, jadi jika saya menikah di usia 18, saya dianggap sudah tua. Dulu, orang tua menikah pada usia 12-13 tahun, jadi menurut pandangan lokal, saya termasuk terlambat."*

This is reinforced by the statement of the informant, namely the Head of the Family Welfare Division at the Women's Empowerment Office of Lhokseumawe City regarding the culture of people on the outskirts of Lhokseumawe City in marrying at an early age.
*"Budaya di daerah pinggiran yang mendorong pernikahan dini masih sangat kuat di sini. Banyak orang tua khawatir jika anak mereka dianggap perawan tua, terutama jika anak tersebut tidak bersekolah atau bekerja, karena mereka takut anaknya akan kesulitan menemukan jodoh di kemudian hari."*
*"Di Kota Lhokseumawe, terdapat 287 pasangan usia subur yang menikah muda dari total 34.762 pasangan. Pasangan muda ini tersebar di 4 kecamatan, dengan jumlah terbanyak di Kecamatan Banda Sakti, yang mencatat 97 pasangan dengan istri yang masih di bawah 20 tahun. Pusat permasalahan terletak di daerah Pusong Lama dan Pusong Baru, yang merupakan wilayah miskin dengan mayoritas penduduk bekerja sebagai nelayan."*

**No school**
Subject I's statement, as expressed to the researcher.
*"Saya memutuskan untuk menikah karena sudah tidak melanjutkan sekolah akibat biaya yang tidak mencukupi dan banyak adik-adik yang harus diurus. Saya tidak tamat SMP, dan suami tidak mau menunggu saya selesai sekolah. Di kampung saya, jika sudah berhenti sekolah, biasanya orang langsung menunggu untuk dilamar dan menikah."*

The statement from subject II is as follows:

*"....Di kampung saya, ada yang menikah meski belum tamat SMP, biasanya pada usia sekitar 14-15 tahun. Di sini, jika tidak melanjutkan sekolah dan belum menikah, orang bisa dianggap malu dan disebut perawan tua. Sebenarnya, saya masih ingin melanjutkan sekolah, tapi karena keterbatasan biaya, saya sering merasa iri melihat teman-teman yang masih bisa mengenakan seragam sekolah."*

Likewise, the statement from subject III to the researcher.
*"....saat menikah, usia saya 18 tahun. Pada waktu itu, saya masih kuliah, tetapi karena menikah, saya terpaksa menghentikan kuliah saya."*

Subject II's mother-in-law who took part in the interview also added about getting married at a young age because she was no longer in school. Here's the narrative:
*"Laki-laki di sini biasanya bekerja sebagai nelayan, tidak melanjutkan sekolah, dan umumnya hanya tamat SMP. Jika ada yang disukai, mereka cenderung menikah."*

The answers from these three subjects were confirmed by the head of KUA Banda Sakti regarding early marriage. Here's the excerpt:
*"Di Kecamatan Banda Sakti pada tahun 2013, terdapat 30 pasangan dari sekitar 500 pasangan yang menikah, dengan perempuan di bawah usia 20 tahun dan laki-laki di bawah usia 25 tahun. Mayoritas dari mereka menikah karena sudah tidak melanjutkan sekolah atau berhenti sekolah untuk menikah."*

This was also supported by the Head of the Family Welfare Division at the Lhokseumawe City Women's Empowerment Office who said:
*"Kota Lhokseumawe, yang terletak di tepi laut dengan mayoritas penduduk sebagai nelayan, mengalami masalah ekonomi yang serius. Kondisi ekonomi keluarga yang memprihatinkan menyebabkan banyak anak putus sekolah, yang mengakibatkan pengetahuan mereka terbatas. Akibatnya, banyak dari mereka menikah di usia muda."*

**Fear of committing sin (adultery)**
The cause or reason for teenagers to get married at an early age is because they are afraid of falling into sin by committing adultery (husband and wife relations without marriage), as explained by subject I below.

*"Daripada berpotensi membuat dosa, kami akhirnya memutuskan untuk menikah. Lagipula, ada teman yang pacarannya terlalu lama hingga hamil dulu sebelum menikah, yang berarti mereka sudah melakukan kesalahan sebelumnya."*

The following is the narrative of subject III's husband's grandmother who took part in the interview explaining the reason her grandson married at a young age:

*"Cucu saya selalu pergi berdua. Sebagai nenek, saya merasa malu jika mereka terlihat bersama tanpa status resmi, terutama karena orangtua si A sudah lama meninggal. Lebih baik mereka menikah daripada terjebak dalam perzinahan."'*

*"Kini sudah sulit mengawasi anak-anak yang kecil-kecil sudah pacaran. Lama-kelamaan, kita sebagai orang tua bisa malu pada tetangga. Saya bilang kepada mereka, lebih baik menikah daripada terjerumus dalam dosa. Bukan hanya mereka yang berdosa, tetapi orang tua juga akan lebih berdosa. Setelah mereka menikah, tanggung jawab sebagai orang tua akan beralih kepada suami mereka, sehingga kita sebagai orang tua bisa merasa lebih tenang.".*

### Already Matched (Love)
Subject I's statement follows.
*"Saya pacaran selama satu tahun dengan suami saya, dan karena sudah jodoh, kami memutuskan untuk menikah. Saya memilih untuk cepat menikah karena jodoh datang lebih awal, dan suami juga cepat meminta untuk menikah. Lama-lama pacaran bisa berisiko putus, jadi lebih baik menikah karena jodoh ada di tangan Allah."*

Subject II also stated that they married young because they were considered soul mates with their partners, here is their explanation.
*"Saya memang benar-benar menyukai suami saya, dan kami menikah karena sudah jodoh. Tidak ada yang memaksa; kami saling mencintai. Suami saya juga mencintai saya, jadi kami memutuskan untuk menikah."*

Subject III stated that he married because he was already a soul mate, here is his statement.
*"Saya ingin segera menikah karena sudah merasa ini jodoh. Saya sangat mencintai dia dan merasa sangat cocok dengan suami saya."*

### Unwed pregnancy
The Head of the Family Welfare Division at the Lhokseumawe City Women's Empowerment Office confirmed this by stating:

*"Di Lhokseumawe, beberapa remaja menikah di usia muda akibat hamil di luar nikah, yang disebabkan oleh perilaku seks bebas. Pacaran yang berlebihan tanpa memperhatikan nilai sosial dan agama membuat mereka mudah terjerumus ke dalam perilaku tersebut dan mengalami kehamilan. Biasanya, laki-laki yang bertanggung jawab akan menikahi perempuan tersebut, tetapi jika laki-lakinya melarikan diri, perempuan harus menanggung beban penderitaan, dicemooh masyarakat, dan dianggap kotor serta hina."*

### Lack of Reproductive Health Knowledge
The following Subject I expression.
*"Kehamilan di usia remaja dianggap biasa di sini, dan banyak yang mengalami hal serupa tanpa masalah. Saya kurang memahami apa yang ibu katakan tentang dampak kehamilan terhadap ibu dan bayi, karena saya tidak tamat SMP. Selain itu, saya belum pernah memeriksakan kehamilan ke bidan karena takut biayanya mahal. Biasanya, saya hanya mau diperiksa jika ada mahasiswa yang sedang praktik."*

Subject II also did not understand reproductive health, according to the respondent's answer when interviewed by researchers:
*"Hamil di usia muda sama saja dengan hamil di usia tua, menurut saya. Seperti kakak saya, kami tidak mengalami masalah serius selama kehamilan. Saya tidak tahu banyak tentang dampak kehamilan terhadap diri saya dan bayi karena saya hanya tamat SMP. Selain itu, saya belum pernah memeriksakan kehamilan ke bidan, biasanya hanya jika ada mahasiswa bidan yang mengajak praktik baru saya mau diperiksa."*

Meanwhile, subject III has a better understanding and understanding of the negative impacts of pregnancy at an early age, here is his explanation.
*"Kehamilan di usia muda bisa berisiko karena organ reproduksi belum matang, yang bisa menyebabkan gangguan seperti bayi prematur, berat lahir rendah, atau masalah lainnya. Namun, saya bersyukur karena selama kehamilan saya tidak mengalami masalah yang berarti."*

Statement by the Head of the Prosperous Family Division of the Lhokseumawe City Women's Empowerment Office regarding teenagers' knowledge of reproductive health as follows:
*"Benar, banyak remaja saat ini kurang pengetahuan tentang kesehatan reproduksi dan usia ideal untuk menikah serta hamil. Dari sudut pandang kesehatan, perempuan sebaiknya menikah di usia 20 tahun dan laki-laki di usia 25 tahun. Jika menikah sebelum usia*

*tersebut, organ reproduksi mungkin belum sepenuhnya matang, dan kematangan emosional juga belum optimal. "*

## DISCUSSIONS
### Local Community Habits

A community's socio-cultural conditions will greatly influence a cultural tradition in the area, namely whether that culture will continue to be carried out, or whether it has begun to be abandoned due to the entry of other cultures which influence the social and cultural life of the local community. Although the process of accepting foreign culture is not always easy and immediately accepted by the local community, if changes can accept the position of foreign traditions and culture, then the foreign culture will automatically become a tradition that will be followed and carried out by the local community. (Ibrahim & Haliman, 2022).

Vice versa, a culture that has existed since their ancestors, will be very difficult to abandon or replace with another culture. Even if it is possible, the process of change will be difficult and take a very long time, because you have to go through many challenges to change it to new cultures. Sometimes a society, in order to maintain and fight for a culture that has existed since their ancestors, must sacrifice property and objects, so that the culture remains sustainable or remains until the end of their lives. The Acehnese or the people in Lhokseumawe City adhere to a patriarchal system which has become a social phenomenon where decision making is in the hands of men. This social phenomenon is related to socio-cultural factors in a patriarchal society which is gender biased, placing women in a low position and only being considered complementary to men. This condition will only perpetuate a gender-biased patriarchal culture which will give rise to violence against women. Women are considered weak, not having the rights and opportunities to make choices about their own lives (Jennyola Savira Wowor, 2021).

In this study, the subjects felt there was nothing wrong with their choice to marry young. This is due to local community customs which consider it normal for young women to marry at a young age (15-18 years). If a woman marries after that age, people call her an old maid or an unsold woman. People's habit of marrying their children at a young age is due to various factors such as having many children, so that by marrying children quickly it will reduce the economic burden on the family, because they are already the responsibility of the man. Although in reality, many young families actually become a burden on the family because the man who marries them does not have the right job, or has a job but with a small income.

### No school

In terms of education, someone who marries, especially at a young age, will certainly have various impacts, especially in the world of education. If someone gets married when they have just graduated from middle school or high school, of course their desire to continue school or pursue higher education will not be achieved. This can happen because a person's motivation to study will begin to slacken due to the many tasks they have to do after marriage. In other words, early marriage can hinder the education and learning process. This is like what happened to Subject III, who stopped studying in the first semester because he was married.

A person's level of education will also influence their maturity in acting. In other words, a person's level of maturity is greatly influenced by the way that person is educated and raised. With this statement, it is realized that teenagers still need experience and education before entering marriage. With the right education pattern, a person's maturity begins to form in their teens. On the other hand, with an inappropriate education pattern, maturity will not be formed even if a person is more than 25 years old (Norisa et al., 2024).

The low level of education of teenagers is often directly proportional to the level of family socio-economic status. Socioeconomic status certainly plays a role in children's development, with a sufficient economy, their children have ample opportunities, such as getting education and having their living needs met. This is different from the socio-economic situation of parents which does not meet the family's needs, their children do not have extensive opportunities, such as going to school at a higher level. The burden on parents will become heavier to meet the needs of their family members or children. To reduce the burden on parents who come from low economic backgrounds, they will quickly marry off their children, especially their daughters who are not yet old enough to get married (US et al., 2023).

### Fear of committing sin (adultery)

Aceh Province which has implemented Sharia Regional Regulations referring to Islamic teachings also applies to the people of Lhokseumawe City. In this Regional Regulation it is emphasized that intercourse between men and women is permitted to the extent that it does not open up opportunities for sinful acts. However, what still needs to be input into

the implementation of the Sharia Regional Regulation in Lhokseumawe City regarding the government's role in improving reproductive health is still lacking, because in the Sharia Regional Regulation the government firmly emphasizes how women dress must be in accordance with sharia but in the matter of marriage the government still seems to allow many marriages to occur. early age in adolescents which will have a negative impact on the future of these adolescents, including the children they give birth to.

Relationships in Islam are relationships that are based on the values of purity. When socializing with members of the opposite sex, distance must be maintained so that there is no opportunity for sexual crimes to occur which in turn will be damaging for the perpetrator and the general public. In the Qur'an, Allah says in Surah Al-Isra' verse 32 which means "And do not approach adultery. Indeed, adultery is an abominable act. and a bad way."

For the people of Lhokseumawe City, it is feared that teenagers who date for a long time will commit immoral acts, so it is better for them to marry at a young age than to suffer the grave sin of committing adultery. The many temptations in life, especially during dating, are the first step to wanting to commit adultery. Moreover, currently there are many places to commit immoral acts, so the institution of marriage is considered one way to prevent adultery which will increase sin.

### Already Matched (Love)

Marriage is a very important event that will never be forgotten in a person's life. When two people love each other and agree to build a happy family, this agreement will be realized in a bond called marriage. Their partner's great love causes them to feel that they are two people who cannot be separated anymore, so they decide to end it with a marriage bond (Budastra, 2020).

Some teenagers who decide to marry for reasons of love are actually based on emotional feelings or a deep sense of love. A marriage that is carried out on emotional grounds, it can be said that the marriage is carried out not on the basis of hastening the marriage but rather being in a hurry to get married. Rushing into marriage will result in a heavy psychological burden during the marriage (Rustiana et al., 2020).

A deep feeling of love is the reason why research subjects choose to marry their partners. Subject I felt that their soul mate had brought them together in a marriage bond. Subject II, on the grounds that he had engaged in promiscuous sexual behavior based on great love for his partner and was afraid of being abandoned, which caused her to become pregnant, finally they got married. Meanwhile, subject III was willing to leave college to marry the husband she loved so much. The three subjects did not marry because of pressure from their parents, but based on a deep feeling of love for their partner.

### Unwed pregnancy

If a pregnancy occurs out of wedlock, marriage is a solution often taken by families and society to cover up the shame and save the status of the child. The majority of women who become pregnant out of wedlock marry the men who impregnated them. Even though people basically don't know many laws, people's actions to hasten the implementation of marriages are more appropriate. Because society and parents are more likely to consider the impacts that will occur next, rather than leaving pregnant young women abandoned and without a husband in their lives. By marrying both teenagers, there will be a sense of responsibility from both of them (Rohmad Azis, 2023).

Teenage life in some regions in Indonesia reflects the life of free teenagers. They make friends with anyone without looking at how close their friends are. They always dated in dark and quiet places. Not only that, they also often display unnatural or excessive dating behavior such as holding hands, hugging, kissing, embracing, touching sensitive areas, and even daring to have a relationship like husband and wife. They no longer think about how their parents respond and behave towards them. Most teenage children, both men and women in the area, often bring their partners to stay at their house for days without parental supervision, even worse, parents often condone the child's behavior.

Teenagers who are in the period of curiosity and want to try will imitate what they see or hear from the mass media. Studies on the use of free time among teenagers show that the majority of teenagers spend their free time watching TV (86% of boys and 90% of girls). Teenagers generally have the courage to listen to pornographic VCDs together at their friends' houses when their parents are not there.

### Lack of Reproductive Health Knowledge

Lack of knowledge or having the wrong concept about reproductive health in adolescents can be caused by the society and families where adolescents grow up giving a narrow picture of reproductive health as sexual relations. Usually topics related to reproduction are considered taboo for parents to discuss with their children (adolescents), so that channels of correct information

about reproductive health are very lacking. Very few parents or families can provide correct information because most still consider it taboo to discuss sex and reproductive health issues (Femilanda, 2017).

Knowledge about reproductive health is very important for teenagers to be able to properly understand the function of the reproductive organs and when the reproductive organs are mature and can function according to their abilities. A young woman needs to understand well what age is good for getting pregnant, in order to reduce disturbances or complications that may occur (Idaningsih & Oktarini, 2020).

There is a *gap* regarding early marriage between ordinary people and in terms of health. According to ordinary people, marriage can take place if the child has reached puberty or has had menstruation (menstruation). From a health perspective, women who marry at an early age of less than 15 years have many risks, even if they have menstruation or menstruation. There are two medical impacts caused by early marriage, namely the impact on the womb and obstetrics. Obstetric diseases that many women who marry at an early age suffer from include infections of the womb and cervical cancer. This occurs because the transition from child cells to adult cells occurs too quickly. In fact, in general, cell growth in children only ends at the age of 19 years. There are differences in views from the general public and in terms of health due to the public's lack of understanding about reproductive health and the impact of early marriage (Utami & Afwa, 2019; Wahyuni et al., 2024).

Knowledge of young women about healthy sex is also still minimal. The assumption that having healthy sex if done when both partners are in good health and not sick is an assumption that is often expressed by teenagers . Healthy sex is sex that occurs after marriage and when the reproductive organs are ready to carry out their reproductive duties such as pregnancy, childbirth and postpartum. Apart from increasing maternal mortality rates, early marriage also causes various reproductive problems. Among the common health problems that arise as a result of early marriage and giving birth at a young age is *obstetric fistula,* which is characterized by the presence of an abnormal passage between the birth canal and internal organs such as the rectum. *Fistulas* cause a number of medical problems such as inability to hold urine, bladder infections, infertility and kidney failure. Meanwhile, the most fatal impact is that it can cause death in teenagers. One of the reasons for the increase in morbidity and mortality rates in adolescents is the low number of visits or examinations by pregnant women to health workers *(antenatal care)* .

## CONCLUSION

The causes of early marriage in Lhokseumawe City are the local community's habit of marrying off young women when they are teenagers, young women no longer going to school, fear of committing sin (adultery), being married (love), the occurrence of premarital pregnancies, and a lack of knowledge among young women about reproductive health. such as not understanding the importance of ANC, the dangers of pregnancy and childbirth at a young age.

## SUGGESTION

Conducting counseling and socialization about the ideal age for marriage routinely and continuously and in synergy with related agencies.

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**Christin Jayanti, Devi Yulianti, Agista Apriyani, Habibah**

# EFFECTIVENESS OF OXYTOCIN MASSAGE ON COLOSTRUM EXCRETION TIME IN POSTPARTUM MOTHERS

**Christin Jayanti, Devi Yulianti, Agista Apriyani, Habibah**

STIKes RSPAD Gatot Soebroto
Email : christin_jayanti@yahoo.co.id

**ASBTRAK EFEKTIVITAS PIJAT OXYTOCIN TERHADAP WAKTU EKSKRESI KOLOSTRUM PADA IBU PASCA PERSALINAN**

Latar belakang. Kolostrum merupakan cairan yang pertama kali disekresikan oleh kelenjar susu, mengandung sisa-sisa jaringan dan bahan sisa yang terkandung dalam alveoli dan saluran kelenjar susu sebelum dan sesudah masa nifas. Manfaat kolostrum untuk bayi antara lain meningkatkan kekebalan tubuh. Oleh karena itu, perlu adanya upaya pengeluaran Kolostrum bagi sebagian ibu nifas. Dalam upaya memproduksi Kolostrum, ada 2 hal yang mempengaruhi produksi yaitu produksi dan pengeluaran. Produksi Kolostrum dipengaruhi oleh hormon prolaktin sedangkan produksinya dipengaruhi oleh hormon oksitosin. Hormon oksitosin akan keluar melalui rangsangan pada puting susu melalui hisapan mulut bayi atau melalui pemijatan pada tulang belakang bayi ibu, dengan melakukan pemijatan pada tulang belakang ibu maka ibu akan merasa tenang, rileks, meningkatkan ambang nyeri dan menyayangi bayinya, sehingga agar hormon oksitosin keluar dan ASI keluar dengan cepat.

Metode. Dalam penelitian ini desain penelitian yang digunakan adalah Kuantitatif dengan metode penelitian Quasi Eksperimental, dengan desain Static Group Comparison. Desain ini menggunakan kelompok Eksperimen dan Kontrol. Teknik dalam pengambilan sampel ini adalah Nonprobability Sampling karena tidak memberikan peluang yang sama dari setiap populasi yang diambil, dengan jenis Accidental sampling dimana setiap sampel yang ditemukan diambil dan langsung dijadikan sampel utama.

Hasil. Hasil analisis uji bivariat Efektivitas Pijat Oksitosin Terhadap Waktu Keluarnya Kolostrum pada Ibu Nifas dengan uji Chi-Square diperoleh P Value : 0,017 berada dibawah 0,05. Jadi dapat diartikan terdapat efektivitas pijat xcytosine terhadap waktu pengeluaran kolostrum pada ibu nifas.

Kesimpulan. Dari hasil penelitian pijat oksitosin dapat mempercepat waktu pengeluaran kolostrum pada ibu nifas.

Kata Kunci: Pijat Oksitosin, Ekskresi Kolostrum

## ABSTRACT

Background. Colostrum is a fluid that is first secreted by the mammary glands, containing tissue debris and residual material contained in the alveoli and ducts of the mammary glands before and after puerperium. The benefits of colostrum for babies include increasing immunity. Therefore, it is necessary to make an effort to remove Colostrum for some postpartum mothers. In efforts to produce Colostrum, there are 2 things that affect production, namely production and expenditure. The production of Colostrum is affected by the hormone prolactin while the production is affected by the hormone oxytocin. The hormone oxytocin will come out through stimulation to the nipple through the baby's mouth suction or through massage on the baby's mother's spine, by doing massage on the mother's spine the mother will feel calm, relaxed, increase the pain threshold and love her baby, so that the hormone oxytocin comes out and breast milk comes out quickly.

Method. In this study, the research design used is Quantitative with the Quasi-Experimental research method, with the Static Group Comparison design. This design uses the Experiment and Control groups. The technique in taking this sample is Nonprobability Sampling because it does not provide the same opportunity from each population taken, with the type of Accidental sampling where each sample found is taken and immediately used as the main sample.

Result. The results of the analysis of the bivariate test of the Effectiveness of Oxytocin Massage on the Time of Colostrum Excretion in Postpartum Mothers with the Chi-Square test obtained a P Value: 0.017, which is below 0.05. So it can be interpreted that there is an effectiveness of xcytosine massage on the time of Colostrum Excretion in Postpartum Mothers.

Conclusion. From the results of research on oxytocin massage can accelerate the time of colostrum excretion in postpartum mothers.

Keywords: Oxytocin Massage, Colostrum Excretion

## INTRODUCTION

Breast milk (breast milk) is the best food for babies, especially babies aged 0-6 months, whose function cannot be replaced by any food and drink. Breastfeeding is the fulfillment of the rights of every mother and child. It's no secret that children who get exclusive breastfeeding and the right parenting style will grow and develop optimally and not get sick easily. In addition, breastfeeding is able to strengthen the emotional bond between mother and child, so it is hoped that they will become children with personal resilience who are able to be independent ((Lubis and Angraeni 2021).

*The World Health Organization* (WHO), recommends to mothers around the world to breastfeed their babies exclusively for the first 6 (six) months after the baby is born to achieve optimal growth, development and health. Optimal breastfeeding is so important that it can save the lives of more than 820,000 children under the age of 5 every year (*World Health Organization & UNICEF,* 2018).

According to 2021 Basic Health Research (RISKESDAS) data, 52.5 percent – or only half of the 2.3 million babies under six months old – are exclusively breastfed in Indonesia, a decrease of 12 percent from the 2019 figure. The early breastfeeding initiation rate (IMD) also decreased from 58.2 percent in 2019 to 48.6 percent in 2021 (Anon n.d.)

Malnutrition is a problem that needs to be dealt with seriously. Various efforts have been made by the government, including through posyandu in increasing the coverage of weighing toddlers, counseling and assistance with healthy food is very important for toddlers who consume it. Malnutrition can occur in all age groups, but what needs to be paid more attention is the infant and toddler group. At the age of 0-2 years is the optimal growth and development *period (golden period),* especially for fetal growth so that if there is a disturbance during this period, it cannot be satisfied in the next period and will have a negative effect on the quality of the next generation (profil kesehatan , 2016).

According to Cox (2006), it is stated that mothers who do not breastfeed their babies in the first days of breastfeeding are caused by maternal anxiety and fear of lack of milk production and lack of maternal knowledge about the breastfeeding process. The mother's anxiety and fear caused a decrease in the hormone oxytocin so that the breast milk could not come out immediately after giving birth and finally the mother decided to give formula to the baby. If you don't know how to deal with a decrease in breast milk production, one of them is by massaging oxytocin (Siregar, 2019).

Oxytocin massage is a massage of the spine starting from the spine to the fifth – sixth costae bone and is an effort to stimulate homon, efforts to stimulate the hormones prolactin and oxytocin after childbirth so that oxytocin massage is one of the solutions to overcome the lack of milk production. (Depkes RI, 2007)

This oxytocin massage is done to stimulate the oxytocin reflex or *the letdown* reflex. With this massage, the mother will feel relaxed, fatigue after childbirth will disappear, so that the hormone oxytocin comes out and breast milk comes out quickly (Mardiyaningsih 2010). In addition, to stimulate the *let down reflex,* the benefits of oxytocin massage are to provide comfort to the mother, reduce swelling *(engorgement),* reduce the occurrence of breast milk blockage, stimulate the release of the hormone oxytocin, maintain breast milk production when the mother and baby are sick *(Depkes RI 2007).*

A preliminary survey has been conducted on 10 postpartum mothers at TPMB Rina, that breast milk production is small and not smooth. With the existence of a preliminary survey, a study was conducted on "The Effectiveness of Oxytocin Massage on the Time of Colostrum Excretion in Postpartum Mothers.

## RESEARCH METHODS

The research design used in this study is a *Quasi Experiment*, which is a design with an experimental unit given treatment with two measurements, by providing a pretest before the intervention and a posttest after the intervention, which aims to determine the effectiveness of Oxytocin Massage on the Time of Colostrum Excretion in Postpartum Mothers. (Adiputra et al. 2021)

The research venue used for case collection at PMB Rina W. This research was conducted in December 2023 - April 2024

The overall population of the research object or object being studied whose characteristics have

been suspected ( Sugiono, 2007). The total population in this study is 30 postpartum mothers at TPMB Rina.

A sample is a portion taken from the entire object being studied and is considered to be representative of the entire population (Notoadmojo, 2005). The sample to be taken is the total population, meaning that all respondents are used as research samples using *accidental sampling techniques.*

a. The inclusion criteria that will be used in this study are:
   1) Postpartum mothers 0-7 days
   2) The mother breastfeeds her baby.
   3) Breastfed infants
b. The exclusion criteria in this study are:
   1) Mothers who are experiencing psychological disorders
   2) Mothers who have problems with the breasts (blisters on the nipples and unprominent nipples). In this study, the data used is primary data of postpartum mothers at TPMB Rina. The data collected was the smooth discharge of breast milk, maternal age and parity, time. **Data Analysis** Univariate *data analysis*, this analysis aims to obtain the frequency distribution of each variable. To analyze the effect of oxytocin massage on breast milk production in postpartum mothers. The statistical test used depends on the results of the normality test.

## RESEARCH RESULTS

Based on research that has been conducted on postpartum mothers to find out whether there is an Effectiveness of Oxytocin Massage on Colostrum Excretion Time in Postpartum Mothers. at TPMB Rina, the following results were obtained:

## Univariat Results

Univariate analysis was used to describe the data carried out on each variable of the research results. Univariate analysis is presented in the frequency distribution table as follows:

**Table 1**
**Characteristics of postpartum mothers**

| Characteristic | N | % |
|---|---|---|
| Age | | |
| Age 20-35 | 29 | 96,6 |
| Age <20 years old and >35 years old | 1 | 3,3 |
| Work | | |
| Work | 16 | 53,3 |
| Not Working | 14 | 46,6 |
| Parity | | |
| Primipara | 16 | 53,3 |
| Multipara | 13 | 43,3 |
| Grande | 1 | 3,3 |

Based on table 1, it shows that most of the respondents as many as 29 people (96.6%) are classified as 20-25 years old and as many as 1 respondent (3.3%) are classified as <20 years old or >35 years old. A total of 16 respondents (53.3%) were working postpartum mothers and 14 respondents (46.6%) were postpartum mothers who did not work. And as many as 16 respondents (53.3%) were postpartum mothers with Primipara, 13 respondents (43.3%) were postpartum mothers with multiple para, and 1 respondent (3.3%) was postpartum mothers with Grande.

## Bivariat Results

Bivariate analysis is used to describe the data carried out on each variable of the research results. Bivariate analysis is presented in the frequency distribution table as follows:

**Table 2**
**Intervention group and control group**

| Oxytocin Massage | Colostrum Production | | % | |
|---|---|---|---|---|
| | <24 Hours | >24 Hours | <24 Hours | >24 Hours |
| Done | 12 | 3 | 63,16% | 27,27% |
| Not Done | 7 | 8 | 36,84% | 72,73% |

## Table 3
## Colostrum output obtained

| Oxytocin Massage | Colostrum Production | | Frequency | Presented | P Value (Chi Square) |
|---|---|---|---|---|---|
| | <24 Hours | >24 Hours | | | |
| Done | 12 | 3 | **15** | **50%** | 0,015 |
| Not Done | 7 | 8 | **15** | **50%** | |

Based on tables 2 and 3, the results of the bivariate analysis of the Effectiveness of Oxytocin Massage on the Time of Colostrum Excretion in Postpartum Mothers. with the Chi-Square test, the result of P Value: 0.015 was obtained, which is below 0.05. So it can be interpreted that there is an Effectiveness of Oxytocin Massage on the Time of Colostrum Excretion in Postpartum Mothers.

## DISCUSSION
### Characteristics Responden
Most of the respondents as many as 29 people (96.6%) are classified as healthy age, namely 20-25 years old and as many as 1 respondent (3.3%) are classified as unhealthy age, namely <20 years or >35 years. Mature age greatly affects human reproductive health. According to Martadisoebrata (1992) in Hidajati (2012), it is said that the reproductive age is healthy or safe for pregnancy, childbirth, and breastfeeding is 20-35 years. Meanwhile, the age >35 years is included in the age at risk of reproductive age. The best age to do the reproductive system is 20-35 years old. At this age is considered the golden reproductive age because all the functions of the reproductive system are ready and mature.

The age of less than 20 years is considered to be still physically and psychologically immature in dealing with pregnancy, childbirth and breastfeeding of Colostrum. The younger the mother's age, the less likely she is to give breast milk to her baby. Age less than 20 years is a period of growth including reproductive organs (breasts). While the age of more than 35 years the reproductive organs are weak and not optimal in breastfeeding Colostrum, so that a mother's ability to breastfeed is also not optimal due to a decrease in the function of reproductive organs such as breasts.

And a total of 16 respondents (53.3%) are working postpartum mothers and 14 respondents (46.6%) are postpartum mothers who are not working. In addition, according to previous research, the majority of mothers' jobs are housewives so that during the day mothers have time to rest. Where breastfeeding mothers really need enough and effective sleep so that the metabolism in their body runs smoothly. Whether a mother works or not will affect the amount of income in a family. The size of

income affects the attitude and behavior of individuals to do something. An increase in household income can improve nutritional status because an increase in income allows a person to be able to buy food with better quality and quantity.

And as many as 16 respondents (53.3%) were postpartum mothers with Primipara, 13 respondents (43.3%) were postpartum mothers with multiple para, and 1 respondent (3.3%) was postpartum mothers with Grande. Parity is related to the search for information about maternal knowledge in breastfeeding. The experience gained by mothers can expand a person's knowledge in breastfeeding Colostrum.

Physical and psychological readiness of the mother Physical and psychological preparation of the mother must be prepared from the beginning of pregnancy, counseling in providing information about colostrum can be provided during pregnancy examinations. Nipple maintenance and how to massage breasts also need to be taught so that mothers are better prepared to face childbirth and can directly give colostrum breast milk to their babies, anxiety, discomfort and pain during the delivery process greatly affect mothers to breastfeed their babies, so counseling is necessary.

Anxiety from various maternal environmental situations also greatly affects the smooth production of breast milk as research conducted by (Jayanti & Yulianti, 2022) which states that there is an effect of anxiety on the smooth production of breast milk in postpartum mothers with a p-value: 0.000 < ÿ: 0.05, it can be concluded that there is a significant influence of anxiety on the smooth production of breast milk in postpartum mothers during the COVID-19 pandemic on the 2nd floor of PIS Gatot Soebroto Hospital.

### Effect of Oxytocin Massage on Colostrum Excretion
The results of the analysis of the bivariate test of the Effectiveness of Oxytocin Massage on the Time of Colostrum Excretion in Postpartum Mothers with the Chi-Square test obtained a P Value: 0.015, which is below 0.05. So it can be interpreted that there is an Effectiveness of Oxytocin Massage on the Time of Colostrum Excretion in Postpartum Mothers.

Research conducted by Rofi'ah (2016) that the average time of colostrum excretion to oxytocin massage is 8.39 hours with a time range of 4-13 hours so that it has a significant influence on the colostrum excretion time p value: 0.0001 (Rofi'ah et al, 2016)

This is in line with research conducted by Albertina (2020) on the relationship between oxytocin massage and smooth breast milk production in postpartum mothers with cesarean section on days 2 –3. Based on the results of the research from 48 respondents, most of them were massaged according to procedures, as many as 35 respondents (72.9%) of which 24 respondents (50%) had smooth breast milk production and 11 respondents (22.9) did not have smooth milk production. Meanwhile, 13 respondents (27.1%) who were massaged did not follow the procedure, 2 respondents (4.2%) had smooth breast milk production and 11 respondents (22.9%) did not have smooth breast milk production.(Hidayah et al., 2023)

Research conducted by Pani and Tempali on the effectiveness of oxytocin massage on breast milk production.  The results of the study using the chi square statistical test found that the p-value was 0.000, so there was a difference between breast milk production in postpartum mothers after receiving an oxytocin massage and those that did not. (Pani & Tempali, 2022)

Oxytocin massage itself is a good and appropriate solution to accelerate or facilitate breast milk production, namely massage along the spine (vertebrae) to the fifth or sixth costae bone. This oxytocin massage can also provide a sense of comfort and relaxation to the mother after experiencing the delivery process so that it does not inhibit the secretion of the hormones prolactin and oxytocin in the mother.

Through massage or stimulation of the spine, neurotransmitters will stimulate the medulla oblongata to directly send a message to the hypothalamus in the posterior hypofise to secrete oxytocin which causes the breasts to secrete their milk. With massage in this area of the spine, it will also relax tension and relieve stress and that way the hormone oxytocin comes out and will help the production of breast milk. Colostrum dripping or coming out is a sign of an active oxytocin reflex.

From the results of the study, it is known that there is a relationship between oxytocin massage treatment and colostrum production in postpartum mothers to the time of colostrum excretion, so it can be concluded that the relationship between oxytocin massage treatment and colostrum excretion can provide a change in the time of discharge in statistics that Ha is accepted and H0 is rejected.

## CONCLUSION

From the results of the study, it is known that there is an Effectiveness of Oxytocin Massage on the Time of Colostrum Excretion in Postpartum Mothers Based on the table of the results of the analysis of the bivariate test of the Effectiveness of Oxytocin Massage on the Time of Colostrum Excretion in Postpartum Mothers with the Chi-Square test, the result of P Value: 0.015, which is < 0.05. So it can be interpreted that there is an Effectiveness of Oxytocin Massage on Colostrum Excretion Time in Postpartum Mothers.From the results of the study, it is known that the relationship between oxytocin massage treatment and colostrum excretion can provide changes in the time of colostrum excretion of postpartum mothers.

## SUGGESTION

The results of this study can provide additional information and knowledge about oxytocin massage, so that mothers are able to give their first colostrum to their babies. It can be used as a source of information or an overview of the relationship between oxytocin massage and colostrum excretion in postpartum mothers by using different research designs and expanding the variables of subsequent research.

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# EFFECTIVENESS OF PREGNANCY CLASSES ON MOTHERS KNOWLEDGE ABOUT MATERNAL AND CHILD HEALTH

**Febri Annisaa Nuurjannah, Theresia Emilia Naluk, Dhewitry Elda Farahkeyllah, dan Sulati**

STIKes RSPAD Gatot Soebroto
Email : fannisa1491@gmail.com

**ABSTRAK : EFEKTIVITAS KELAS KEHAMILAN TERHADAP PENGETAHUAN IBU TENTANG KESEHATAN IBU DAN ANAK**

Latar belakang. Untuk mendukung pencapaian target MMR dan AKB, penting bagi para ibu untuk meningkatkan pengetahuannya. Percepatan penurunan AKI dan AKB dapat dilakukan dengan memastikan setiap ibu mempunyai akses terhadap layanan kesehatan yang berkualitas. Ibu hamil pada masa kehamilan memerlukan pengetahuan tentang perawatan, pencegahan, komplikasi atau komplikasi selama kehamilan dan kehamilan risiko tinggi. Salah satu upaya untuk meningkatkan pengetahuan ibu tentang kesehatan kehamilan adalah dengan Program Kelas Kehamilan.

Tujuan. Efektivitas Kelas Kehamilan Terhadap Pengetahuan Ibu Tentang Kesehatan Ibu dan Anak

Metode. Desain quasi eksperimental dua kelompok pre post test. Sampel dalam penelitian ini adalah total sampling yaitu seluruh ibu hamil yang pernah mengikuti Kelas Kehamilan di Puskesmas Kecamatan Kemayoran pada bulan Maret 2023. Metode pengumpulan data menggunakan kuesioner.

Hasil. Berdasarkan hasil penelitian yang dilakukan di poliklinik KIA Puskesmas Kecamatan Kemayoran pada kelas ibu hamil mengenai pengetahuan ibu tentang Kesehatan Ibu dan Anak diperoleh rata-rata nilai signifikansi (p-value=0,000). Nilai p-value lebih kecil dari (0,05) dan nilai t-value lebih besar dari tabel, artinya mengikuti kelas ibu hamil lebih efektif dalam meningkatkan pengetahuan ibu tentang Kesehatan Ibu dan Anak. Penyampaian pendidikan dengan menggunakan media pembelajaran yang efektif akan menentukan penyampaian informasi pembelajaran dengan baik. Penggunaan edukasi dengan aplikasi lebih efektif dalam meningkatkan pengetahuan dan mengubah pola pikir ibu hamil mengenai pentingnya menjaga kesehatan selama kehamilan dan pada akhirnya meningkatkan kepatuhan ibu hamil dalam menjalankan program perencanaan kelahiran dan pencegahan komplikasi (P4K) dibandingkan dengan klasikal. pendidikan.

Kata Kunci : Kelas Ibu, Kelas Ibu Hamil

**ABSTRACT**

Background. To support the achievement of MMR and IMR targets, it is important for mothers to increase their knowledge. Accelerating the reduction in MMR and IMR can be done by ensuring that every mother has access to quality health services. Pregnant women during pregnancy need knowledge about care, prevention, complications or complications during pregnancy and high-risk pregnancies. One effort to increase mothers' knowledge about pregnancy health is the Pregnancy Class Program.

Objective. The Effectiveness of Pregnancy Classes on Mothers' Knowledge About Maternal and Child Health

Method. Quasi experimental two group pre post test design. The sample in this study was a total sampling, namely all pregnant women who had taken the Pregnancy Class at the Kemayoran District Health Center in March 2023. The data collection method used a questionnaire.

Results. Based on the results of research conducted at the Kemayoran District Community Health Center KIA polyclinic for pregnant women's classes regarding mothers' knowledge about Maternal and Child Health, the average significant value was obtained (p-value=0.000). The p-value is smaller than (0.05) and the t-value is greater than the table, which means that attending classes for pregnant women is more effective in increasing mothers' knowledge about Maternal and Child Health. Delivering education using effective learning media will determine the delivery of learning information well. The use of education with applications is more effective in increasing knowledge and changing the mindset of pregnant women regarding the importance of maintaining health during pregnancy and ultimately increasing the compliance of pregnant women in carrying out birth planning and complication prevention (P4K) programs compared to classical education.

Keywords: Mother's Class, Pregnant Mother's Class

**Febri Annisaa Nuurjannah, Theresia Emilia Naluk, Dhewitry Elda Farahkeyllah, dan Sulati**

## INTRODUCTION

The term "health development" refers to the initiative to increase awareness, willingness, and ability to lead a healthy life among all residents, aiming to achieve an optimal health status. This concept encompasses health-oriented development, community and family empowerment, and the provision of health services (Ministry of Health, 2002). In Indonesia, current health development efforts primarily focus on enhancing the health status of mothers and children, especially those in vulnerable health groups such as pregnant women, mothers in childbirth, and infants during the perinatal period. The Maternal and Child Health (MCH) program aims to promote family self-sufficiency in maintaining maternal and child health. Pregnant women and children are particularly susceptible to health issues that can result in fatality. It is crucial for pregnant women to possess adequate knowledge about maternal and child health, as issues related to this can lead to serious maternal and infant morbidity and mortality, often resulting in high maternal mortality rates (MMR) and infant mortality rates (IMR).

According to the Ministry of Health's Family Health Program, the maternal mortality rate in Indonesia has been increasing every year. In 2021, there were 7,389 maternal deaths, showing an increase compared to 2020, which had 4,627 deaths. The causes of maternal deaths in 2021 were primarily COVID-19 (2,982 cases), bleeding (1,330 cases), and hypertension due to pregnancy (1,077 cases) (Indonesian Ministry of Health, 2021). In an effort to enhance the quality of life, Indonesia aims to reduce the maternal mortality rate (MMR) and the infant mortality rate (IMR) as part of the Sustainable Development Goals (SDGs). The goal is to decrease the MMR to less than 70 deaths per 100,000 live births by 2030 (Ministry of National Development Planning, 2020). The IMR was lower than the MMR, with 27,566 under-five deaths in 2021 and 28,158 deaths in 2020. Nevertheless, these figures are still far from the SDGs target, which aims for at least 12 newborn deaths per 1,000 live births and 25 under-five deaths per 1,000 live births by 2030 (Ministry of National Development Planning, 2020).

To achieve the targets for MMR and IMR, it is essential for mothers to enhance their knowledge. Accelerating the reduction of MMR and IMR can be achieved by ensuring that every mother has access to quality health services (Indonesian Ministry of Health, 2021). Pregnant women need to acquire knowledge about prenatal care, prevention of complications, recognition of high-risk pregnancies, and how to identify danger signs of pregnancy complications. Recognizing these danger signs is crucial for preparing mothers and families to deal with complications and prevent maternal deaths.

One way to enhance maternal knowledge about pregnancy health is through the Pregnancy Class Program. These classes involve face-to-face group sessions where pregnant women can come together to learn about various aspects of pregnancy health, such as pregnancy care, childbirth, postpartum care, newborn care, myths, infectious diseases, and birth certificates. The material covered in each class is tailored to the specific needs and circumstances of pregnant women, while still focusing on essential information. These classes are highly beneficial in educating pregnant women to prepare for a safe delivery and to take proactive measures in monitoring and preventing maternal morbidity and mortality (Azhar et al., 2020 and Pratami, 2021).

The attendance of pregnant women in pregnancy classes is expected to enhance their knowledge and positively influence their attitudes and behaviors toward pregnancy. This is attributed to the interaction and shared experiences among the participants as well as between the participants and the facilitator. According to a study conducted by Ariyani, Suindri, and Budiani in 2011, the implementation of pregnant women's classes led to significant differences in knowledge (p=0.0000), attitudes (p=0.000), and behaviors (p=0.000) between the intervention group (pregnant women who attended classes) and the control group (pregnant women who did not attend classes).

The Ministry of Health has set a target of 100% for health centers to implement pregnancy classes. This percentage is calculated by comparing the number of health centers that have implemented the classes to the total number of health centers in the district/city. Health centers are considered to have implemented the classes if they have conducted classes for pregnant women at least 4 times. Currently, 90.73% of health centers in Indonesia have conducted these classes. A preliminary study conducted at the MCH clinic of the Kemayoran District Health Center from September to October 2023 found that out of 10 pregnant women, none were aware of pregnancy-related complaints, danger signs, physical changes, and emotional changes. Based on these findings, the researchers are interested in conducting a study titled "Effectiveness of Pregnancy Classes on Mothers' Knowledge about Maternal and Child Health".

## RESEARCH METHODS

The research used a quasi-experimental design method, specifically a nonequivalent control group design. The research design employed a pre-test post-test only control group design to measure the impact of the activities carried out in the pregnancy class. The pregnant women in the study were first pre-tested to assess their level of knowledge about the program. Then, a series of pregnancy classes were conducted for four meetings, with each meeting lasting two hours. The Kemayoran District Health Center (Midwife Coordinator) provided support and assistance for these classes. After each meeting, a post-test was conducted, and verbal reactions and feedback were observed and recorded. The population for this study included all pregnant women who had pregnancy visits at the Kemayoran District Health Center in March 2023. The sampling method used in this study was total sampling, which means that all pregnant women who participated in the Pregnancy Class at the Kemayoran District Health Center in March 2023 were included. The primary data consists of a pregnancy class questionnaire that was completed by respondents during four sessions. The sampling technique used a combination of random and purposive sampling methods, with the inclusion criteria being all pregnant women who attended the pregnancy class with a gestational age greater than 6 weeks and were willing to participate in the research. A total of 64 pregnant women participated, with 32 in the intervention group and 32 in the control group.

**RESEARCH RESULTS**

**Table 1**
**Characteristics of Pregnant Women in Intervention and Control Groups**

| Characteristics | Intervention Group | | Control Group | |
|---|---|---|---|---|
| | n | % | n | % |
| Age (years old) | | | | |
| < 20 and > 35 | 9 | 28 | 12 | 38 |
| 20 – 35 | 23 | 72 | 20 | 62 |
| Education | | | | |
| Low | 12 | 37 | 15 | 47 |
| High | 20 | 63 | 17 | 53 |
| Occupation | | | | |
| Employed | 7 | 22 | 6 | 19 |
| Unemployed | 25 | 78 | 26 | 81 |
| Parity | | | | |
| Primiparous | 9 | 28 | 11 | 34 |
| Multiparous | 23 | 72 | 21 | 66 |

Based on the findings in table 1, the study results revealed that the majority of participants in the intervention group were aged between 20-35 years, with 23 mothers (72%) falling into this category, compared to 20 mothers (62%) in the control group. In terms of education, 20 mothers (63%) in the intervention group had completed high school or equivalent education, while 17 mothers (53%) in the control group had the same level of education. Additionally, the majority of research subjects in both groups were unemployed, with 25 mothers (78%) in the intervention group and 26 mothers (81%) in the control group being housewives. Most of the participants had given birth to more than 2 children, with 23 mothers (72%) in the intervention group and 21 mothers (66%) in the control group having multiple childbirth experiences.

**Table 2**

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**Distribution of mothers' knowledge levels in the control and intervention groups before and after pregnancy classes**

| Knowledge Level | Intervention Group | | | | Control Group | | | |
|---|---|---|---|---|---|---|---|---|
| | Before | | After | | Before | | After | |
| | n | % | n | % | n | % | n | % |
| Mean score | | | | | | | | |
| Score > 50 | 9 | 28.1 | 26 | 81.3 | 10 | 31.3 | 17 | 53.1 |
| Score < 50 | 23 | 71.9 | 6 | 18.7 | 22 | 68.7 | 15 | 46.9 |

According to Table 4.2, the level of knowledge among mothers in the intervention group who scored above 50% before attending pregnancy classes was 28.1%. After attending the classes, this percentage increased to 81.3%. In the control group, the level of knowledge among mothers who scored above 50% before attending pregnancy classes was 31.3%. After attending the classes, this percentage increased to 53.1%.

**Table 3**
**Effectiveness of Pregnancy Classes on Mothers' Knowledge about Maternal and Child Health**

| Mothers' knowledge | n | mean | SD | Mean Differences | SE Differences | t-value | p-value |
|---|---|---|---|---|---|---|---|
| Control group | 32 | 1,02 | 0.021 | 0,344 | 0.085 | 4.030 | 0,000 |
| Intervention group | 32 | 1.34 | 0.483 | | | | |

According to the findings in table 4.3, the study on the effectiveness of pregnancy classes on mothers' knowledge about maternal and child health yielded a significant result on average (p-value = 0.000). The p-value is less than 0.05, and the t-value exceeds the critical value, indicating that attending pregnancy classes is more effective in enhancing mothers' knowledge about maternal and child health.

**DISCUSSIONS**
**Effectiveness of Pregnancy Classes on Mothers' Knowledge about Maternal and Child Health**

Knowledge is the result of "knowing," which occurs after people perceive through the five senses of sight, hearing, smell, taste, and touch (Notoatmodjo, 2017). Efforts to increase mothers' knowledge involve providing health education in pregnancy classes. According to Maulana (2019), health education is an educational activity carried out by spreading messages and instilling confidence so that people know, understand, want, and will carry out health-related recommendations. The study results showed a 50% increase in knowledge before and after pregnancy classes, compared to only a 20% increase in knowledge for those who did not attend pregnancy classes.

In previous research, it was found that educating pregnant women using a team of facilitators and audio-visual media was more effective compared to education using only flip chart media (Sonaidah, 2022; Mardhiah et al., 2020;

Sholehah et al., 2020). The effectiveness of the education delivery in this study is also supported by the educational background of the intervention group, with an average education level of high school and above, including 20 mothers (63%). According to Surjadi et al. (2011), a person's knowledge and attitudes are influenced by their education level, and highly educated mothers are better able to interpret the provided material more quickly, acquiring greater knowledge and understanding.

The effective use of educational media plays a crucial role in delivering learning information. Using educational applications is more effective in increasing knowledge and changing the mindset of pregnant women regarding the importance of maintaining health during pregnancy. This, in turn, leads to greater compliance with the pregnancy and childbirth planning and prevention of complications (P4K) program compared to traditional educational methods. The use of educational apps allows mothers to access information at their convenience, without being limited by time, distance, or location. The use of visually engaging videos and audio-visual materials in these apps creates an immersive learning experience, making it easier for mothers to absorb the information. With improved knowledge and understanding, it is expected that mothers will take proactive steps to maintain their own health and that of their unborn child. Ultimately, this can lead to healthier pregnancies and smoother delivery processes, reducing the likelihood of complications.

## CONCLUSION

Based on the presented results and discussion, we can conclude that in the intervention group, 72% of the respondents were aged 20-35, compared to 62% in the control group. In terms of mothers' education, 63% of the intervention group had a high school or higher education, while 53% of the control group had the same level of education. Moreover, 78% of the intervention group and 81% of the control group were unemployed/housewives. Additionally, the majority of the research subjects had given birth to more than 2 children in both the intervention group (72%) and the control group (66%). Before attending the pregnancy classes, 28.1% of mothers in the intervention group had a knowledge score >50, which increased to 81.3% after attending the classes. In comparison, 31.3% of mothers in the control group had a knowledge score >50 before attending the classes, which increased to 53.1% thereafter. The statistical analysis showed that attending pregnancy classes significantly increased mothers' knowledge about maternal and child health (p-value = 0.000), with a t-count greater than the table and a p-value smaller than 0.05, indicating the effectiveness of pregnancy classes in enhancing mothers' knowledge about maternal and child health.

## SUGGESTIONS

The health workers at Kemayoran District Health Center in Central Jakarta collaborate with posyandu cadres and community leaders to collectively learn, discuss, and share experiences about maternal and child health (MCH) in a thorough and systematic manner. This activities should take place on a scheduled and continuous basis. STIKes RSPAD Gatot Soebroto is expected to increase the collection of books for pregnancy classes in the library, and the results of this study can be used as reference material for further research. Future researchers can expand the scope of their research by increasing the number of samples and including a broader range of variables. This will enable them to better explore and develop information about pregnancy classes for women in the future.

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# ESTIMATION OF FETAL WEIGHT USING THE RISANTO FORMULA AND THE JOHNSON-THAUSACK FORMULA COMPARED TO BIRTH WEIGHT

**Berty Risyanti[1], Nita Elita Julaeha[2]**

[1,2]Bachelor of Midwifery and Professional Program, STIKes Dharma Husada, Bandung, West Java
Email correspondence berty@stikesdhb.ac.id

**ABSTRAK : PERBEDAAN AKURASI TAKSIRAN BERAT BADAN JANIN MENGGUNAKAN RUMUS RISANTO DAN RUMUS JHONSON THAUSACK DENGAN BERAT BADAN BAYI**

Latar Belakang: bagian penting dari asuhan kebidanan adalah mengukur tinggi fundus uteri untuk memastikan perkiraan berat badan bayi. Pengetahuan mengenai perkiraan berat badan janin memungkinkan bidan, untuk mengantisipasi potensi masalah dan menyusun strategi untuk mengatasinya

Tujuan: mengetahui perbedaan akurasi antara Rumus Risanto dan Rumus Jhonson Thausack dalam menentukan taksiran berat janin di RS Ibu dan Anak Al Islam Bandung

Metode:  Desain Penelitian ini adalah Cross Sectional Design, Populasi adalah ibu inpartu kala 1 fase laten yang melahirkan di RS Ibu dan Anak Al Islam periode Mei – Juni 2024 sebanyak 61 orang. Teknik pengambilan sampel menggunakan Total Sampling.

Hasil: Terdapat perbedaan yang signifikan antara berat bayi lahir dengan TBJ Risanto (p=0,001) dan berat bayi lahir dengan TBJ Johnson Tohsack (p=0,001). Dari uji yang membandingkan akurasi antara rumus Risanto dan rumus Johnson Thausack didapatkan hasil rata- rata untuk TBJ Risanto sebesar 2824,92 gram dan TBJ Johnson Tohsack sebesar 2614,67 gram, dan sementara berat bayi yang dilahirkan adalah 3084,02 gram.

Kesimpulan: Terdapat perbedaan yang signifikan secara statistik antara rumus Risanto dan Johnson Thausack dengan berat bayi lahir yang sebenarnya, rumus Risanto lebih mendekati dengan berat bayi lahir.

Saran: Bidan lebih meningkatkan ketelitian dalam pengukuran TFU dan menggunakan rumus Risanto untuk mengukur TBJ sehingga hasil pengukuran dapat digunakan dalam pelayanan kebidanan.

Kata Kunci : Taksiran berat Janin, Rumus Risanto, Rumus Johnson Thausack

**ABSTRACT**

Background: A crucial aspect of midwifery practice involves assessing the height of the uterine fundus to determine the estimated fetal weight. Understanding this estimated weight enables the midwife to foresee possible complications and develop appropriate strategies to address them.

Objective: to evaluate the accuracy disparity between the Risanto Formula and the Johnson Thausack Formula in estimating fetal weight at Al Islam Mother and Child Hospital in Bandung.

Methods:  This study employs a Cross-Sectional Design, focusing on a population of 61 mothers in the latent phase of the first stage of labor who delivered at Al Islam Mother and Child Hospital between May and June 2024. The sampling method utilized was total sampling.

Results: A notable difference was observed between the birth weight of babies estimated using the Risanto formula (p=0.001) and those estimated using the Johnson Tohsack formula (p=0.001). When comparing the accuracy of these two formulas, the average estimated fetal weight (EFW) using the Risanto formula was 2824.92 grams, while the Johnson Tohsack formula yielded an average EFW of 2614.67 grams. In contrast, the actual average birth weight of the newborns was 3084.02 grams.

Conclusion: A statistically significant difference exists between the Risanto and Johnson Thausack formulas when compared to the actual birth weight, with the Risanto formula providing an estimate that is more closely aligned with the actual birth weight.

Suggestion: Midwives should enhance the precision of fundal height measurements and apply the Risanto formula to estimate fetal weight, ensuring that the results are reliable for use in midwifery care.

Keywords: Estimated Fetal Weight, Risanto Formula, Johnson Thausack Formula

**Berty Risyanti, Nita Elita Julaeha**

## INTRODUCTION

Maintaining the quality of midwifery services for patients is a crucial aspect of providing care. Issues related to infant health, stemming from birth weights that are either too high or too low, can significantly affect the baby's life and future development (Febrianty, 2019). Abnormal birth weight is linked to the occurrence of birth defects and complications requiring care in the neonatal intensive care unit (Cunningham FG, 2012).

A critical component of prenatal care during labor management involves measuring the height of the uterine fundus to estimate the baby's weight (Lombogia., 2017). Knowledge of estimated fetal weight allows healthcare providers, particularly midwives, to anticipate potential problems and devise strategies to address them (Cunningham FG, 2012).

Estimation of intrauterine fetal body weight (TBJ) is important in labor management because fetal weight indicates fetal growth. Accurate assessment of birth weight will improve delivery management (Widatiningsih, Hastuti and Wibowo, 2015). For birth attendants, TBJ has a very important meaning (Rusdy, R. S., Yasmin, F. A., Putri, L. A., Oktrian, O., LF, B., & Pusponegoro, 2014). By knowing the estimated fetal weight during pregnancy, especially in the third trimester, you can detect the possibility of a small fetus or a large fetus and immediately take appropriate management measures during pregnancy and childbirth (Anggraini, D., Abdollahian, M., & Marion, 2016;Pietersz, E., Rachman, I. T., & Siswosudarmo, 2018).

Infants born with abnormally low birth weight or height are more likely to experience difficulties during labor and the postpartum period, so accurate estimation of fetal weight is important (Prawirohardjo, 2016). As the manager of labor, midwives must be able to interpret fetal weight (Gayatri and Afiyanti, 2014). To avoid potential problems, it is important to know whether the baby will be born with a large or small weight, and an accurate way of interpreting fetal weight can inform the midwife of this (Ambarwati, 2015). Reducing the impact of the above problems can be done with a better approach in evaluating fetal weight (Kusumaningtyas, 2021). In addition, all medical professionals are able to take fundus uteri measurements because the procedure is practical, easy, and accurate (Ujiningtyas, 2018;Khatun *et al.*, 2023).

Determining the approximate weight of the fetus, one can use an ultrasound examination or measure the height of the fundus uteri (Herawati *et al.*, 2022). Although there is some evidence that ultrasound can provide a more accurate picture of fetal development, access to this technology is currently limited (Hermawati, E., Tajmiati, A., & Rohmatin, 2018) . A simple alternative to ultrasonography for estimating fetal weight is to measure the height of the fundus uteri and incorporate the results into the calculation (Gayatri and Afiyanti, 2012; Gayatri and Afiyanti, 2014).

Estimates of fetal weight using the Johnson-Thaushack method have shown considerable differences (overestimation) in many previous studies conducted in Indonesia (Mardeyanti, Djulaeha and Fatimah, 2019). Because of this potential population-specific variation, it is necessary to use a fundus uteri height growth curve that is tailored to specific groups (Gayatri and Afiyanti, 2014).

Determining the approximate weight of the fetus, the Johnson Thaushack formula is traditionally used. It involves measuring the distance from the symphysis pubis to the fundus uteri and the bottom of the fetus (Siswosudarmo and Titisari, 2014). The Risanto formula created at the Department of Obstetrics and Gynecology of Dr. Sardjito Hospital, Yogyakarta, only requires data on the height of the fundus uteri to estimate fetal weight, in addition to the Johnson-Thaushack formula. A common method to estimate fetal weight is to measure the height of the fundus uteri (Gayatri and Afiyanti, 2014;E B Hutagaol *et al.*, 2022).

The results of estimating fetal weight using the Johnson-Toshack formula and the Risanto formula did not show significant differences, according to research conducted by Puspita regarding the comparison of the two formulas in 2019. (Herawati *et al.*, 2022). The Risanto formula is more accurate in predicting the baby's birth weight than the Johnson-Tohsack fetal weight estimate, although both methods are able to estimate the baby's weight during pregnancy (Hidayah, Pertiwi and Rohmatin, 2019). This is because both data sets are smaller for the Risanto formula (Puspita *et al.*, 2019).

By conducting a preliminary survey of 10 mothers in labor in the first stage of the latent phase at Al Islam Mother and Child Hospital Bandung, there was an average difference of 293 grams between the estimated baby weight and estimated fetal weight according to Johnson Tausack and 182 grams according to Risanto. Johnson Thausack states that there is always a larger difference between the average TBJ and the baby's birth weight.

From the background description above, the researcher is interested in knowing which formula can determine TBJ closer to the baby's birth weight

measured in mothers inpartu kala 1 latent phase. The two formulas to be compared are the Johnson-Toshack formula and the Risanto formula. This study was conducted at Al Islam Mother and Child Hospital Bandung. This hospital was chosen because it has been certified as a hospital that has quality and standardized obstetric services. In addition, the number of patients handled is quite large so it is easier to get research subjects.

## RESEARCH METHODS

This research utilized a cross-sectional design, collecting primary data from May to June 2024 at Al Islam Mother and Child Hospital in Bandung. The study focused on all mothers in the latent phase of the first stage of labor as the research subjects. A total sampling method was employed, with participants selected based on specific inclusion criteria: a head engagement of 1/5-3/5, a single pregnancy with cephalic presentation, a live fetus, and gestational age between 37-42 weeks. The research period used is May - June 2024. Exclusion criteria included cases of intrauterine fetal demise (IUFD), polyhydramnios, multiple pregnancies, abnormal fetal positions, placenta previa, and uterine fibroids. Based on these criteria, 61 subjects were selected for the study. To measure the height of the fundus uteri (TFU), the mother was positioned supine, with her bladder emptied. Using a measuring tape, the height of the fundus was recorded in centimeters from the upper edge of the pubic symphysis to the top of the uterine fundus. This measurement was performed by the researcher. The estimated fetal weight using the Johnson-Toshach formula was calculated as $(TBJ\_J) = (TFU - n) \times 155$, where n represents the degree of fetal descent: n = 11 if the fetal head has passed the ischial spines (Hodge III), n = 12 if the head has entered the pelvic inlet, and n = 13 if the head has not engaged. The Risanto formula estimated fetal weight as $(TBJ\_R) = (125 \times TFU) - 880$, expressed in grams. The newborn's weight was measured within one hour of birth using a calibrated scale. Before hypothesis testing, data normality was assessed using the Kolmogorov-Smirnov test. Since the data did not follow a normal distribution, the Wilcoxon test was used for further analysis.

## RESEARCH RESULTS

**Table 1**
**Overview of LBW with TBJ using the Risanto Formula**

| Variables | Mean | average difference | Min-Max | SE | SD |
|---|---|---|---|---|---|
| Birth weight | 3084,02 | 259.1 grams | 2150-3915 | 40 | 318 |
| TBJ Risanto | 2824,92 | | 2245- 3870 | 39 | 305 |

**Table 2**
**Overview of LBW with TBJ using the Jhonson Thausack Formula**

| Variables | Mean | average difference | Min-Max | St Error | SD |
|---|---|---|---|---|---|
| Birth weight | 3084,02 | 469.35 grams | 2150-3915 | 40 | 318 |
| TBJ Thausack | 2614,67 | | 1860- 3870 | 47 | 372 |

**Table 3**
**Difference between Birth Weight and Estimated Birth Weight according to Risanto formula and Jhonson Thausack Formula**

| Variables | Mean | Zhitung | Sig |
|---|---|---|---|
| Risanto BBL Formula | 33,32-1732,5 | -5,65 | 0,001 |
| Thausack BBL Formula | 31,89- 1849,95 | -6,49 | 0,001 |

The results of the statistical analysis between the estimated fetal weight using Risanto's formula and the weight of the baby born in May - June in 2024, there was a significant difference of 259.1 grams between the weight of the baby estimated using Risanto's formula and the actual weight of the baby at birth, because the analysis revealed that the average weight of babies born was 3,084.02 grams, while the weight calculated using Risanto's formula was 2,824.92 grams. Therefore, Risanto's formula

does not always give the same result as the actual birth weight of the baby. Even in the data, Risanto's formula produces a lower estimated fetal weight than the actual birth weight.

However, in line with research conducted by Mariyana which states that there is a difference in the average estimated fetal weight based on the TFU of the Risanto formula with the weight of the newborn with a significant value of 0.001 and the calculation of the estimated fetal weight using the Risanto formula is closer to the weight of the newborn. According to research by Dongol (2020), researchers in developing countries can utilize their clinical experience to estimate fetal weight with ultrasound devices. (Noviana, Siswosudarmo and Hadiati, 2016).. Risanto's method is easier for midwives and medical students to learn because it only focuses on measurement   (Curti *et al.*, 2014). Abdominal palpation and Risanto's formula are also more accurate in predicting fetal weight (Waikeh, Palimbo and Hestiyana, 2023). This study showed that the clinical method is a reliable way to estimate the approximate fetal weight in single baby pregnant women and the baby is ready for birth. (Arnesia *et.al*, 2024). Moreover, this method is easy, fast, cheap, and effective, making it a good choice for those who do not have much clinical experience. (Lamdayani and Olivia Varadita, 2019).

The advantage of the Risanto formula is that there are several research results with a population of Indonesian mothers who say that the formula gives TBJ results closer to birth weight than other methods. (Rianti and Aminah, 2017). In addition, the Risanto formula is simpler because it only requires TFU measurement to be able to calculate TBJ. (Simanjuntak, 2020;Kusumaningtyas, 2021).The disadvantage of the Risanto formula is that it is still not recognized and used by health workers (Rianti and Aminah, 2017;Malik, R., Thakur, P., & Agarwal, 2016). In addition, it still needs more scientific evidence to prove its accuracy in various conditions (Puspita, Arifiandi and Wardani, 2019).

This study revealed a substantial discrepancy between the actual birth weight of newborns and the estimated weight calculated using the Johnson Thausack formula in May and June 2024. The analysis indicated that the average birth weight was 3084.02 grams, whereas the average weight estimated using the Johnson Thausack formula was 2614.67 grams, resulting in an average difference of 469.35 grams. This suggests that the Johnson Thausack method tends to underestimate the actual birth weight. Similar findings were observed in Anggraini's (2018) study, where the Johnson Thausack formula produced lower average estimates

compared to the Risanto formula and the actual birth weights (Anggraini, 2018; Ugwa, E. A., Gaya, S., & Ashimi, 2015).

The results of a research study in Thailand also showed that the use of Johnson's formula to estimate fetal weight gave an average of 227 grams higher than the actual birth weight of the baby. (Anggraini, Abdollahian and Marion, 2018).

The findings indicated that the Risanto formula more accurately predicted the actual birth weight of the baby, with a statistically significant difference of 0.001 compared to the Johnson-Thausack formula. The analysis highlighted discrepancies in the estimated birth weight between these two formulas. This result aligns with previous research by Puspita, which found that the Risanto formula's average deviation from the actual birth weight was smaller, with a difference of 103 grams, compared to the 121 grams difference observed with the Johnson-Thausack formula. Therefore, it can be concluded that the Risanto formula offers a more precise estimate of a baby's birth weight than the Johnson-Thausack method.

Upon analyzing the study data, it becomes evident that the Risanto formula more accurately reflects the actual birth weight of the baby compared to the Johnson-Thausack formula, which tends to yield lower estimates than other methods. In situations where ultrasonography or advanced medical tools are unavailable, the Risanto formula serves as a viable alternative for estimating fetal weight (TBJ). Unlike the Johnson-Thausack formula, which necessitates an internal examination to assess the fetal head's descent, the Risanto formula simply relies on measuring the fundal height (TFU), making it a more practical and easier method to teach and apply.

## CONCLUSION
The average difference between the fetal weight estimated by the Risanto formula and the actual birth weight indicates that there is a discrepancy between these two measures. Similarly, the average difference between the fetal weight estimated using the Johnson-Thausack formula and the actual birth weight also suggests a lack of agreement between the estimated and actual weights. However, with a P value of 0.001, the Risanto formula provides an estimate that is closer to the actual birth weight compared to the Johnson-Thausack formula.

## SUGGESTION
It is recommended that midwives can improve skills and accuracy in measuring fundus uteri height

and using the Risanto formula to measure estimated fetal weight in performing midwifery services and for educational institutions can make guidelines in providing teaching to students in determining estimated fetal weight using the Risanto formula and making comparisons with different formulas and different measurement techniques.

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# GIVING PINEAPPLE JUICE AND HONEY TO REDUCE THE INTENSITY OF PRIMARY DYSMENORRHEA IN ADOLESCENT GIRLS

**Novita Sari[1], Rizka Esty Safriana[2]**

[1,2] Midwifery Study Program, Faculty Of Health, Muhammadiyah University of Gresik
Email correspondence : novitasari33063@gmail.com

**ABSTRAK : PEMBERIAN JUS NANAS DAN MADU UNTUK MENURUNKAN INTENSITAS *DISMENOREA* PRIMER PADA REMAJA PUTRI**

Latar Belakang: *Dismenorea* primer merupakan nyeri menstruasi yang terjadi sejak *menarch* tanpa adanya kelainan/patologis. *Dismenorea* primer dapat menimbulkan dampak pada remaja putri karena akan mengganggu aktivitas selama disekolah, akan tetapi dapat diatasi dengan terapi nonfarmakologi salah satunya dengan minum jus nanas madu.

Tujuan: Mengetahui efektivitas dari jus nanas madu terhadap intensitas *dismenorea* primer pada remaja putri.

Metode: Jenis Penelitian kuantitatif, desain yang digunakan *true eksperiment* dengan rancangan *pretest-posttest control group design*. Teknik pengambilan sampel menggunakan *simple random sampling* dengan jumlah 30 responden yang terbagi menjadi 15 kelompok eksperimen dan 15 kelompok kontrol. Penelitian ini dilakukan seama 1 bulan. Analisis yang digunakan yaitu uji beda mean dan uji *independent simple t test.*

Hasil: Menunjukkan pada kelompok eksperimen rata-rata intensitas nyeri sebelum diberikan perlakuan sebesar 4,67 dan sesudah diberikan perlakuan menurun menjadi 1,27, sedangkan pada kelompok kontrol rata-rata intensitas nyeri sebelum diberikan perlakuan sebesar 4,80 dan sesudah dengan tanpa diberikan perlakuan menjadi 4,60. Hasil uji *independent simple t test* dengan nilai *p value* 0.000<0.05, artinya pemberian jus nanas madu efektif menurunkan *dismenorea* primer.

Kesimpulan: Pemberian jus nanas dan madu efektif menurunkan intensitas nyeri dismenore primer yang diberikan pada hari ke 1 dan ke 2 sebanyak 450 ml/hari dengan dosis 250 gram buah nanas dan 20 ml madu dengan menunggu reaksi selama 3 jam. Maka jus nanas dan madu dapat menjadi salah satu terapi nonfarmakologi yang digunakan untuk mengatasi *dismenorea* primer.

Saran: Diharapkan dengan adanya penelitian ini remaja putri dapat mengimplementasikan jus nanas dan madu sebagai alternatif unutuk menurunkan *dismenorea* primer.

Kata Kunci : Dismenorea Primer, Jus Nanas dan Madu, Remaja Putri

**ABSTRACT**

Background:  Primary dysmenorrhea can be said as menstrual pain which occurs since menarche without any abnormalities/pathology. Primary dysmenorrhoea bring impact to adolescent girls because it interfere with their activities at school, but it can be treated with non-pharmacological therapy, which is drinking honey pineapple juice.

Purpose:  To determine the effectiveness of honey pineapple juice regarded into the intensity of primary dysmenorrhoea in adolescent girls.

Methods:  This type of quantitative research uses a true experiment with a pretest-posttest control group design. The sampling one about technique used simple random sampling with 30 respondents divided into 15 experimental groups and 15 control groups. This research was conducted for one month. The analysis used is the mean difference test and the independent simple t test.

Results It shows that in the experimental group the average pain intensity before being given treatment was 4.67 and after being given treatment decreased to 1.27, while in the control group the average pain intensity before being given treatment was 4.80 and after being given no treatment. to 4.60. The independent simple t test results with a p value of 0.000<0.05, meaning that giving honey pineapple juice is effective to reduce the primary dysmenorrhea.

Conclusion: Giving pineapple juice and honey was effective in reducing the pain intensity of primary dysmenorrhea given on days 1 and 2 as much as 450 ml/day with a dose of 250 grams of pineapple and 20 ml of honey by waiting for a reaction for 3 hours. So pineapple juice and honey can be a non-pharmacological therapy used to treat dysmenorrhea pain.

**Novita Sari, Rizka Esty Safriana**

Suggestions: It is hoped that with this research, young women can implement pineapple juice and honey as an alternative to reduce primary dysmenorrhoea.

Keywords:   Adolescent Girls, Dysmenorrhea Primer, Pineapple Juice and Honey

## INTRODUCTION

One of the characteristics of puberty in adolescent girls is menstruation. Menstruation is the condition where blood comes out of the vagina every month due to unfertilized egg cells (Ilham et al, 2023). However, most women especially adolescent girls experience physical discomfort during menstruation occurs, namely pain in the stomach or what is called pain dysmenorrhoea (Sari, 2021).

Dysmenorrhea is divided into two, namely primary dysmenorrhea and secondary dysmenorrhoea. Primary dysmenorrhea is pain which occurs in the abdomen starting from menarche without any abnormalities / pathology. Meanwhile, secondary dysmenorrhoea is pain or cramps which usually occur after menarche due to abnormalities/pathological conditions such as the presence of the endometrium (Sinaga, 2017).

In the world of prevalence the incidence of dysmenorrhea is quite high in various countries with an average incidence menstrual pain in adolescent girls is between 17-81% (Gumarães & Póvoa, 2020). While in Indonesia, the cases of dysmenorrhoea is high, around 64.25%, which is mostly found in teenagers (Silaen et al, 2021). In East Java, there are 4,653 young women who experience dysmenorrhoea. The prevalence for primary dysmenorrhoea is 90.25% or 4,297 people, while for secondary dysmenorrhoea it is 9.75% or around 365 people (Meinawati & Nurlia, 2021).

Primary dysmenorrhea occurs due to an excessive increase in the hormone prostaglandin F2n in the endometrium, which usually causes symptoms during menstruation. The symptoms felt are pain or cramps in the lower or middle abdomen, if the pain is severe it can spread to the hips, lower back and inner thighs (Mouliza, 2020). Sometimes during menstruation there are also other symptoms such as nausea, vomiting, dizziness, and even diarrhea (Misliani et al, 2019). In each woman, the intensity of pain felt vary and will usually interfere with daily activities (Hayati et al, 2020).

Dysmenorrhea can have an impact on school-age adolescents because will interfere with activities during school. If a student experiences pain dysmenorrhoea, their learning activities at school will be disrupted resulting in decreased learning concentration and automatically academic achievement as well also decreases. Sometimes they also miss school due to pain the weight he felt (Azagew et al, 2020). This causes a decrease in the quality of life for adolescent girls. Another impact that can occur is disruption infertility and sexual dysfunction if not treated, depression and alteration autonomic activities (Marni & Farhandika, 2022).

To overcome this problem, it can be overcome with pharmacological and non-pharmacological therapy. Pharmacological therapy includes giving anti-pain medication such as analgesics and anti-inflammatory drugs so that the pain felt decreases, however if consumed excessively and in the long term it will certainly have a bad impact on health. Some of the side effects experienced are nausea, vomiting, allergies, and so on (Setiawati et al, 2019). As an alternative, adolescent girls can use non-pharmacological therapy, including exercise, endorphin massage, warm compresses, music therapy, relaxation, consuming lots of water, balancing with nutritious foods, and herbal drinks, one of which is giving pineapple juice and honey (Rachmawati et al, 2020; Widowati et al, 2020).

Pineapples contain the enzyme bromelain, which has an analgesic effect to reduce dysmenorrhea. Bromelain is a proteolytic enzyme found in Ananas Comosus L (Wulandari, 2021). Merover the bromelain enzyme, pineapple also contains pectin and vitamin C which function to reduce pain, heal wounds, and improve blood circulation (R.A Mella et al, 2022).

Honey is one of the herbal ingredients that can reduce reduce dysmenorrhea. Honey contains vitamin E and flavonoids where the function of these flavonoids is to relax the uterine abdominal muscles (Bustamam et al, 2021). From the results of research conducted by Simamora et al (2023), one of the non-pharmacological therapies to reduce the intensity of pain in dysmenorrhoea is by giving pineapple juice and honey to YP Singosari Deli Tu Middle School students with the result that, there is an effect on reducing the intensity of menstrual pain (dysmenorrhoea), in general those who were previously given pineapple juice and honey experienced severe pain and after being given pineapple juice and honey experienced moderate pain.

Based on the description above, the researches is interested in conducting research with

the aim to find out the effectiveness of honey pineapple juice regarded to the intensity of primary dysmenorrhoea in adolescent girls.

**RESEARCH METHODS**

The type of research used is quantitative research, the design that is a true experiment, with a pretest-posttest control group design, where in this research there is a treatment (experimental) group and a control group chosen randomly. Pineapple juice and honey are given on days 1 and 2 during menstruation as much as 450 ml/day with a dose of 250 grams of pineapple juice and 20 ml of honey and wait for a reaction for 3 hours. This research was conducted at the MTsN 2 Lamongan school for one month.

The population used was 108 female students. The sampling technique used simple random sampling with 30 respondents divided into 15 experimental groups and 15 control groups. This study used instruments in the form of questionnaires and observation sheets on the CPS pain scale (comparative pain scale). The analysis used is the difference test between two means and the independent simple t test.

**RESEARCH RESULTS**
**Univariate analysis**

Based on table 1 above, it can be seen that almost all of the control groups were 14 years old, amounting to 86.7% (13 respondents), while in the experimental groups the majority were 14 years old, namely 73.3% (11 respondents).

**Table 1**
**Frequency Distribution of Respondent Characteristics Based on Age**

| Age | Control groups | | Eksperimental Groups | |
|---|---|---|---|---|
| | N | % | N | % |
| 14 years | 13 | 86,7 | 11 | 73,3 |
| 15 years | 2 | 13,3 | 4 | 26,7 |

(Sourch : Primary Data, 2024)

**Table 2**
**Frequency Distribution of Respondent Characteristics Based on Age of Menarche, Family History, and Menstrual Period**

| Characteristics | Control groups | | Eksperimental Groups | |
|---|---|---|---|---|
| | N | % | N | % |
| Menarch Age | | | | |
| <12 years | 12 | 80 | 11 | 73,3 |
| >12 years | 3 | 20 | 4 | 26,7 |
| Family History | | | | |
| Yes | 8 | 53,3 | 8 | 53,3 |
| No | 7 | 47,7 | 7 | 47,7 |
| Menstrual Period | | | | |
| <28 days | 8 | 53,3 | 3 | 20 |
| 28-35 days | 4 | 26,7 | 10 | 66,7 |
| >35 days | 3 | 20 | 2 | 13,3 |

(Sourch : Primary Data, 2024)

Based on table 2 above, it is known that almost the entire control groups experienced menarche at <12 years of age, 80% (12 respondents). In the experimental groups, the majority experienced menarche at the age of <12 years, amounting to 73.3% (11 respondents).

Most of the control groups and experimental groups had a family history of dysmenorrhoea, 53.3% each (8 respondents).

Most of the control group had a menstrual period <28 days, 53.3% (8 respondents). In the experimental groups, the majority had a menstrual cycle of 28-35 days, amounting to 66.7% (10 respondents).

**Table 3**
**Intensity of Primary Dysmenorrhea Before and After Treatment**

| Pain Category | Before Treatment | | | | After Treatment | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Control groups | | Eksperimental Groups | | Control groups | | Eksperimental Groups | |
| | n | % | N | % | n | % | N | % |
| Mild pain | 5 | 33,3 | 3 | 20 | 4 | 26,7 | 14 | 93,3 |
| Moderate pain | 9 | 60 | 10 | 66,7 | 11 | 73,3 | 1 | 6,7 |
| Severe pain | 1 | 6,7 | 2 | 13,3 | 0 | 0 | 0 | 0 |

(Sourch : Secondary Data, 2024)

Based on table 3 above, it can be seen that the majority of the control groups before being given treatment had primary dysmenorrhea pain intensity in the moderate category of 60% (9 respondents), whereas after being given treatment the majority had primary dysmenorrhoea pain intensity in the moderate category of 73.3%. (11 respondents).

Most of the experimental groups before being given treatment had primary dysmenorrhoea pain intensity in the moderate category of 66.7% (10 respondents), whereas after being given treatment almost all had primary dysmenorrhoea pain intensity in the mild category of 93.3% (14 respondents).

**Byvariate Analysis**

**Table 4**
**Average Intensity of Primary Dysmenorrhea Before and After in the Experimental Group**

| Group | Mean | SD | Min | Max |
| --- | --- | --- | --- | --- |
| Pre-eksperiment | 4,67 | 1,496 | 3 | 8 |
| Post-eksperiment | 1,27 | 0,799 | 1 | 4 |

(Source: SPSS data processed)

Based on table 4 above, it can be seen that the average pain intensity before treatment was given to the experimental groups was 4,67, while after treatment the average pain intensity decreased to 1,27.

Based on table 5 above, it can be seen that the average pain intensity before treatment in the control group was 4,80, while after treatment the average pain intensity was 4,60.

**Table 5**
**Average Intensity of Primary Dysmenorrhea Before and After in the Control Group**

| Kelompok | Mean | SD | Min | Max |
| --- | --- | --- | --- | --- |
| Pre Control | 4,80 | 1,612 | 3 | 8 |
| Post Control | 4,60 | 1,639 | 2 | 8 |

(Source: SPSS data processed)

**Table 6**
**Effectiveness of Honey Pineapple Juice in Reducing Primary Dysmenorrhea in Adolescent Girls**

| Hasil | Mean | SD | *p-value* |
| --- | --- | --- | --- |
| Eksperimental Group | 3,40 | 1,183 | 0,00 |
| Control Group | 0,33 | 0,488 | |

(Source: SPSS data processed)

Table 6 shows that the results of the independent samples t test obtained a value of p = 0,000 (p < 0,05), where these results indicate that H1 is accepted and H0 is rejected. This means that there is effectiveness of giving pineapple juice and honey

on the intensity of primary dysmenorrhoea pain in adolescent girls

**DISCUSSION**

**Average Intensity of Primary Dysmenorrhea Before and After in the Experimental Group**

Based on research that has been conducted, the average intensity of primary dysmenorrhoea in adolescent girls before being given treatment is on a scale of (4.67) with the moderate pain category and after being given pineapple juice and honey the pain intensity decreases to (1.27) with the mild pain category. This means that there is a significant reduction in the intensity of primary dysmenorrhoea pain in young women at MTsN 2 Lamongan.

These results are in line with research conducted by Anissa Ariyanto where the average pain intensity of primary dysmenorrhea before and after treatment decreased (Ariyanto et al, 2023).

Primary dysmenorrhoea can be treated with non-pharmacological therapy, one of which is by administering pineapple juice and honey which can reduce the intensity of primary dysmenorrhoea. This decrease can be influenced by the enzyme content of bromelain which comes from pineapple, while honey contains flavonoids and vitamin E (Gani, 2023; Indrayani et al, 2023).

According to the researchers' assumptions, the intensity of primary dysmenorrhoea could decrease due to the content contained in pineapple which functions as a pain reliever and honey as a pain inhibitor during dysmenorrhoea which was given for two consecutive days, resulting in a significant decrease in the experimental group.

**Average Intensity of Primary Dysmenorrhea Before and After in the Control Group**

Based on research that has been conducted, the average intensity of primary dysmenorrhoea in adolescent girls before treatment is on a scale of (4.80) with the moderate pain category and after treatment the pain intensity decreases to (4.60) with the moderate pain category. This shows that there was no significant decrease in the control group in the intensity of primary dysmenorrhoea in adolescent girls at MTsN 2 Lamongan.

These results are in line with research conducted by Yana Agustin Setianingsih, with results in the control group before treatment being average the intensity of pain was (2.62), whereas after being given the treatment it became (3.75). This shows that there was no reduction in pain intensity in the group control (Setianingsih, 2018).

Based on the theory, each individual's pain intensity is different, influenced by the individual's description of pain, perception and experience of pain. Each person gives different perceptions and reactions to each other regarding pain, this is because pain is a subjective feeling that only the individual himself understands the level of pain he feels (Karlinda et al, 2022).

According to the researchers' assumptions, there was no significant decline in the control group because they were not given any treatment for two days. Some respondents experienced a decline because these respondents had enough rest. However, for the majority of respondents there was no change in pain intensity, some even experienced an increase in pain intensity.

**Effectiveness of Honey Pineapple Juice on the Intensity of Primary Dysmenorrhea in Adolescent Girls**

The results of the independent simple t test showed a p value of 0.00 (p value <0.05). These results show that H1 is accepted and H0 is rejected so that it can be seen that there is effectiveness of giving pineapple juice and honey on the intensity of primary dysmenorrhoea in adolescent girls at MTsN 2 Lamongan.

The results of this research are in line with research conducted by Merry Krista Simamora, namely by giving pineapple juice and honey which can have the effect of reducing menstrual pain in young women at Singosari Deli Tua Middle School in 2022 (Simamora, 2023).

Primary dysmenorrhea occurs due to an increase in the prostaglandin F2n hormone in the luteal phase of the menstrual cycle, resulting in an increase in the frequency of uterine contractions and causing stomach cramps for sufferers (Afiyanti, 2016).

Pineapples contain the enzymes bromelain, pectin and vitamin C which can reduce pain during menstruation (Wrisnijati et al, 2019). The bromelain enzyme is a proteolytic enzyme which obtained from pineapple which can reduce the level of menstrual pain by inhibiting the production of prostaglandins which are the body's pain stimulus receptors (Safitri & Fatihatul H, 2024).

The mechanism of action of pineapple is to inhibit the formation of arachidonic acid by blocking protein kinase C which will affect enzyme activity phospholipase. So when both of them don't work as they should then can inhibit the formation of arachidonic acid and cause hormones prostaglandins decrease (Nurnasari & Khuluq, 2017).

Honey contains vitamin E and flavonoids where the function of these flavonoids is to relax the abdominal muscles of the uterus by inhibiting the production of cyclooxygenase so it can reduce the intensity of dysmenorrhea (Riskasari et al, 2023). Meanwhile, vitamin E suppresses the production of

phospholipase A and cyclooxygenase enzymes by inhibiting prostaglandin production (Silaban et al, 2019).

The combination of pineapple and honey has been proven to reduce the intensity of menstrual pain (dysmenorrhea). Pineapples contain the enzyme bromelain which has benefits as an analgesic and anti-inflammatory, by slowing uterine contractions so that excessive prostaglandin production does not occur and dysmenorrhea pain will be reduced or even disappear, while the function of honey is to relax the uterine muscles so that they do not contract (Harahap et al, 2020 ).

According to researchers' assumptions, giving pineapple juice and honey is effective in reducing the intensity of primary dysmenorrhoea. Pineapple juice was given for two consecutive days, namely on days 1 and 2, 450 ml/day with a dose of 250 grams of pineapple and 20 ml of honey, waiting for a reaction for 3 hours. Consuming pineapple juice and honey is a non-pharmacological way to reduce pain without side effects. Apart from that, the manufacturing process is quite easy and also cheap so it doesn't require expensive costs.

**CONCLUSION**

In the experimental group experienced a significant decrease from the previous average of 4,67 (moderate pain) to 1,27 (mild pain), in the control group there was no significant decrease with the previous mean being 4,80 (moderate pain) to 4,60 (moderate pain). Giving honey pineapple juice is effective to reduce the intensity of primary dysmenorrhoea in adolescent girls with a p-value of 0,00 (<0,05).

**SUGGESTION**

With this research, it is hoped that adolescent girls can implement pineapple juice and honey as an alternative to reduce primary dysmenorrhoea and It is hoped that schools, especially in UKS, can use pineapple juice and honey as a non-pharmacological treatment to reduce dysmenorrhea pain in their female students.

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**Nur Aliah, Eka Ratnasari, Nurhasanah**

# KNOWLEDGE OF BALANCED NUTRITION AND NUTRITIONAL STATUS OF PREGNANT WOMEN IN EFFORTS TO PREVENT STUNTING

**Nur Aliah[1*], Eka Ratnasari[2], Nurhasanah[3]**

[1,2,3]Sekolah Tinggi Ilmu Kesehatan Muhammadiyah Cirebon
Correspondence email: alianura165@gmail.com

**ABSTRAK : HUBUNGAN PENGETAHUAN GIZI SEIMBANG DAN STATUS GIZI IBU HAMIL DALAM UPAYA PENCEGAHAN STUNTING**

Latar Belakang : Gizi ibu waktu hamil sangat penting untuk pertumbuhan janin yang dikandungnya. Pada umumnya, ibu hamil dengan kondisi kesehatan yang baik yang tidak ada gangguan gizi pada masa pra-hamil maupun saat hamil, akan menghasilkan bayi yang lebih besar dan lebih sehat daripada ibu hamil yang kondisinya memiliki gangguan gizi. Kurang energi kronis akan menyebabkan lahirnya anak dengan bentuk tubuh *stunting.* Peningkatan pengetahuan dan kesadaran akan sikap dan tindakan seorang ibu dalam pemilihan makanan yang sehat bagi balita dapat dilakukan dengan program kesehatan masyarakat salah satunya dengan memberikan pendidikan kesehatan yaitu melalui penyuluhan kesehatan ataupun edukasi.

Tujuan Penelitian : Penelitian ini bertujuan untuk mengetahui pengetahuan ibu hamil tentang gizi seimbang dan menganalisia hubungan antara pengetahuan tentang gizi seimbang dengan status gizi ibu hamil. Penelitian dilakukan di wilayah Kampung Adat Argasunya Kota Cirebon selama bulan Januari-Agustus 2024.

Metode penelitian ini merupakan penelitian analitik dengan pendekatan *cross sectional*. Penelitian ini akan melihat masing-masing variabel dan selanjutnya dilakukan uji *Pearson Chi-Square* untuk menjawab hipotesis penelitian, ada hubungan antara pengetahuan tentang gizi seimbang dengan status gizi. Penelitian ini dilakukan pada ibu hamil trimester I-III di wilayah Kampung Adat Argasunya Kota Cirebon. Tehnik pengambilan sampel yang digunakan adalah *accidental sampling*. Teknik analisis data yang digunakan adalah analisis univariat dan bivariat dengan bantuan SPSS.

Hasil penelitian menunjukkan pengetahuan tentang gizi seimbang dengan status gizi ibu hamil diperoleh p-value = 0,500 (≥ 0,05).

Kesimpulan penelitian ini adalah tidak terdapat hubungan antara pengetahuan tentang gizi seimbang dengan status gizi ibu hamil.

Saran: Gizi ibu pada saat hamil sangat penting untuk menunjang pertumbuhan dan perkembnagan janin selama di dalam kandungan. Status gizi ibu hamil dipengaruhi oleh asupan makanan yang dikonsumsi. Perilaku ibu dalam pemilihan bahan makanan yang benar dapat diperoleh dari pengetahuan. Peningkatan pengetahuan dan kesadaran akan sikap dan tindakan seorang ibu dalam pemilihan makanan yang sehat dapat dilakukan dengan memberikan pendidikan kesehatan yaitu melalui penyuluhan kesehatan ataupun edukasi. Akan tetapi di berbagai tempat tertentu perilaku ibu hamil juga dipengaruhi oleh adat istiadat serta keyakinan akan mitos yang masih kental di wilayah tersebut. Oleh karena itu, penting kiranya agar tenaga kesehatan dapat bersinergi dengan tokoh masyarakat untuk meluruskan mitos yang dapat merugikan bagi kesehatan ibu hamil dan janinnya.

Kata kunci: Gizi seimbang, Kehamilan, Pengetahuan, Status gizi

## ABSTRACT

Background: Maternal nutrition during pregnancy is very important for the growth of the fetus she is carrying. In general, pregnant women with good health conditions who do not have nutritional disorders during pre-pregnancy or during pregnancy will produce bigger and healthier babies than pregnant women who have nutritional disorders. Chronic energy deficiency will cause the birth of children with stunted body shapes. Increasing knowledge and awareness of a mother's attitude and actions in choosing healthy food for toddlers can be done through public health programs, one of which is by providing health education, namely through health counseling or education.Research Objectives: This research aims to determine the knowledge of pregnant women about balanced nutrition and analyze the relationship between knowledge about balanced nutrition and the nutritional status of pregnant women. The research was conducted in the Argasunya Traditional Village area, Cirebon City during January-August 2024.

This research method is analytical research with a cross sectional approach. This research will look at each variable and then carry out the Pearson Chi-Square test to answer the research hypothesis, that there is a relationship between knowledge about balanced nutrition and nutritional status. This research was conducted on pregnant women in the I-III trimester in the Argasunya Traditional Village area, Cirebon City. The sampling technique used was Accidental Sampling. The data analysis technique used is univariate and bivariate analysis with the help of SPSS.

The research results showed that knowledge about balanced nutrition and the nutritional status of pregnant women obtained p-value = 0.500 (≥ 0.05).

The conclusion of this study is that there is no relationship between knowledge about balanced nutrition and the nutritional status of pregnant women.

Kata kunci: balanced nutrition, pregnancy, knowledge, nutritional status

## INTRODUCTION

Nutritional problems in developing countries including Indonesia show an increasing trend, one of which is the problem of stunting. Stunting is a nutritional problem caused by a lack of intake over a long period of time. It usually occurs during a critical period, namely from when a child is in the womb until the age of two. This period is known as the First 1000 Days of Life (HPK). Malnutrition during this period causes growth disorders in children, one of which is that children become short (dwarf) from their age standards.

Risk factors for stunting include the nutritional status of pregnant women on the growth and development of their fetuses, where nutritional problems must be considered since they are still in the womb. If there is a lack of nutritional status in early life, it will have an impact on later life such as Inhibited Fetal Growth (PJT), Low Birth Weight (LBW), small, short, thin, low immunity and risk of death. In Indonesia, one of the parameters for determining the nutritional status of pregnant women is the anthropometric indicator of the Upper Arm Circumference (LiLA) in pregnant women, where insufficient energy and protein intake in pregnant women can cause Chronic Energy Deficiency (CED). Pregnant women are at risk of CED if they have a LiLA <23.5 cm. Pregnant women with CED are at risk of giving birth to LBW which if not treated immediately will be at risk of stunting. CED is a condition caused by an imbalance in the intake of nutrients needed by the body is not met.

Rohmawati (2019) said based on the results of her research that there is a significant relationship between chronic energy deficiency in pregnant women and the incidence of stunting. Mothers who experience chronic energy deficiency have a risk of having stunted toddlers of 27.4% compared to toddlers who do not experience stunting. Maternal nutrition during pregnancy is very important for the growth of the fetus she is carrying. In general, pregnant women with good health conditions who do not have nutritional disorders during pre-pregnancy or during pregnancy will produce bigger and healthier babies than pregnant women who have nutritional disorders. Chronic energy deficiency will cause the birth of children with stunted body shapes.

ehena et al (2021) opinion stunting in toddlers is caused by maternal behavior which is a factor in choosing the wrong food. The choice of food ingredients, the availability of sufficient food and the diversity of these foods are influenced by the mother's level of knowledge about food and its nutrition. Mother's ignorance can lead to wrong food choices, especially for toddlers. Increasing knowledge and awareness of a mother's attitude and actions in choosing healthy food for toddlers can be done through public health programs, one of which is by providing health education, namely through health counseling or education. Based on this background, the problem in this study can be formulated, namely "Is there a relationship between knowledge about balanced nutrition and nutritional status in pregnant women in the Argasunya Traditional Village Area, Cirebon City?"

The purpose of this study was to determine the nutritional status of pregnant women and to determine the relationship between knowledge about balanced nutrition and nutritional status in pregnant women.

## RESEARCH METHODS

This study is an analytical study with a cross-sectional approach. This study measures each variable and analyzes both univariate and bivariate data. This study was conducted on pregnant women in the first to third trimester in the Argasunya Traditional Village Area, Cirebon City. The Inclusion criteria in this study are pregnant women who live in the Argasunya Religious Traditional Village Area Cirebon City and pregnant women who were present during the research. The exclusion criteria in this

study are pregnant women who have a history of comorbidities and pregnant women who are not willing to be respondents. The sampling technique was accidental sampling of 34 pregnant women.

## RESEARCH RESULTS
### Univariate

**Table 1**
**Frequency Distribution of Knowledge of Balanced Nutrition for Pregnant Women**

| Knowledge | Frequency | Percentage (%) |
|-----------|-----------|----------------|
| Good | 32 | 94,1 |
| Enough | 2 | 5,9 |
| Less | 0 | 0 |

Based on table 1, it can be concluded that the majority of respondents have good knowledge, namely 32 people (94.1%).

**Table 2**
**Frequency Distribution of Nutritional Status of Pregnant Women**

| Nutritional status | Frequency | Percentage (%) |
|--------------------|-----------|----------------|
| Normal | 28 | 82,4 |
| KEK | 6 | 17,6 |

Based on table 2, it can be concluded that the majority of respondents have normal nutritional status, namely 28 people (82.4%).

### Bivariat

Based on table 3, it can be seen that there is no relationship between knowledge of balanced nutrition and the nutritional status of pregnant women with a p-value of 0.515 (≥0.05).

**Table 3**
**Relationship between knowledge of balanced nutrition and nutritional status of pregnant women**

| Balanced Nutrition Knowledge | Baik | | Cukup | | Kurang | | |
|------------------------------|------|------|-------|------|--------|------|-------|
| Nutritional Status of Pregnant Women | n | % | n | % | n | % | |
| Normal | 26 | 76,5 | 2 | 5,9 | 0 | 0 | 0,515 |
| KEK | 6 | 17,6 | 0 | 0 | 0 | 0 | |

## DISCUSSIONS

Stunting is a disorder of growth and development in children due to chronic malnutrition and recurrent infections, which is characterized by the length or height of the child being below the established standard. In addition to lack of nutritional intake in children, stunting can also be caused by malnutrition when the baby is in the womb. This can be prevented by balanced nutritional intake in pregnant women. Therefore, knowledge of pregnant women about balanced nutrition is very important to prevent malnutrition when the baby is in the womb.

Knowledge about the importance of a balanced nutritious diet rich in animal protein is the main key in preventing stunting. The low knowledge of parents, especially mothers, about the importance of consuming balanced nutrition can be a problem in efforts to accelerate the reduction of stunting prevalence. An important factor in handling stunting is adequate nutritional intake for pregnant women and toddlers, especially adequate animal protein, because in addition to being able to build children's physical growth, it can also optimize children's brain growth.

Based on the research results presented in table 1, the majority of pregnant women are in the good knowledge level category, namely 32 people (94.1%). Knowledge about nutrition is one of the factors that stimulates the realization of a healthy behavior that includes knowledge about choosing food ingredients and daily consumption properly and providing all the nutrients needed for normal body function. Knowledge about nutrition that needs to be known and understood by pregnant women includes balanced nutrition messages, nutritional needs, nutrient functions, portion sizes for pregnant women, types of food that are good for pregnant women to consume and foods that should be avoided so as not to have a negative impact on the health of pregnant women.

Table 2 describes the nutritional status of pregnant women where the majority are in normal condition, namely 28 people (82.4%). Nutritional status is the end result of the balance between food entering the body (nutrient input) and the body's needs (nutrient output) for these nutrients. Maternal nutritional status is a state of the body as a result of food consumption and use of nutrients. Factors that influence the nutritional status of pregnant women are economic status, knowledge of nutrients in food, health status, activity, environmental temperature, body weight and age. If the nutritional needs of

pregnant women are not met, nutritional problems will occur. Nutritional problems that often occur in pregnant women are KEK and anemia.

These nutritional problems have an impact on the quality of future generations because they slow down the physical growth and mental development of children and reduce intelligence. LILA measurement is the next indicator in monitoring the nutritional status of pregnant women which is used to determine whether someone is chronically undernourished (CED). Mothers who experience chronic undernourishment are at risk of giving birth to babies with low birth weight (LBW). The LILA measurement better describes the condition or nutritional status of the pregnant woman herself. The mother's weight during pregnancy is the cumulative weight between the increase in the weight of the mother's organs and blood volume and the weight of the fetus she is carrying. The increase in the mother's weight during pregnancy can come from the increase in the mother's weight, the fetus, or both.

Table 3 shows the results of the analysis that there is no relationship between knowledge of balanced nutrition and nutritional status in pregnant women. The author assumes that there are factors that influence the nutritional status of pregnant women, including education, work, experience, beliefs, and socio-culture.

In addition, the fulfillment of nutrition for pregnant women is influenced by one factor, namely support from husband, family, and health workers. Without support from those closest to you, a goal will not be achieved properly. Such as material support to meet the nutritional needs of pregnant women. If you experience economic limitations, this will also affect the adequacy of the nutritional status of pregnant women.

## CONCLUSION

There is no relationship between knowledge of balanced nutrition and the nutritional status of pregnant women.

## SUGGESTIONS

Maternal nutrition during pregnancy is very important to support the growth and development of the fetus while in the womb. The nutritional status of pregnant women is influenced by the food intake consumed. The behavior of mothers in choosing the right food ingredients can be obtained from knowledge. Increasing knowledge and awareness of a mother's attitude and actions in choosing healthy food can be done by providing health education, namely through health counseling or education. However, in certain places, the behavior of pregnant

women is also influenced by customs and beliefs about myths that are still strong in the area. Therefore, it is important for health workers to work together with community leaders to straighten out myths that can be detrimental to the health of pregnant women and their fetuses.

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# MATERNAL FACTORS AND ANTENATAL CARE VISITS THAT ARE AT RISK FOR LOW BIRTH WEIGHT (LBW)

Illa Arinta[1], Febri Annisaa Nuurjannah[2], Frida Marlita[3], Sofiatus Soleha[4]

STIKES Gatot Soebroto Army Hospital
Email:Illa_arinta@stikesrspadgs.ac.id

**ABSTRAK FAKTOR IBU DAN KUNJUNGAN PERAWATAN ANTENATAL YANG BERESIKO TERHADAP BERAT BADAN LAHIR RENDAH (BBLR)**

Latar Belakang: Bayi berat badan lahir rendah masih merupakan salah satu isu kesehatan global dengan berat lahir kurang dari 2500gram. BBLR mempunyai dampak jangka panjang terhadap kehidupan bayi baru lahir dan anak serta berkontribusi signifikan terhadap peningkatan angka kematian dan kecacatan neonatal. Tujuan : Untuk mengetahui faktor maternal dan kunjungan antenatal care yang berisiko terhadap kejadian berat badan lahir rendah. Metodelogi : Desain penelitian yang digunakan adalah metode deskriptif kuantitatif dengan pendekatan *case control* dengan desain penelitian *retrospektif* suatu penelitian dengan melakukan pengamatan bersalin dengan BBLR yang melakukan persalinan di Puskesmas Kemayoran dalam satu kali waktu pada waktu bersamaan. Hasil : Berdasarkan hasil penelitian didapatkan ibu yang mempunyai umur beresiko (umur <20 dan umur >34 tahun) sebanyak 15 responden (65,2%) melahirkan bayi BBLR, ibu dalam kategori umur beresiko (umur 20-34) sebanyak 8 responden (34,7%) melahirkan bayi BBLR. Berdasarkan data hasil penelitian bahwa ibu kategori paritas beresiko (paritas 0 dan paritas lebih dari 4) sebanyak 11 responden (47,8%) melahirkan BBLR. Ibu kategori paritas tidak beresiko sebanyak 12 responden (52,1%). Berdasarkan hasil penelitian didapatkan ibu yang melakukan pelayanan antenatal kurang baik, sebanyak 17 responden (73,9) melahirkan BBLR. ibu yang melakukan kunjungan antenatal yang baik sebanyak 6 (26,9%) melahirkan BBLR. Kesimpulan : Faktor risiko umur didapatkan OR = 4,28 (95%CI:1,4-12,4) bahwa kategori umur ibu beresiko mempunyai peluang melahirkan BBLR 4,28 kali dibandingkan dengan ibu kategori umur yang tidak beresiko. Berdasarkan analisis secara paritas uji statistik didapatkan nilai p = 0,397 dapat disimpulkan tidak ada hubungan bermakna antara paritas terhadap kejadian BBLR. Berdasarkan hasil uji statistik didapatkan nilai p = 0,0001, dapat diartikan ada perbedaan yang signifikan persentase BBLR antara ibu yang memiliki kunjungan antenatal kurang baik dengan ibu yang melakukan antenatal baik.

Kata kunci : Maternal, Antenatal Care, Berat Badan Lahir Rendah, Umur, Paritas.

## ABSTRACT

*Background Low birth weight babies are still one of the global health issues with a birth weight of less than 2500 grams. LBW has a long-term impact on the lives of newborns and children and contributes significantly to the increase in mortality and neonatal disability.Objective: To determine maternal factors and antenatal care visits that are at risk for the incidence of low birth weight.Methodology: The research design used is a quantitative descriptive method with case control approach with a retrospective research design of a study by observing childbirth with LBW who gave birth at the Kemayoran Health Center at one time at the same time.Results: Based on the results of the study, motherswho have a risk age (<20 years old and >34 years old) as many as 15 respondents (65.2%) give birth to LBW babies, mothers in the at-risk age category (20-34 years old) as many as 8 Respondents (34.7%) gave birth to LBW babies. Based on the data from the results of the study, 11 respondents (47.8%) gave birth to LBW in the at-risk parity category (parity 0 and parity more than 4). Mothers in the parity category are not at risk as many as 12 respondents (52.1%). Based on the results of the study, mothers who performed poor antenatal services gave birth to LBW, as many as 17 respondents (73.9) gave birth to LBW. mothers who had good antenatal visits as many as 6 (26.9%) gave birth to LBW.Conclusion:The age risk factor was obtained OR = 4.28 (95%CI: 1.4-12.4) that the age category of mothers at risk had a chance of giving birth to LBW 4.28 times compared to mothers in the age category who were not at risk. Based on the analysis of parity in the statistical test, the value of p = 0.397 can be concluded that there is no significant relationship between parity and the incidence of LBW. Based on the results of the statistical test, a value of p = 0.0001 was obtained, it can be interpreted that there is a significant difference in the percentage of LBW between mothers who had poor antenatal visits and mothers who did good antenatal visits.*

*Keywords:Maternal, Antenatal Care, Low Birth Weight, Age, Parity.*

**Illa Arinta, Febri Annisaa Nuurjannah, Frida Marlita, Sofiatus Soleha**

## INTRODUCTION

LBW babies are still a problem in the world, because they cause disease and death in newborn babies. This is proven by the number of cases which is still quite high, 15% of the 20 million babies worldwide are born with LBW each year (WHO, 2014). The infant mortality rate increases along with the increase in the incidence of LBW babies in a country. The global prevalence of LBW is 15.5%, which means around 20.6 million babies are born each year and 96.55 are in developing countries including Indonesia (Indonesian Ministry of Health Data and Information Center, 2015). Based on 2018 Rikesdas data, it shows that the incidence of LBW in Indonesia has a prevalence of 6.2%. The highest percentage of LBW is in Central Sulawesi Province (8.9%) and the lowest is in Jambi Province (2.6%). LBW babies are female (6.7%) while male (5.7%). The percentage of LBW babies in rural areas (6.3%) and in urban areas (6.1%). Meanwhile, Gorontalo Province has a prevalence of (8.3%).

Low Birth Weight Infants (LBW) is a global health issue that continues to be challenging, affecting millions of babies every year, with heavy birth weight less than 2500grams. LBW is not only an indicator of neonatal health, but also reflects socio-economic conditions and health services in a community. LBW is a very complex problem and contributes to various poor health outcomes because it not only causes high rates of morbidity and mortality, but has a long-lasting impact on future life and makes people more vulnerable to diseases such as disability, mental disorders, growth retardation and cognitive development. , and chronic diseases in the future (Susilowati et al, 2016). According to Who, the exact cause of LBW is not yet known, but it is thought that the cause in countries such as Asia and Africa is nutrition when the mother is pregnant, while the cause in developed countries is thought to be the age of the mother who gives birth over 35 years.

Risk factors for LBW are teenage pregnancy status, nutrition, economic status, education, complications, heavy work, gestational age, previous history of LBW, alcohol, smoking, illegal drugs, history of disease, multiple pregnancies, height and living in the area. height. The condition of LBW babies is caused by conditions since pregnancy, twins, babies with birth defects or conditions as well as placental problems that pose a risk to the development of the baby in the womb.LBW babies without complications can reach their weight loss as they get older. LBW babies tend to experience stunting and in adulthood suffer from diabetes mellitus, hypertension and heart disease (Ministry of Health of the Republic of Indonesia, 2021).

## RESEARCH METHODS
### Research Types and Designs

This research uses a quantitative descriptive method with an approach *case control*with a retrospective research design, a study by observing births with LBW who gave birth at the Kemayoran Community Health Center one time at the same time.This research will be carried out at the Kemayoran Community Health Center in 2024.The population in this study were all mothers giving birth at the Kemayoran Community Health Center. namely all mothers giving birth at the Kemayoran Community Health Center.

## RESEARCH RESULT

This research was conducted on 69 LBW women giving birth at the Community Health Center Kemayoran.

### Table 1
### Distribution of respondents according to age and birth weight

| Group age | Birth weight of baby | | | | p value | OR (95% CI) |
|---|---|---|---|---|---|---|
| | LBW | | BBLN | | | |
| | F | % | F | % | | |
| Risky | 15 | 65.2 | 14 | 30.4 | 0.009 | 4.28 (1.4-12.4) |
| No Risk | 8 | 34.7 | 32 | 69.5 | | |

The research results showed that 15 respondents (65.2%) gave birth to mothers who were at risk (age <20 and

>34 years) and 8 respondents (34.7%) were mothers in the at-risk age category (aged 20-34). ) gave birth to a LBW baby. In percentage terms, mothers who fall into the age category at risk are more likely to give birth to LBW compared to mothers who give birth to LBW. The statistical test results showed that p = 0.009, there was a significant difference in the percentage of LBW between mothers in the age category at risk and mothers in the age category who were not at risk during pregnancy and childbirth. Analysis of age risk factors

showed OR = 4.28 (95% CI: 1.4-12.4) that mothers in the age category at risk had a 4.28 times chance of giving birth to LBW compared to mothers in the age category who were not at risk.

year is a high risk pregnancy. Pregnancy at a young age is a risk factor, this is due to the immaturity of the reproductive organs for pregnancy (the endometrium is not yet perfect), whereas at ages over 35 years the endometrium is less fertile and increases the possibility of suffering from congenital abnormalities, which can have an impact on the health of the mother and the development and growth of the fetus. who is being conceived.

The results of this study are in line with research on Indonesian IDHS data that states that mothers aged less than 20 years have a 1.5 times greater risk of giving birth to LBW. Pregnancy at a young age is a risk factor, this is due to the immaturity of the reproductive organs for pregnancy (the endometrium is not yet perfect), whereas at the age of 34 and Pregnancy prognosis

Very over the endrometrium is less fertile and determined by a person's age. Age that is too young or less than 17 years and age that is too old is more than 34 increases the possibility of suffering from congenital abnormalities, which can have an impact on the mother's health. as well as fetal development and growth and the risk of premature birth.

Pregnancies that are not at risk are pregnancies aged 20 to 34 years. At that age, the mother is in a healthy and safe reproductive status.

Pregnancy at age < 20 years and over 35 years can cause anemia, where anemia is a disorder that carries a risk of LBW. Pregnancy on Ages < 20 years are biologically not optimal so they tend to be emotionally unstable, mentally immature so they easily experience shocks which result in a lack of attention to meeting nutritional needs during pregnancy.

Meanwhile, at age > 34 years it is associated with deterioration and decreased endurance as well as various frequent illnesses override on age This.

**Table 2**
**Distribution of respondents according to parity and birth weight**

| Group parity | Birth weight of baby | | | | p value | OR (95% CI) |
|---|---|---|---|---|---|---|
| | LBW | | BBLN | | | |
| | F | % | F | % | | |
| Risky | 11 | 47.8 | 19 | 41.3 | 0.397 | 1.3 |
| No Risk | 12 | 52.1 | 27 | 58.7 | | (0.47-3.56) |

The research results showed that 11 respondents (47.8%) in the parity category at risk (parity 0 and parity more than 4) gave birth to LBW. Mothers in the parity category were not at risk as many as 12 respondents (52.1%). From the percentage results, mothers in the parity category are not at greater risk of giving birth to LBW than mothers giving birth to LBW. The statistical test results obtained a p value = 0.397, it can be concluded that there is no significant relationship between parity and the incidence of LBW and parity is not a risk factor for LBW.

Parity is the number of children conceived and born by a mother.Primiparous parity is a woman who has giving birth to a baby with a fetus weighing more than 2500 grams at 37 to 42 weeks of gestation. They have a 1.32 times greater risk of developing LBW. The parity at risk of giving birth to LBW is parity 0, namely if the mother is pregnant for the first time and the parity is more than four. This can have an effect on Pregnancy due to giving birth too often can affect the condition of the mother's uterus in mothers who are pregnant for the first time.

**Table 3**
**Distribution Of Respondents According To Antenatal Care Visits And Birth Weight**

| Visit Antenatal Care | Birth weight of baby | | | | p value | OR (95% CI) |
|---|---|---|---|---|---|---|
| | LBW | | BBLN | | | |
| | F | % | F | % | | |
| Not good | 17 | 73.9 | 15 | 32.6 | 0.001 | 5.85 |
| Good | 6 | 26.9 | 31 | 67.4 | | (1.9-17.8) |

The research results showed that 17

respondents (73.9) gave birth to LBW mothers who

received poor antenatal care. 6 mothers who had good antenatal visits (26.9%) gave birth to LBW. In percentage terms, mothers who had poor antenatal care were more likely to give birth to LBW than mothers who gave birth to LBW. The statistical test results obtained a value of p = 0.0001, which means there is a significant difference in the percentage of LBW between mothers who had poor antenatal visits and mothers who had good antenatal visits. Analysis of risk factors for the quality of antenatal care found OR= 5.85 (95% CI: 1.91-17.8). organs aged < 20 years can endanger the health of the mother and fetus. Maternal age of 20-35 years is the ideal age for pregnant women because it has The mother's perfect reproductive organs and psychology are at an adult level so that during pregnancy she will be physically and mentally ready. Due to declining physical and reproductive health of mothers, women over 35 years will be at risk during pregnancy or childbirth, one of which is giving birth to a LBW baby (Nisa, 2019). The ideal age for mothers to get pregnant is in line with government regulations.

## DISCUSSIONS
### The relationship between maternal age and the incidence of LBW

Age is the time span between born and someone's birthday. Increasing a person's age to increase their mental maturity so that they are more motivated to carry out pregnancy checks to avoid difficulties during pregnancy and childbirth (Nisa, 2019). Immaturity of maternal reproductive

According to Law of the Republic of Indonesia Number 16 of 2019 article 7 which states that marriage is only permitted if the man and woman have reached the age of 19 (nineteen) years (Constitutional Court, 2019). The results of the study showed that respondents whose maternal age was at greatest risk for LBW incidents amounted to 41 respondents (46.6%) while respondents whose maternal age was not at greatest risk for non-LBW incidents amounted to 66 respondents (75%). The results of this study are in line with the research of Wahyuni et al., (2021), which showed that the value of p= 0.006 < α 0.05, meaning that there is a relationship between maternal age and the incidence of LBW with an OR value = 5.286, meaning that respondents with maternal age are at risk 5.286 times more likely to experience it. LBW compared to maternal age is not at risk.

Based on theory And results whereas respondents with age research, the researchers assume that LBW is caused by the mother's age < 20 years, where the development of the reproductive system is not optimal and psychological readiness is

not good, which can affect the development of the fetus. Maternal age ≥ 35 years also causes LBW because the function of the reproductive system decreases, which can affect the baby's weight growth. The best age for pregnant women is 20-35 years, where the mother's reproductive system is perfect and the mother is psychologically at an adult level to be able to carry out her pregnancy and is physically and mentally ready. The relationship between gestational age and the incidence of LBW. The estimated age of the fetus is known as gestational age and is determined by counting backwards from the first day of the last menstrual period (LMP) until delivery. The gestational age classification includes preterm (42 weeks). Due to suboptimal organ development, the risk of LBW increases along with a shorter gestational age. Risky gestational age is gestational age.Pregnancies of mothers who were not at risk had the highest incidence of not being LBW, amounting to 63 respondents (71.6%). The results of this study are in line with research by Apriani et al., (2021), which showed that the p- value = 0.000, meaning that there is a relationship between gestational age and LBW at Cilacap Regional Hospital. The OR value = 20.213, which means that gestational age in the preterm category is 20.213 times more likely to experience LBW than a term pregnancy.

Based on theory And results research, the researchers assumed that the incidence of LBW was caused by premature birth (less than 37 weeks), namely pregnancy < 37 weeks because the baby's growth was not yet complete. Babies who are in their mother's womb before 37 weeks of gestation cannot develop normally, increasing the chance of them being born weighing < 2500 grams. The growth of body organs improves in babies who spend 37 weeks or more in the mother's womb resulting in a normal weight at birth.

### The relationship between parity and the incidence of LBW

The results of the study showed that respondents with maternal gestational age were at greatest risk for LBW incidents, amounting to 59 respondents (67%) Parity is amount child born from the first child to the last child. Primipara is the first mother. Time give birth to child Which age not enough. The results of this research are the pregnancy is at least 28 weeks. Mothers giving birth to more than two fetuses and a minimum gestational age of 28 weeks are known as multiparous. When a mother has given birth more than five times with a fetus whose gestational age is at least 28 weeks, it is known as grande multipara. In primiparas, this is

related to the unprepared function of the organs in maintaining pregnancy and accepting the presence of the fetus, the mother's skills in carrying out care for herself and her baby as well as the mother's psychological factors which are still unstable (Rochyati, 2003). Mothers who have never given birth to four or more children because parity is too high will cause disruption to the uterus, especially in terms of blood vessel function.

Repeated pregnancies will cause damage to the walls of the uterine blood vessels, which will affect the nutrition of the fetus in subsequent pregnancies so that it can cause growth disorders which will then give birth to babies with LBW. The results of this study are in line with Sistiarani's statement that there is no relationship between the parity of pregnant women and also in line with research by Liza Salawati (2012) which states that there is no relationship between parity (p = 0.085, RP = 5.6) and LBW at RSUDZA Banda Aceh.

Based on theory And results research, the researchers assume that risk parity, especially primipara and grandemultipara, causes the incidence of LBW. Primiparas are characterized by the unpreparedness of the organs to support pregnancy and the presence of the fetus, the mother's inability to care for herself and the fetus properly and the mother's psychological state is still unstable. On the other hand, in grandemultipara, the function of the uterus, especially the blood vessels, is disrupted by mothers who have more than five children or high parity.Repeated pregnancies can result in damage to the walls of the uterine blood vessels which disrupts fetal nutrition and causes growth restrictions resulting in LBW children.

**The relationship between the number of ANCs and the incidence of LBW.**

Many mothers who give birth LBW do not receive antenatal care in the first trimester, they only have a pregnancy check after entering the fourth month of pregnancy. This can affect pregnancy because the first time a mother receives antenatal care is a very important time because various risk factors and complications can be identified as early as possible so that they can be immediately reduced or eliminated so that LBW births can be prevented. The lack of quality of service received by mothers is that health workers do not provide enough health information, this information is expected to help mothers maintain their health during pregnancy. Efforts to expand antenatal services to make them more effective can be done without forgetting health promotion and risk assessment that influence the incidence of LBW. This can improve the quality of antenatal care so that LBW incidents can be prevented through quality antenatal care. It is hoped that this can add to the collection of books about maternal factors and antenatal care visits that are at risk of LBW incidents in the library and it is hoped that the results of this research can be.

**CONCLUSION**

From the calculations and statistical tests carried used reference furthermore. as For Material study.Age less than 20 years and age more than 34 years are risk factors for LBW (OR= 4.28; 95% CI=1.4-12.4).Parity 0 and parity >4 are not risk factors for LBW.Poor quality of antenatal care is a risk factor for LBW (OR= 5.85; 95% CI=1.9- 17.8).

**SUGGESTIONS**

**Kemayoran District Health Center** Health workers at Kemayoran Central Jakarta Health Center work together with posyandu cadres and community leaders to conduct joint learning, discussions and exchange experiences regarding the risk of LBW incidents in a comprehensive and systematic manner and can be carried out on a scheduled and continuous basis.**STIKes RSPAD Gatot Soebroto** It is hoped that this can add to the collection of books about maternal factors and antenatal care visits that are at risk of LBW incidents in the library and it is hoped that the results of this research can be Used as material refrence for study furthermore.

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# THE EFFECT OF COLD CABBAGE LEAF COMPRESSES ON REDUCING PAIN INTENSITY AND BREAST SWELLING IN POSTPARTUM MOTHERS

**Sri Hennyati Amiruddin[1], Dyah Triwidiyantari[2], Dea Yulia[3]**

[1,2,3]Bachelor of Midwifery and Professional Program, STIKes Dharma Husada, Bandung, West Java
Email correspondence srihennyati@stikesdhb.ac.id

**ABSTRAK : EFEKTIVITAS PEMBERIAN KOMPRES DAUN KUBIS DINGIN (BRASSICA OLERACEA) TERHADAP PENURUNAN INTENSITAS NYERI DAN PEMBENGKAKAN PAYUDARA PADA IBU NIFAS**

Latar Belakang: Bagi seorang wanita, menyusui merupakan pengalaman alami dan bermanfaat bagi ibu dan anak. Pembengkakan payudara, juga dikenal sebagai "bendungan ASI", merupakan masalah menyusui yang dapat terjadi pada awal masa nifas. Di TPMB Kota Bandung, ibu nifas yang menyusui sering mengalami rasa tidak nyaman dan bengkak akibat bendungan ASI. Kompres daun kubis dapat menjadi pengobatan non farmakologi karena daun kubis mempunyai efek dalam mengurangi nyeri dan pembengkakan payudara.

Tujuan: Untuk mengetahui apakah kompres dingin daun kubis efektif mengurangi nyeri dan bengkak pada payudara ibu pasca melahirkan.

Metode: Penelitian ini bersifat kuantitatif, dengan desain pre-eksperimental one-group pretest-posttest design. Sampel penelitian diambil dengan menggunakan total sampling yaitu 30 responden. Analisis data menggunakan uji Kolmogorov-Smirnov dan Wilcoxon signed test.

Hasil: tingkat nyeri dan pembengkakan payudara ibu nifas sebelum mendapat kompres dingin daun kubis. 20 partisipan (66,7%) melaporkan nyeri payudara ringan, 10 partisipan (33,3%) melaporkan nyeri sedang, dan 17 partisipan (56,7%) melaporkan edema sedang. 13 partisipan (43,4%) melaporkan pembengkakan ringan. setelah diberikan kompres daun kubis dingin 2 partisipan (6,7%) tidak mengalami nyeri, 28 partisipan (93,3%) mengalami nyeri ringan dan 24 partisipan (80%) tidak mengalami pembengkakan pada payudaranya, 6 partisipan (20%) mengalami pembengkakan ringan

Kesimpulan: Di TPMB Y Kota Bandung, kompres dingin daun kubis (Brassica Oleracea) terbukti bermanfaat dalam menurunkan nyeri dan pembengkakan payudara ibu nifas.

Saran: Pembengkakan payudara ibu nifas bisa mendapatkan manfaat dari kompres daun kubis yang diberikan oleh bidan.

Kata Kunci : Bendungan ASI, intensitas nyeri, kompres daun kubis, pembengkakan payudara

## ABSTRACT

Background: Breastfeeding is a fundamental aspect of maternal care that offers numerous advantages to both the mother and her baby. In the initial postpartum phase, women may experience difficulties such as breast engorgement, also known as milk congestion. This condition is commonly observed among postpartum women in the city of Bandung, who may suffer from discomfort and swelling as a result of milk congestion. One effective non-medical remedy for alleviating these symptoms is the use of cabbage leaf compresses, which can minimize pain and swelling in the breasts.

Objective: To evaluate how well cold cabbage leaf compresses alleviate pain and decrease breast swelling in women after childbirth.

Method: This study employs a quantitative approach featuring a pre-experimental design with a single group undergoing pretest and posttest evaluations. The research sample consists of 30 participants selected through total sampling. Data analysis is conducted using the Kolmogorov-Smirnov test and the Wilcoxon signed-rank test..

Results: Before applying cold cabbage leaf compresses, postpartum women reported varying levels of pain and swelling: 20 participants (66.7%) had mild breast pain, 10 participants (33.3%) experienced moderate pain, and 17 participants (56.7%) had moderate swelling, while 13 participants (43.4%) had mild swelling. After using the cold cabbage leaf compresses, 2 participants (6.7%) reported no pain, 28 participants (93.3%) experienced mild pain, and 24 participants (80%) had no swelling. Only 6 participants (20%) reported mild swelling.

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Conclusion: In conclusion, applying cold cabbage leaf compresses (Brassica Oleracea) is effective in reducing both pain intensity and breast swelling in postpartum women in TPMB Y Bandung City.

Suggestion: midwives can provide cabbage leaf compresses to postpartum women with breast swelling.

## INTRODUCTION

Ensuring optimal nutrition for children during their first two years is crucial for their health, growth, and survival. Achieving the best nutritional outcomes can be facilitated by following guidelines set by WHO, such as starting breastfeeding within the early hour after the baby is born is very important for the baby's health and development (Suprayitno, Pratiwi and Yasin, 2018). Exclusive breastfeeding in the first half of the year, with the introduction of healthy and sufficient additional food in the first half of the year, and consistent breastfeeding for two years or more, are recommended practices to support optimal growth and development of babies (Asnidawati and Ramdhan, 2021).

Breastfeeding is a fundamental process that provides advantages for both the mother and the infant. During the early postpartum period, women may encounter issues such as breast engorgement, sometimes referred to as milk congestion or milk dam. (Ainuan, L. D., & Wulandari, 2021). Breast milk dams develop when the lactiferous glands are not fully emptied, the ducts narrow, or there are anomalies in the nipple that prevent the milk from flowing freely. Because of the increased venous and lymph flow, this causes the breasts to expand, which can hurt and raise the body temperature (Rizky, 2023).

Several ways to reduce breast engorgement are pharmacological and non-pharmacological. Non-pharmacological therapy includes the implementation of acupuncture, traditional breast care such as warm compresses combined with massage, as well as the use of cabbage leaf compresses and alternating applications of warm and cold compresses (Andari et al., 2021). Cabbage leaves have received widespread attention from lactation experts over the past 10 years because they have been used as traditional medicine to cure various diseases for hundreds of years (Napisah et al., 2021). Cabbage, or Brassica oleracea, is a type of vegetable that is widely available and affordable to the public. Cabbage contains phytonutrients as well as various other vitamins such as vitamins A, C, E, and glucosinolates which have anti-cancer functions. Cabbage also contains sulfur, which can be used to relieve inflammation and breast swelling. (Hasibuan et al., 2021)..

Cabbage leaf compress has an effect in relieving breast pain and swelling (Kabiri et al., 2017). Methionine, an amino acid with antibacterial qualities, is found in cabbage leaves (Brassica oleracea), along with other substances like magnesium, sulfur oxylate heteroside, mustard oil, and sinigrin (Allylisothiocyanate). These elements have the ability to widen capillaries and improve blood flow to and from the injured area, and help the body in the process of reabsorbing fluid trapped in the breast (Hassan et al., 2020). Additionally, cabbage leaves generate a cold gel that is heat-absorbing, providing additional comfort to clients. Cabbage leaves can remain effective for 20-30 minutes after being attached, before they wilt or become cooked (Djamaludin, Fatih and Qaulia, 2020).

Cabbage leaves that are in room temperature or in the refrigerator are both equally effective in reducing breast swelling (Tileuberdi et al., 2022). So it can be concluded that breast swelling can be reduced not because of the cold effect produced due to storage in the refrigerator, but because of the content of substances in cabbage leaves that can be adsorbed into the skin, it's just that cabbage leaves that are at room temperature wither faster than in the refrigerator. (Apriyani et al., 2021).

Cold compress is useful for reducing oedema (Arofiah, Fadilah and Mulyati, 2023). Cabbage leaf compress makes a vasocontriction cycle for 9-16 minutes can reduce blood flow so that local oedema can decrease and lympatic drainage can be optimized. (Rohmah, Wulandari and Sihotang, 2019).. Cabbage leaves should not be compressed directly on damaged skin areas such as nipple blisters. (Niluh Nita Silfia et al., 2023). If the nipple is blistered, the cabbage leaf compress is simply placed on the breast without covering the damaged skin. (Hidayat Hayati L, 2020). Research Damayanti (2020), stated that the experimental group's breast swelling scores differed significantly from those of the control group before and after the intervention. The use of cabbage compresses proved to be a more effective intervention than simple breast care. The purpose of this study was to

determine whether utilizing cabbage compresses as part of postpartum care for mothers who have trouble nursing works well.

Based on this, research is intended to find out how effective a cold compress made from cabbage leaves (Brassica oleracea) was in reducing the pain level and swelling in the mother's breasts after giving birth at TPMB "Y" Bandung City.

## RESEARCH METHODS

This research employs a quantitative approach with a pre-experimental design featuring a single-group pretest-posttest format. Initially, observations are made before the intervention is administered, followed by further observations after the intervention to assess changes. The sampling method used is Total Sampling, which involves including all members of the target population. In this case, the sample consists of 30 postpartum mothers (0-42 days) who are breastfeeding. The research tools include cold cabbage leaves (Brassica Oleracea) and pretest-posttest questionnaires. Univariate analysis is conducted through frequency distribution to calculate the percentage of respondents in each category. For

bivariate analysis, the normality test using the Kolmogorov-Smirnov method shows that the data does not follow a normal distribution (p-value <0.05). Consequently, the Wilcoxon signed-rank test is utilized for analysis due to the non-normal distribution of the data.

## RESEARCH RESULTS

According to the findings presented in Table 2, the Wilcoxon test results reveal that among the 30 participants, prior to applying cold cabbage leaf compresses, 20 individuals (66.7%) reported mild pain and 10 individuals (33.3%) reported moderate pain. After applying the compresses, 2 participants (6.7%) experienced no pain, 28 participants (93.3%) had mild pain, and there were no reports of moderate or severe pain. The analysis yielded a p-value of <0.001, which is less than the significance threshold of 0.05, indicating a significant reduction in pain intensity following the application of cold cabbage leaf compresses. Therefore, it could be stated that using cold cabbage leaf compresses have positive impact in alleviating breast pain in postpartum women in TPMB Y Bandung City.

**Table 1**
**Effectiveness of Cold Cabbage Leaf Compress on Reducing Breast Pain Intensity in Postpartum Women**

| Pain intensity | Test Results | | | | P-Value |
|---|---|---|---|---|---|
| | Pre Test | | Post Test | | |
| | N | % | N | % | |
| No pain | 0 | 0 | 2 | 6,7 | |
| Mild pain | 20 | 66,7 | 28 | 93,3 | |
| Moderate pain | 10 | 33,3 | 0 | 0 | 0,001 |
| Severe pain | 0 | 0 | 0 | 0 | |

*Wilcoxon test*

**Table 2**
**Effectiveness of Cold Cabbage Leaf Compress on Breast Swelling in Postpartum Women**

| Pain intensity | Test Results | | | | P-Value |
|---|---|---|---|---|---|
| | Pre Test | | Post Test | | |
| | N | % | N | % | |
| No swelling | 0 | 0 | 24 | 80 | |
| Mild swelling | 13 | 43,3 | 6 | 20 | |
| Moderate swelling | 17 | 56,7 | 0 | 0 | 0,001 |
| Heavy swelling | 0 | 0 | 0 | 0 | |

As shown in Table 2, the Wilcoxon test results reveal that among the 30 participants, prior to applying cold cabbage leaf compresses, 13 individuals (43.4%) had mild swelling, and 17 individuals (56.7%) had moderate swelling. After using the compresses, 24 participants (80%)

reported no swelling, 6 participants (20%) had mild swelling, and there were no reports of moderate or severe swelling. The analysis provided a p-value of <0.001, which is below the 0.05 threshold, indicating a significant reduction in breast swelling following the use of cold compresses made from cabbage

leaves. Thus, it can be concluded that postpartum women in TPMB Y Bandung City benefit from using cold cabbage leaf compresses to reduce breast edema.

In this study, the Wilcoxon test results showed that the p-value was 0.000 (<0.05), indicating a significant difference in the intensity of breast pain before and after giving cold compresses from cabbage leaves to postpartum mothers. Based on these results, the Ha is accepted while the H0 is rejected, research indicates that applying cold cabbage leaf compresses to postpartum ladies at TPMB Y Bandung City is beneficial in lessening the severity of their breast pain.

This finding is confirmed by a study conducted by Maulida (2020), This research shows that using a cabbage leaf compress can reduce the increased pain in the breasts. The amino acid glutamine content in cabbage leaves has been proven effective in treating various types of inflammation, involving breast inflammation, for example. In addition, cabbage's high sulfur level is thought to lessen breast pain and inflammation (Maulida, Fitriani and Wahyuni, 2022).

Active substances such as sulforaphane and histidine in cabbage have the ability to inhibit tumor growth, prevent colon and rectal cancer, and remove dangerous chemical compounds such as excessive cobalt, nickel and copper in the body. Apart from that, this content can also improve the body's immune system in fighting cancer. The sulfur amino acid content in cabbage is also useful in reducing high cholesterol levels, calming the nerves, and increasing enthusiasm in external medicine. Cabbage can be applied as a compress by placing the cut leaves on the area that needs treatment (Windyatama and Silvitasari, 2023). Cabbage contains the amino acid glutamine which has antibiotic and anti-inflammatory properties, so it can help loosen small blood vessels to reduce swelling when used as an external compress (Ningrum, Rohani and Haryono, 2023)..

The compress is useful to reduce oedema. Cabbage leaf compress is used to create a vasocontriction cycle for 9-16 minutes, where blood flow decreases so that local oedema can decrease and lympatic drainage can be optimized. (Indrayani and Haliza, 2023). Based on scientific research, cabbage leaves have been proven to reduce breast swelling without causing side effects and can increase the length of breastfeeding. However, it is important not to use cabbage leaf compresses on damaged skin areas such as sore nipples. If the nipple is chafed, place the cabbage leaves around the breast without covering the damaged skin. (Safitri, Wijayanti and Santoso, 2022)..

In this study, the Wilcoxon test showed that the p-value was 0.000 (<0.05), demonstrating a notable difference in breast edema in postpartum moms before and after using cold compresses made of cabbage leaves. These results show that the use of cold cabbage leaf compresses is beneficial in reducing breast swelling in postpartum women in TPMB Y Bandung City, rejecting the H0 and supporting the Ha.

These findings are confirmed by a study conducted by Ervi (2020), the results of this study suggested that applying cold compresses made from cabbage leaves to the participants may help to lessen the degree of breast enlargement and pain experienced by new moms. The amino acids methionine, allylisothiocyanate, sulfur, magnesium, oxylate, and mustard oil are found in cabbage leaves, which have antibiotic and anti-inflammatory properties. These components help expand small blood vessels (vasodilation), which increases outflow and inflow, including fluid trapped in the breasts (Damayanti, Ariani and Agustin., 2020).

Breast swelling is a serious problem that requires treatment, one of which is using a cabbage leaf compress to reduce the symptoms of swelling. Methionine, an amino acid with antibacterial properties, is found in cabbage leaves along with other substances like magnesium, sulfur heteroside, mustard oil, sinigrin (Allylisothiocyanate), and oxylate, which play a role in expanding capillaries to increase blood flow in the area and facilitate the reabsorption of fluid trapped in the area in the breast. The cool gel content in cabbage leaves can relieve heat, which provides comfort to clients, and the cabbage leaves will wilt or mature after use (Safaah, Erna Eka Wijayanti and Umu Qonitun, 2023).

Referring to research findings, the subtraction in pain in mothers after utilizing this cabbage compress could also be influenced by the coldness of the compress given, where, cold compresses can indeed help relieve pain. When the two components are combined, it becomes a good and effective alternative. Cabbage leaves contain a lot of vitamins. Breast pain is caused by inflammation in the mother's breast. Cabbage contains lutamine which can treat inflammation.

## CONCLUSIONS

Before applying cold cabbage leaf compresses (Brassica Oleracea), the majority of postpartum women reported mild breast pain, with 20 participants (66.7%) experiencing this level of

discomfort, while 10 participants (33.3%) reported moderate pain. After the application of the compresses, 2 participants (6.7%) experienced no pain, and 28 participants (93.3%) had only mild pain. This indicates that cool cabbage leaf compresses (Brassica Oleracea) can help postpartum women at TPMB Y Bandung City experience less severe breast pain. Regarding breast swelling, prior to treatment, most postpartum women had moderate swelling, with 17 participants (56.7%) affected, while 13 participants (43.4%) experienced mild swelling. Following the use of cold cabbage leaf compresses, 24 participants (80%) reported no swelling, and 6 participants (20%) had mild swelling. This suggests that cold cabbage leaf compresses (Brassica Oleracea) can help postpartum ladies at TPMB Y Bandung City with their breast edema.

## SUGGESTIONS

Midwives are anticipated to effectively incorporate the use of cold cabbage leaf compresses into their care routines for postpartum women dealing with breast pain and swelling. By acquiring the necessary knowledge and skills, midwives can deliver safe and effective treatments, ensuring the best possible care for postpartum women. Additionally, midwives should offer clear guidance on the proper application techniques and benefits of cold cabbage leaf compresses, enabling mothers to independently use this method at home to alleviate their symptoms.

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## THE EFFECT OF GUIDED IMAGERY AND MUSIC (GIM) RELAXATION ON ANXIETY OF PREGNANT WOMEN FACING LABOR IN PRIMIGRAVIDA PREGNANT WOMENTRIMESTER III

**Nurlinda Ferdiana[1], Nurliyani[2], Anggraini[3], Aryanti Wardiyah[4]**

[1,2,3,4] Diploma IV Program in Midwifery,Faculty of Health Sciences, Malahayati University
Correspondence Email : nurliani@malahayati.ac.id

**ABSTRAK PENGARUH RELAKSASI GUIDED IMAGERY AND MUSIC (GIM) TERHADAP KECEMASAN IBU HAMIL MENGHADAPI PERSALINAN PADA PRIMIGRAVIDA IBU HAMIL TRIMESTER III**

Latar Belakang: Kecemasan merupakan salah satu faktor yang berkontribusi terhadap kemajuan persalinan, 28,7% ibu hamil merasa cemas sehingga perlu dilakukan upaya guna mengurangi kecemasan tersebut. Salah satu contoh terapi relaksasi yang cukup populer dilakukan adalah terapi Guided Imagery yang dibarengi dengan lantunan musik pada ibu hamil. Tujuan penelitian diketahui pengaruh relaksasi guided imagery and music (GIM)) terhadap kecemasan ibu hamil menghadapi persalinan pada ibu hamil primigravida Trimester III di Wilayah Kerja Puskesmas Punggur Kabupaten Lampung Tengah Tahun 2023. Metode Penelitian : Jenis penelitian kuantitatif rancangan penelitian pra eksperimen dengan rancangan one group pre – post test design. Populasi ibu hamil Primigravida Trimester III fisiologis di Wilayah kerja Puskesmas Punggur sebanyak 55 rsponden dengan sampel yang digunakan sebanyak 16 responden menggunakan. proposional random sampling. Penelitian telah dilaksanakan pada bulan Januari - Juli 2023 di Puskesmas Puggur. Pengumpulan data menggunakan kuesioner, analisis data secara univariat, dan bivariat menggunakan (uji t test- paired sample test). Hasil penelitian diketahui rata-rata kecemasan ibu hamil menghadapi persalinan pada ibu hamil primigravidarum trimester III sesudah dilakukan terapi guided imagery and music (GIM) adalah 56,7 dan sesudah dilakukan terapi guided imagery and music (GIM) adalah 34,4. Hasil bivariat diketahui ada pengaruh relaksasi guided imagery and music (GIM) terhadap kecemasan ibu hamil menghadapi persalinan pada ibu hamil primigravida Trimester III di Wilayah Kerja Puskesmas Punggur Kabupaten Lampung Tengah Tahun 2023 (p-value = 0,000). Saran bagi Puskesmas dapat memberikan layanan kesehatan ibu hamil untuk tetap meningkatkan program kelas ibu dan latihan relaksasi Guide Imagery Music dapat dijadikan model atau alternatif intervensi untuk mengelola kecemasan ibu hamil dalam menghadapi persalinan.

Kata Kunci : Kecemasan ibu hamil, relaksasi GIM

### ABSTRACT

Background Anxiety is one of the factors that contribute to the progress of labor, 28.7% of pregnant women feel anxious so efforts need to be made to reduce this anxiety. One example of relaxation therapy that is quite popular is Guided Imagery therapy accompanied by music for pregnant women.

The aim of this research was to know the effect of guided imagery and music (GIM) relaxation on the anxiety of pregnant women facing childbirth in third trimester primigravida pregnant women in the Working Area of Punggur Public Health Center, Central Lampung Regency, in 2023.

Research Methods This type of quantitative research is a pre-experimental research design with a one group pre-post test design. The population of Primigravida Trimester III physiological pregnant women in the working area of the Punggur Public Health Center was 55 respondents with a sample of 16 respondents. Proportional random sampling. The research was carried out in February - July 2023 at Punggur Public Health Center. Data collection used a questionnaire, whereas data analysis was univariate, and bivariate used (t-test paired sample test).

The results showed that the average anxiety of pregnant women facing childbirth in third trimester primigravidarum pregnant women after guided imagery and music (GIM) therapy was 56.7 and after guided imagery and music (GIM) therapy was 34.4. The bivariate results show that there is an effect of guided imagery and music (GIM) relaxation on the anxiety of pregnant women facing childbirth in third trimester primigravida pregnant women in the Working Area of Punggur Public Health Center, Central Lampung Regency, 2023 (p-value = 0.000).

Suggestions for the Public Health Center to provide health services for pregnant women to continue to improve mother class programs and relaxation exercises Guide Imagery Music can be used as a model or alternative intervention to manage pregnant women's anxiety in facing childbirth.

Keywords: Anxiety of pregnant women, GIM relaxation

## INTRODUCTION

**Nurlinda Ferdiana, Nurliyani, Anggraini, Aryanti Wardiyah**

According to the data from the Central Lampung Health Office in 2022, there were a total of 5,750 pregnant women. In the working area of Punggur Public Health Center in 2022, there were 165 pregnant women. Based on the preliminary study conducted by the researcher in January 2023, the number of registered pregnant women in the catchment area of Punggur Public Health Center is 175. Among them, there were 25 pregnant women in the third trimester who were primigravida. Data from Pujokerto Public Health Center in 2022 showed a total of 134 pregnant women, with 8 primigravida pregnant women in the third trimester in January. It is evident from the data that Punggur Public Health Center has a higher number of pregnant women compared to Pujokerto Public Health Center.

If this anxiety is not promptly addressed, it can affect the labor process, resulting in weak uterine contractions, prolonged labor, fetal distress, increased maternal blood pressure leading to maternal and fetal mortality and morbidity (Meihartati T, 2019). Anxiety is one of the contributing factors to the progress of labor, so efforts are needed to reduce this anxiety (Suriyati, 2019).

So far, pregnant women experiencing anxiety have not received specific treatment. Emergency services in antenatal care still consist of treatment based on perceived complaints and visible, palpable, or laboratory results. However, reports of anxiety during pregnancy have not been recorded. Based on this description, efforts are needed to minimize anxiety that occurs during pregnancy, both through pharmacological and non-pharmacological methods (Susilowati, 2019).

Non-pharmacological therapy is a treatment carried out without using medications and can be used to reduce anxiety levels. Some types of non-pharmacological therapy that can be used to reduce anxiety levels include art therapy, information provision, pet therapy, counseling, distraction, aromatherapy, hypnosis, music therapy, meditation, and relaxation. One popular example of relaxation therapy conducted is Guided Imagery therapy accompanied by soothing music for pregnant women (Meihartati T, 2019).

Guided Imagery technique or Guided Imagery has proven to be more effective in promoting relaxation when combined with other relaxation techniques such as breathing and muscle relaxation. Adding the effect of music to relaxation exercises is a strategy to enhance the focus of relaxation exercises, as music can create a relaxed state (Meihartati T, 2019). Guided Imagery and Music (GIM) therapy involves imagining pleasant events or favorite places while accompanied by music using sensory perception, such as visuals, sounds, scents, and emotions, resulting in positive emotional responses that act as enjoyable distractions to divert attention from discomfort or pain (Mustikarani et al., 2017).

In Guided Imagery sessions, mothers are guided with words to stimulate relaxation responses. They imagine a healthy pregnancy, the baby's well-being inside the womb, envision a pleasant childbirth, create a calm and comfortable mental state while releasing the tension and anxiety experienced. This technique significantly induces relaxation (Murni, 2020).

Relaxation through GIM as a form of mind-body intervention can effectively transform the brain's threshold from stress or anxiety into a more adaptive physiological state. Music is easily accepted by the auditory organs, and through the auditory nerves, it is interpreted in the brain. Music can directly affect the emotional brain or limbic system (Murni, 2020).

Based on Murni's research (2018) with the title "The Effect of Guided Imagery And Music (GIM) Relaxation Exercises on Pregnant Women's Anxiety Levels Facing Their First Labor: A Study at Meninting Public Health Center in West Lombok Regency," the results showed that both groups had similar anxiety levels before the treatment (p-value of 0.890). After the treatment, the average anxiety scores in both groups decreased. The research results demonstrated that GIM relaxation exercises in the intervention group and prenatal exercises in the control group were effective in reducing anxiety in first-time mothers facing labor, as indicated by the comparison between anxiety scores before and after the intervention in both groups, with p-values each less than 0.05.

Based on the problems faced by three third-trimester primigravida pregnant women in the working area of Punggur Public Health Center, all three expressed fear and anxiety. Pregnant women experiencing anxiety in the third trimester are anxious about labor. From the mothers' knowledge, they lack understanding about how to cope with and calm themselves from anxiety during labor. Most actions taken by mothers to cope with anxiety include getting enough rest and praying. Additionally, healthcare providers have not previously conducted Guided Imagery and Music (GIM) interventions for anxiety levels before labor in pregnant women. The usual approach is to advise regular check-ups, with no evaluation concerning pregnant women's anxiety levels before labor.

Given the description above, the researcher is interested in conducting a study on the effect of

Guided Imagery and Music (GIM) on anxiety levels before labor in pregnant women.

## RESEARCH METHODS

The research design employed in this study was a quantitative pre-experimental research with a one-group pretest-posttest design. The research was conducted in May 2023 in the working area of Punggur Public Health Center, Central Lampung Regency. The population of this study comprised physiologically Primigravida Trimester III pregnant women in the working area of Punggur Public Health Center for the year 2022, totaling 612 pregnant women. The sample size used in this study was 16 individuals. The dependent variable in this research was the anxiety of pregnant women facing childbirth. The independent variable in this study was the Guided Imagery and Music (GIM) therapy.

## RESEARCH RESULTS

Based on Table 1 above, it is known that out of 16 respondents, 14 (87.5%) were aged between 20-35 years, 8 (50.0%) had completed senior high school education (SMA), and 12 (75.0%) were housewives (IRT).

**Table 1**
**Respondents Characteristics**

| Variable | Category | Intervention | |
| --- | --- | --- | --- |
| | | n | % |
| Age | 20 – 35 ages | 16 | 100.0 |
| Education | Junior high school | 8 | 50.0 |
| | High school | 8 | 50.0 |
| Occupation | Housewife | 12 | 75.0 |
| | Working | 4 | 25.0 |

**Table 2**
**Normality Test of Data**

| Variable | Relaxation GIM | *Shapiro Wilk* | Status |
| --- | --- | --- | --- |
| Pregnant mothers' anxiety | Before | 0.441 | Normal |
| | After | 0.070 | Normal |

Based on Table 2 above, the normality test using Shapiro-Wilk for both the before and after variables in the intervention group yielded significant values > 0.05, indicating that the data is normal.

**Univariate Analysis**

Based on Table 3 above, the average anxiety of pregnant mothers facing childbirth in primigravida pregnant women in the third trimester before guided imagery and music (GIM) therapy is 56.7, with a standard deviation of 9.0, a minimum value of 40, and a maximum value of 70.

**Table 3**
**Average anxiety of pregnant mothers facing childbirth in primigravida pregnant women in the third trimester before guided imagery and music (GIM) therapy**

| Pregnant mothers' anxiety | Mean | SD | Min | Max | N |
| --- | --- | --- | --- | --- | --- |
| Before | 56.7 | 9.0 | 40 | 70 | 16 |

**Table 4**
**Average anxiety of pregnant mothers facing childbirth in primigravida pregnant women in the third trimester after guided imagery and music (GIM) therapy**

| Pregnant mothers' anxiety | Mean | SD | Min | Max | N |
|---|---|---|---|---|---|
| After | 34.4 | 10.2 | 23 | 58 | 16 |

Based on Table 4 above, the average anxiety of pregnant mothers facing childbirth in primigravida pregnant women in the third trimester after guided imagery and music (GIM) therapy is 34.4, with a standard deviation of 10.2, a minimum value of 23, and a maximum value of 58.

**Bivariate Analysis**

Based on the table 5 above, the normality test using Shapiro-Wilk for both the before and after variables in the intervention group yielded significant values > 0.05, indicating that the data is normally distributed. Since the data follows a normal distribution, the appropriate bivariate analysis used is the paired sample t-test.

**Table 5**
**The Effect of guided imagery and music (GIM) relaxation on anxiety of pregnant mothers facing childbirth in primigravida pregnant women in the third trimester in the Working Area of Punggur Public Health Center, Central Lampung Regency**

| Variable | Relaxation GIM | Mean | Different- Mean | P- Value |
|---|---|---|---|---|
| Pregnant mothers' anxiety | Before | 56.7 | 22.3 | 0,000 |
| | After | 34.4 | | |

**DISCUSSION**

The average anxiety level of primigravida pregnant women facing childbirth before undergoing Guided Imagery and Music (GIM) therapy was found to be 56.7, with a standard deviation of 9.0, a minimum value of 40, and a maximum value of 70.

Anxiety is a condition that signifies a threat to one's well-being and is manifested in behaviors such as feelings of powerlessness, incapability, fear, and specific phobias (Nursalam, 2013). Anxiety is associated with a state of worry characterized by feelings of uncertainty, helplessness, and unclear emotional states regarding specific objects. In first pregnancies, this fear is often experienced, particularly in facing childbirth. Psychological stress on a pregnant woman occurs more frequently in the third trimester of pregnancy. Women experiencing anxiety during pregnancy are more likely to experience abnormal labor and even complications that can result in maternal and fetal mortality. Maternal mortality and morbidity remain significant problems in developing countries (Ashari, Pongsibidang, and Mikharunnisai, 2019).

Consistent with the research by Fanratami (2021), the study results showed that the anxiety level of third trimester pregnant women before receiving Guided Imagery and Music (GIM) intervention was 27.27 (8.8863) with a range of 16-44. In Wulandari's study (2019), the analysis of 30 respondents revealed that the majority of respondents experienced moderate anxiety before receiving guided imagery therapy, with 18 respondents (60%).

In the researcher's opinion, the research results indicate that the average anxiety level of pregnant women before intervention is 56.7, with the highest score being 70 points and the lowest being 40 points. According to the researcher's view, there are variations in anxiety levels among pregnant women due to other factors related to anxiety, such as spousal support, good knowledge about pregnancy, positive coping mechanisms that enable the respondent to divert from negative emotions. The researcher believes that the level of anxiety experienced by pregnant women in the third trimester varies depending on their coping strategies to deal with stress or anxiety. A healthy pregnant woman is one who is physically and psychologically healthy. Although a pregnant woman may appear physically well, her psychological state may not necessarily be good. Therefore, providing support and a sense of safety and comfort to pregnant women is essential for a smooth birthing process that ensures the health of both the mother and the baby. The causes of anxiety during pregnancy, especially in the third trimester, include feelings of anxiety and fear of death, birth trauma, guilt or feelings of sin, and real fears such as the fear of the baby being born with disabilities. At the same time, pregnant mothers also

experience apprehension about their baby's birth and the beginning of a new phase in their lives.

Anxiety during pregnancy can also be influenced by education. Education plays a significant role in the development of one's abilities and behaviors. Educated individuals are expected to acquire knowledge. A pregnant woman with higher education is better equipped to manage emotions and reduce feelings of anxiety when facing the physical and emotional changes of pregnancy and childbirth.

According to the researcher's perspective, feelings of anxiety during the third trimester of pregnancy regarding the childbirth process and the condition of the baby to be born not only occur in a woman's first pregnancy but also in subsequent pregnancies. Even if women have prior experience with childbirth, feelings of anxiety will persist. The researcher believes that women about to give birth worry about the fate of their unborn child, fearing pain during labor, being anxious about the health and safety of the baby, and fearing that the newborn may have disabilities.

The average anxiety level of primigravida pregnant women facing childbirth after undergoing Guided Imagery and Music (GIM) therapy was found to be 34.4, with a standard deviation of 10.2, a minimum value of 23, and a maximum value of 58.

According to Sadock as cited in Hawari (2013), anxiety is an excessive worry about things to come (apprehensive expectation). So far, pregnant women experiencing anxiety have not received specific treatment. Services for anxiety in antenatal care still involve treatment based on perceived complaints and observable symptoms, or based on laboratory results. However, anxiety reports during pregnancy have not yet been documented. Referring to this description, efforts are needed to minimize anxiety that occurs during pregnancy, whether through pharmacological or non-pharmacological means (Susilowati, 2019).

Guided Imagery technique or Guided Imagery and Music (GIM) has proven to be more effective in enhancing relaxation when combined with other relaxation techniques such as breath relaxation and muscle relaxation. Incorporating music into relaxation exercises is a strategy to focus the relaxation practice, and music can create a state of relaxation (Meihartati T, 2019). The GIM therapy involves imagining pleasant events or favorite places while accompanied by music, using sensory input such as sights, sounds, scents, emotions, and resulting in a positive emotional response that acts as an enjoyable distraction from discomfort or pain (Mustikarani et al., 2017).

Guided Imagery and Music (GIM) relaxation can effectively change the brain's threshold under stress or anxiety conditions to be more physiologically adaptive. Music is easily accepted by the auditory system, and it enters the brain through the auditory nerve and is interpreted in the limbic system, impacting emotional states (Murni, 2020).

In line with Fanratami's research (2021), the study found that anxiety levels of third trimester pregnant women decreased after receiving the intervention, with an average anxiety level of 18.10 (6.900) and a range of 9-37.

According to the researcher's view based on the research results, it is evident that there was a reduction in anxiety levels of third trimester pregnant women after undergoing Guided Imagery and Music (GIM) therapy, with a decrease of 34.4 points. This means that the intervention successfully lowered anxiety levels in the pregnant women. For primigravida, the experienced pregnancy is their first time, and thus the third trimester can be more anxiety-inducing as the childbirth process draws near. Pregnant women tend to worry about their pregnancy, feel restless, and fear childbirth, especially considering the lack of knowledge that contributes to anxiety. The research results demonstrate that guided imagery can decrease anxiety levels before childbirth in pregnant women. This is because guided imagery teaches focusing on positive imagination that induces a state of relaxation. The data indicates a change in anxiety levels between points 23-47, implying a reduction of anxiety by 12-36 points. This variation in anxiety reduction could be due to individual differences in coping with stress. After the Guided Imagery intervention, a decrease in anxiety is observed. Essentially, this intervention directs individuals to think and imagine positively, stimulating the release of serotonin, a pleasant chemical that reduces anxiety and diminishes the sympathetic response to stress, facilitating self-healing. Guided Imagery also stimulates the pituitary gland to release endorphins, creating feelings of happiness and joy in patients.

**BIVARIATE ANALYSIS**
**The effect of Guided Imagery and Music (GIM) relaxation on the anxiety of primigravida pregnant women facing childbirth in the third trimester in the Punggur Public Health Center, Central Lampung Regency in 2023.**

Based on the statistical test results, a p-value of 0.000 (p-value < α = 0.05) was obtained, indicating that there is an influence of Guided Imagery and Music (GIM) relaxation on the anxiety of primigravida pregnant women facing childbirth in the third

trimester in the Punggur Public Health Center, Central Lampung Regency in 2023.

Anxiety is related to a state of excessive worry, fear, uncertainty, or feelings of powerlessness, and emotions that are not clear about a specific object. Pregnant women experiencing anxiety during pregnancy are more likely to experience abnormal deliveries and complications that can lead to maternal and fetal mortality. Maternal mortality and morbidity remain significant issues in developing countries (Ashari, Pongsibidang, and Mikharunnisai 2019).

Guided Imagery technique or Guided Imagery and Music (GIM) has been proven to be more effective in enhancing relaxation when combined with other relaxation techniques such as breath relaxation and muscle relaxation. Adding the effect of music to relaxation exercises is a strategy to enhance focus and create a state of relaxation (Meihartati T, 2019). Guided Imagery and Music (GIM) therapy involves imagining pleasant events or favorite places accompanied by music using sensory inputs like sights, sounds, scents, emotions, producing a positive emotional response as a pleasant distraction from discomfort or pain (Mustikarani et al., 2017).

In Guided Imagery sessions, the mother is guided through words to stimulate relaxation responses, imagining a healthy pregnancy, the baby in a healthy condition inside the womb, envisioning a pleasant childbirth experience, creating a calm and comfortable state of mind while releasing tension and anxiety experienced by the mother. This technique significantly brings about relaxation effects (Murni, 2020).

Consistent with Wulandari (2019), the results of the Wilcoxon test show a p-value of 0.000 (p-value < 0.05). According to Fanratami's research (2021), bivariate analysis shows a p-value of 0.000. With a p-value ≤ α 0.05, it means there is a difference in average scores before and after the Guided Imagery and Music intervention in relation to the anxiety level of pregnant women. Multivariate analysis results indicate that age and gravidity significantly affect the anxiety of third-trimester pregnant women. In Murni's study (2018), there were significant differences in anxiety scores before and after the intervention in both the intervention group (p = 0.001) and the control group (p = 0.016).

The first pregnancy often brings about a sense of fear, particularly when facing childbirth. The psychological burden on a pregnant woman tends to increase during the third trimester of pregnancy. The anxiety experienced by pregnant women can be attributed to the elevated levels of the hormone progesterone. This hormone can induce feelings of anxiety and emotional disturbance, leading to increased fatigue. Another hormone that increases during pregnancy is adrenaline, which can cause biochemical dysregulation in the body, resulting in physical tension such as irritability, restlessness, inability to focus, and anxiety. Guided Imagery relaxation, as a form of mind-body intervention, effectively modifies the brain's threshold for stress and anxiety, leading to physiological adaptations. Music is easily received by the auditory organs, and through the auditory nerves, it is interpreted in the brain. Music can directly influence the emotional brain or limbic system.

According to the researcher's findings, it's known that the majority of respondents are aged 20-35, accounting for 14 (87.5%) of the total. Psychologically, younger individuals tend to have higher stressor factors, particularly in terms of tolerating perceived pain stimuli, which can increase pain perception or vice versa, where pain can trigger feelings of anxiety or stress. The researcher also notes that a larger number of respondents have a high school education, accounting for 8 (50.0%). A person's educational level is associated with their knowledge about specific issues, and higher knowledge levels lead to a better understanding of the intervention, thus reducing pain levels.

According to researchers, from the obtained results, it was found that more respondents with the occupation of a homemaker (IRT) accounted for 12 (75.0%) of the respondents. According to the researchers, individuals who are not employed tend to have a lighter mental burden compared to those who work. This means that work-related stress, which is one of the factors causing anxiety and exacerbating the perceived pain in an individual, is not experienced. Rather, the experienced anxiety tends to be caused by other factors. On the other hand, for individuals who are employed, anxiety tends to stem from both job-related and household-related burdens. Consequently, the presence of anxiety increases the perceived pain. Employed individuals are more likely to experience stress due to their job-related burdens.

The results of this research demonstrate that guided imagery, trained for each respondent, plays a significant role in reducing the anxiety experienced by pregnant mothers during the third trimester of pregnancy and before childbirth. This therapy has proven to offer many positive benefits to each respondent. As revealed through interviews conducted by the researcher at the end of the sessions, respondents become more relaxed and comfortable, and they gain the belief that their

childbirth will proceed smoothly. According to the researcher, guided imagery can be considered as a therapy to address anxiety experienced by pregnant mothers in the third trimester when facing the birthing process. This therapy is simple, easy to perform, effective, and has no side effects. Therefore, it has the potential to enhance the health status of pregnant mothers and mitigate the adverse effects of anxiety experienced by both the pregnant mother and the fetus.

## CONCLUSION

It can be concluded that the average anxiety level of pregnant primigravida women facing childbirth in the third trimester significantly decreases after undergoing guided imagery and music (GIM) therapy. The initial average anxiety score was 56.7, with a standard deviation of 9.0, a minimum value of 40, and a maximum value of 70. Following the GIM therapy, the average anxiety score decreased to 34.4, with a standard deviation of 10.2, a minimum value of 23, and a maximum value of 58. This reduction in anxiety levels demonstrates the effectiveness of GIM therapy in alleviating anxiety among pregnant primigravida women in their third trimester. The statistical analysis revealed a significant influence of guided imagery and music (GIM) relaxation on reducing anxiety levels in pregnant primigravida women facing childbirth. This was evident from the p-value of 0.000, which is less than the significance level ($\alpha = 0.05$). This indicates a strong impact of the GIM intervention on decreasing maternal anxiety in the third trimester within the working area of Punggur Public Health Center, Central Lampung Regency, in the year 2023.

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Ika Destiana, Nurhasanah, Ria Yulianti Triwahyuningsih

# THE EFFECT OF RED BELT LEAF BOILING (PIPER CROCATUM) ON THE HEALING OF POSTPARTUM MOTHER'S PERINEUM WOUNDS

**Ika Destiana[1], Nurhasanah[2], Ria Yulianti Triwahyuningsih[3]**

[1,2,3]Sekolah Tinggi Ilmu Kesehatan Muhammadiyah Cirebon
Correspondence email: khansa_noer@yahoo.com

**ABSTRAK : PENGARUH REBUSAN DAUN SIRIH MERAH (*PIPER CROCATUM)* TERHADAP PENYEMBUHAN LUKA PERINEUM IBU POSTPARTUM**

Latar Belakang : Ruptur perineum dapat menyebabkan  infeksi jika perawatan perineum tidak dilakukan dengan benar, infeksi yang sering terjadi pada ibu setelah melahirkan adalah infeksi pada perineum. Di provinsi Lampung kasus kematian ibu pada tahun 2020 mengalami kenaikan dibandingkan tahun 2019 yaitu dari 110 kasus menjadi 115 kasus, Penyebab kasus kematian ibu di Provinsi Lampung tahun 2020 disebabkan oleh perdarahan sebanyak 44 kasus, hipertensi sebanyak 24 kasus, infeksi sebanyak 2 kasus, ganguan system peredaran darah sebanyak 9 kasus, gangguan metabolik sebanyak 1 kasus dan lain-lain sebanyak 35 kasus (Profil Kesehatan Provinsi Lampung, 2020). Indonesia pada golongan 25-30 tahun yaitu 24% dan pada umur 32-39 tahun sebesar 62%. Hal ini diperkuat oleh hasil studi dari Pusat Penelitian dan Pengembangan (Puslitbang) Jawa Barat, yang melakukan penelitian pada beberapa provinsi di Indonesia didapatkan bahwa satu dari lima ibu bersalin yang mengalami ruptur perineum akan meninggal dunia dengan proporsi 21,74%.

Tujuan Penelitian : Penelitian ini bertujuan untuk diketahui pengaruh rebusan daun sirih merah (*piper crocatum)* terhadap penyembuhan luka perineum pada ibu postpartum di TPMB Sulastri tahun 2024.. Penelitian dilakukan di TPMB Sulastri Kecamatan Pagelaran Kabupaten Pringsewu, selama bulan Mei – Juli 2023.

Metode penelitian ini merupakan penelitian *true experiment* dengan pendekatan *Posttest Only Control Design*. Penelitian ini akan melihat masing-masing variable dan seterusnya dilakukan uji *Mann Whitney* untuk menjawab hipotesis penelitian, ada pengaruh rebusan daun sirih merah (Piper Crocatum) terhadap penyembuhan luka perineum ibu postpartum di TPMB Sulastri Kecamatan Pegelaran Kabupaten Pringsewu Lampung . Penelitian ini dilakukan pada 16 responden intervensi dan 16 responden kelompok control. Tehnik pengambilan sampel yang digunakan adalah purposive sampling, dalam Teknik ini ibu postpartum yang bersalin di TPMB Sulastri yang mengalami luka perineum diberikan perlakuan air rebusan daun sirih merah dipagi dan malam hari selama 7 hari. Dengan menggunakan instrument skala REEDA. Teknik analisis data yang digunakan adalah analisis univariat dan bivariate dengan bantuan SPSS.

Hasil penelitian menunjukkan nilai rata-rata penyembuhan luka selama 5.00 hari pada kelompok intervensi dan 6.63 hari pada kelompok control. Dengan nilai signifikansi 0,001 (≥ 0,05) dengan correlation Coefficient 1,00.

Kesimpulan penelitian ini adalah terdapat pengaruh secara signifikan dari rebusan daun sirih merah terhadap penyembuhan luka perineum.

Saran: penerapan rebusan daun sirih merah dapat dijadikan alternatif untuk membantu penyembuhan pada kasus luka perineum.

Kata kunci: Luka Perineum, Postpartum, Sirih Merah

## ABSTRACT

Background: Perineal rupture can cause infection if perineal care is not carried out properly. Infections that often occur in mothers after giving birth are infections of the perineum. In Lampung province, maternal mortality cases in 2020 increased compared to 2019, from 110 cases to 115 cases. The causes of maternal mortality in Lampung Province in 2020 were caused by bleeding as many as 44 cases, hypertension as many as 24 cases, infection as many as 2 cases, circulatory system disorders as many as 9 cases, metabolic disorders as many as 1 case and others as many as 35 cases (Health Profile of Lampung Province, 2020). Indonesia in the 25-30 year group is 24% and at the age of 32-39 years is 62%. This is reinforced by the results of a study from the West Java Research and Development Center (Puslitbang), which conducted research in several provinces in Indonesia, it was found that one in five mothers giving birth who experienced perineal rupture would die with a proportion of 21.74%.

Research Objectives: This research aims to determine the effect of boiled red betel leaves (piper crocatum)

on healing perineal wounds in postpartum mothers at TPMB Sulastri in 2024. The research was conducted at TPMB Sulastri, Pagelaran District, Pringsewu Regency, during May – July 2023.

This research method is true experiment research with a Posttest Only Control Design approach. This research will look at each variable and then carry out the Mann Whitney test to answer the research hypothesis, there is an effect of boiled red betel leaves (Piper Crocatum) on healing perineal wounds of postpartum mothers in TPMB Sulastri, Pegelaran District, Pringsewu Regency, Lampung. This research was conducted on 16 intervention respondents and 16 control group respondents. The sampling technique used was purposive sampling, in this technique postpartum mothers who gave birth at TPMB Sulastri who experienced perineal wounds were treated with water boiled with red betel leaves in the morning and evening for 7 days. The data analysis technique used is univariate and bivariate analysis with the help of SPSS.

The results of the study showed that the average value of wound healing was 5.00 days in the intervention group and 6.63 days in the control group. With a significance value of 0.001 (≥ 0.05) with a correlation coefficient of 1.00.

The conclusion of this study is that there is a significant effect of boiled red betel leaves on healing perineal wounds.

Suggestion: applying red betel leaf decoction can be used as an alternative to help heal perineal wounds.

Keywords : Luka Perineum, Pascapersalinan, Sirih Merah

## INTRODUCTION

Perineal tears often occur when a baby is born spontaneously or using equipment or other actions. This tear usually occurs in the midline and usually also widens if the process of the fetal head coming out is too fast, so that sometimes the process of the fetal head coming out must also be performed with an episiotomy. Perineal rupture can cause infection if perineal care is not carried out properly, the infection that often occurs in mothers after giving birth is an infection of the perineum (Maximilianus D.S & Mela A, 2021). The incidence of mothers in labor who experience perineal tears according to the World Health Organization (WHO) maternal mortality rate is very high. Around 287,000 women died during and after pregnancy and childbirth in 2020 in low- and lower-middle-income countries in 2020, and most of them could have been prevented (World Health Organization, 2024). WHO in 2022 the maternal mortality rate is very high, every day around 810 women die from preventable causes related to pregnancy and childbirth. The most common cause of maternal death is postpartum hemorrhage, where every year 14 million or 11.4% of mothers suffer from Hemorrhagic Postpartum (HPP) worldwide. In developing countries, the incidence of HPP is 60% in 100 thousand maternal deaths each year and is caused by poor labor management, especially in the third stage which can cause excessive blood loss (World Health Organization, 2023).

1.609 / 5.000

Nationally, the Maternal Mortality Rate (MMR) in Indonesia has decreased from 305 deaths per 100,000 Live Births (Inter-Census Population Survey, 2015) to 189 deaths per 100,000 Live Births (Population Census, 2020). Based on the results of the 2016 Sample Registration System (SRS) of the Ministry of Health Research and Development, the three main causes of maternal death were hypertension (33.07%), obstetric hemorrhage (27.03%) and non-obstetric complications (15.7%). Meanwhile, based on Maternal Perinatal Death Notification (MPDN) data dated September 21, 2021, the top three causes of maternal death were Eclampsia (37.1%), Hemorrhage (27.3%), Infection (10.4%) with the highest place/location of death being in Hospitals (84%) (Directorate of Nutrition and Maternal and Child Health, 2023). In Lampung province, maternal mortality cases in 2020 increased compared to 2019, from 110 cases to 115 cases. The causes of maternal mortality in Lampung Province in 2020 were caused by bleeding as many as 44 cases, hypertension as many as 24 cases, infection as many as 2 cases, circulatory system disorders as many as 9 cases, metabolic disorders as many as 1 case and others as many as 35 cases (Health Profile of Lampung Province, 2020). Indonesia in the 25-30 year group is 24% and at the age of 32-39 years is 62%. This is reinforced by the results of a study from the West Java Research and Development Center (Puslitbang), which conducted research in several provinces in Indonesia, it was found that one in five mothers giving birth who experienced perineal rupture would die with a proportion of 21.74% (Sri Susilawati et al, 2020).

1.780 / 5.000

The direct cause of maternal death related to childbirth is mainly postpartum hemorrhage which is the main cause, 41% of maternal deaths in Indonesia. The incidence of postpartum hemorrhage

ranges from 5% to 15% where the frequency of postpartum bleeding according to the cause is: uterine atony 50-60%, placental retention 16-17%, placental residue 23-24%, perineal rupture 4-5% and blood disorders 0.5-0.8% (Muslimah Sigalingging, 2018). Perineal rupture is caused by several factors including parity, maternal age, birth spacing, flexibility of the birth canal, newborn weight and labor with action. Perineal rupture generally occurs in primiparous mothers, but not infrequently in multiparous mothers. Primiparous mothers have a high risk of rupture because the perineum is still intact so that it is easy to tear, while multiparous mothers have a low risk of perineal rupture. Causes that can lead to perineal rupture in parity include precipitating labor, excessive straining, edema and fragility of the perineum, flexibility of the birth canal and childbirth with surgery (Misrina & Silvia, 2022). The impact of perineal rupture can cause infection if perineal care is not carried out properly, infections that often occur in mothers after giving birth are infections of the perineum. Causes of infection include exogenous bacteria (germs from outside), autogenous (germs entering from other places in the body), endogenous (from the birth canal itself). The most common cause and more than 50% is anaerobic streptococcus which is actually not pathogenic as a normal inhabitant of the birth canal. Gorback found that 70% of normal cervical cultures could also find pathogenic anaerobic and aerobic bacteria (Sri Susilawati et al, 2020).
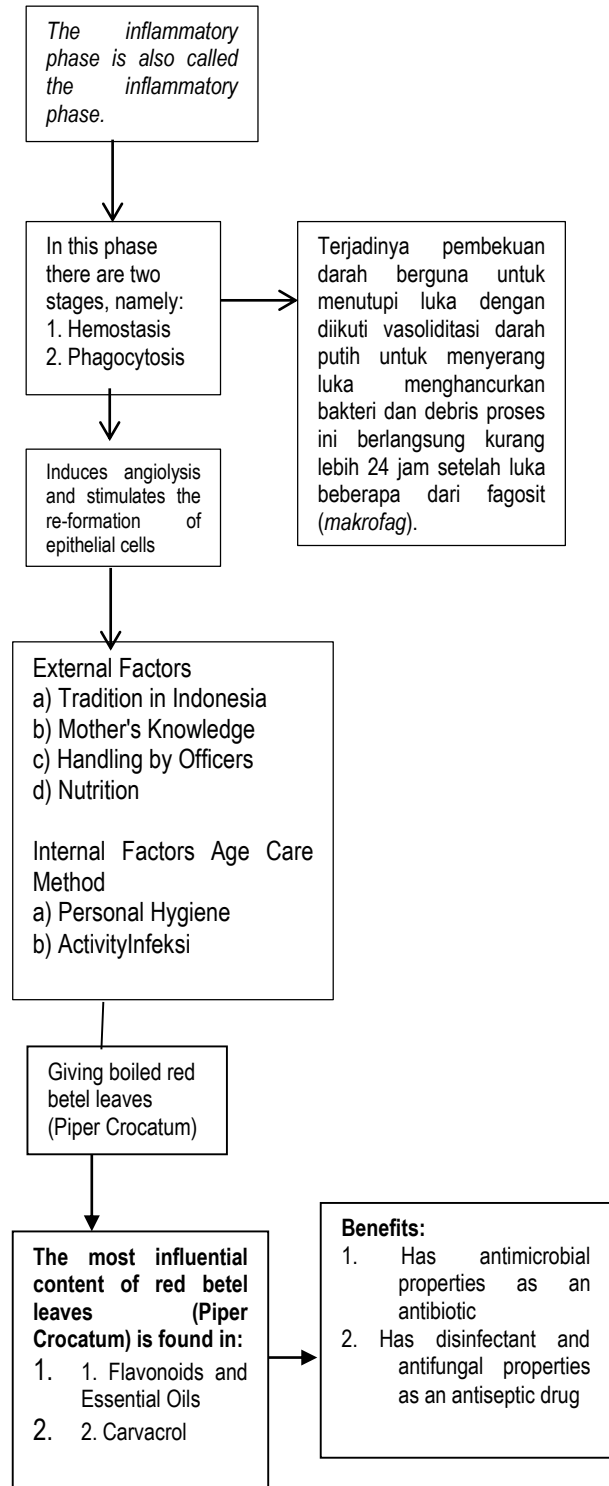
2.187 / 5.000

The healing time for perineal wounds varies. Perineal suture wound care affects the healing time of the wound, in this case the better the perineal care, the faster the perineal wound will heal. Perineal wound care can be done using clean dry techniques and traditional methods. Poor perineal wound care can cause infection, and then become one of the causes of postpartum maternal death. Factors that affect the healing of perineal wounds in postpartum mothers are the characteristics of the mother giving birth, early mobilization, nutrition, type of wound, and method of care (Misrina & Silvia, 2022). Meanwhile, non-pharmacological therapies that can be given to accelerate the healing of perineal wounds are red betel leaves (piper crocatum), aloe vera and calendula (Misrina & Silvia, 2022). Perineal care using red betel leaves (piper crocatum) is carried out by the community from generation to generation, apart from being easy to get, red betel leaves (piper crocatum) are a type of herbal plant and are known as a living pharmacy. The benefits of betel leaves are very diverse, as are the ways of processing them, which are simply boiled or brewed with hot water or

for wiping (Misrina & Silvia, 2022). The content of phytochemical compounds in piper crocatum are flavonoids, saponins, tannins and essential oils. In addition, there are chemical contents in piper crocatum including hydroxychavicol, chavicol, chavibetol, allyprocatecol, carvacrol, eugenol, pcymene, cineole, caryofelen, kadimen estragol, terpenema, and phenyl propada. The chemical content of carvacrol, eugenol and essential oils is useful for antiseptics and antibacterials. piper crocatum has twice the antiseptic power of green betel leaves and its antibacterial substances can kill gram-positive and gram-negative bacteria. Microorganisms that infect wounds will cause delays in wound healing through several different mechanisms. In addition, piper crocatum also contains flavonoids and tannins which have the ability to accelerate the epithelialization period of wound areas, so that it can accelerate wound healing (Hidayat, 2019)

The national postpartum program policy through the Ministry of Health provides policies in accordance with the basis of maternal health during the postpartum period, namely at least 4 visits during the postpartum period. The Minister of Health also regulates in the Minister of Health Regulation Number 1464 / MENKES / PER / X / 2010 concerning "Midwife Practice Permits and Implementation". Article 10 states that midwives provide maternal health services, one of which is during the postpartum period. And through the Decree of the Minister of Health of the Republic of Indonesia No. 381 / MENKES / SK / III / 2007, it establishes a national traditional medicine policy (Kotranas) which aims to encourage the use of natural resources and traditional herbs in a sustainable manner (sustainable use) for use in efforts to improve health services. Research (Siagian et al, 2020) entitled "The Effect of Giving Red Betel Leaf Decoction (Piper Crocatum) on Healing Perineal Wounds in Postpartum Mothers in Tanjung Jati Village, Binjai District, Langkat Regency". The results showed a significant difference (p-value 0.001) in the healing time between the control group and the experimental group. The healing time in the control group was 5.28 ± 0.958 with a Min-Max of 3-6 days, while in the intervention group the average healing time was 3.00 ± 1.372 with a Min-Max of 2-5. A significant difference was found (p-value = 0.001). It can be concluded that there is an effect of giving boiled red betel leaves on the healing of perineal wounds. And if the mother experiences postpartum and gets a stitch wound, the mother feels pain, then when the husband has intercourse with his wife during postpartum, the mother experiences increased pain,

and the stitches on the perineum can come loose due to friction from the husband's genitals. That is why Islam really wants Muslims to be accustomed to physical and mental cleanliness, spiritual and physical purity, purity of heart and body. Allah SWT says which means "And Allah loves those who are clean" (Q.S at-Taubah: 108). Allah also said which means "Allah does not wish to create difficulties for you in practicing your religion, but He wishes to purify you" (Q.S al-Ma'idah: 6).

Based on the results of pre-survey data conducted by researchers at PMB Sulastri, S.ST., M.Kes in March 2024, data was obtained from 14 mothers who gave birth normally, 9 of whom (64.3%) experienced perineal lacerations and heacting was carried out, and after interviews with postpartum mothers at their respective homes, all postpartum mothers cleaned the perineal wound with clean water 2-3 times a day, and did not yet know about perineal wound care using boiled red betel leaves, each postpartum mother who was interviewed said that the wound felt moist and began to heal 10 days after giving birth. The incidence of perineal infection cases in the work area of PMB Sulastri, S.ST., M.Kes in 2023 was 1 person (PMB Sulastri, 2024). Judging from the phenomena that occur to help prevent infections in postpartum mothers due to perineal wounds and considering the many benefits of Red Betel Leaves (piper crocatum), one of which is as a natural antibiotic and antiseptic and is a local plant that is widely found, especially in Pagelaran District.



The inflammatory phase is also called the inflammatory phase.

In this phase there are two stages, namely:
1. Hemostasis
2. Phagocytosis

Terjadinya pembekuan darah berguna untuk menutupi luka dengan diikuti vasoliditasi darah putih untuk menyerang luka menghancurkan bakteri dan debris proses ini berlangsung kurang lebih 24 jam setelah luka beberapa dari fagosit (*makrofag*).

Induces angiolysis and stimulates the re-formation of epithelial cells

External Factors
a) Tradition in Indonesia
b) Mother's Knowledge
c) Handling by Officers
d) Nutrition

Internal Factors Age Care Method
a) Personal Hygiene
b) ActivityInfeksi

Giving boiled red betel leaves (Piper Crocatum)

**The most influential content of red betel leaves (Piper Crocatum) is found in:**
1.   1. Flavonoids and Essential Oils
2.   2. Carvacrol

**Benefits:**
1.   Has antimicrobial properties as an antibiotic
2.   Has disinfectant and antifungal properties as an antiseptic drug

Source: Siagian et al (2020) & Hidayat (2019)

## RESEARCH METHODS

The method in this study is a true experiment study with a Posttest Only Control Design approach. This study looks at each variable and then the Mann Whitney test is carried out to answer the research hypothesis, there is an effect of red betel leaf decoction (Piper Crocatum) on the healing of perineal wounds of postpartum mothers at TPMB

**Ika Destiana, Nurhasanah, Ria Yulianti Triwahyuningsih**

Sulastri, Pegelaran District, Pringsewu Regency, Lampung. This study was conducted on 16 intervention respondents and 16 control group respondents. The sampling technique used was purposive sampling, in this technique postpartum mothers who gave birth at TPMB Sulastri who experienced perineal wounds were given red betel leaf decoction treatment in the morning and evening for 7 days. The data analysis technique used was univariate and bivariate analysis with the help of SPSS.

## RESEARCH RESULTS

**Table 1**
**Respondents' Age Frequency Distribution**

| Respondent Age | Frekuensi (n) | Presentase (%) |
|---|---|---|
| ≤ 20 year | 0 | 0 |
| 20 – 35 year | 32 | 100 |
| >35 year | 0 | 0 |

Based on the table, it can be concluded that the majority of respondents are aged 20-35 years, namely 32 people (100%).

**Table 2**
**Distribution of Activity Frequency**

| Wedding Preparations | Frekuensi | Presentase (%) |
|---|---|---|
| High | 4 | 12,5 |
| Medium | 18 | 56,3 |
| Low | 10 | 31,3 |

Based on the table above, it can be concluded that the majority of respondents have moderate activity, namely 18 people (56.3%).

**Table 3**
**Frequency Distribution of Infections**

| Symptoms | Frekuensi | Presentase (%) |
|---|---|---|
| Infection | 0 | 0 |
| Not Infected | 32 | 100 |

Based on the table above, it can be concluded that all 32 people (100%) did not have any infections.

**Table 4**
**Average perineal wound healing in the control group**

| Group | N | Mean | Min | Max | Std. Deviasi |
|---|---|---|---|---|---|
| Control Group | 16 | 5.00 | 4 | 6 | 0.516 |

**Table 5**
**Average healing of perineal wounds in the Intervention group**

| Group | N | Mean | Min | Max | Std. Deviasi |
|---|---|---|---|---|---|
| Intervention Group | 16 | 6.63 | 5 | 7 | 0.619 |

Based on tables 4 and 5, it can be concluded that there was an increase in the average value between the control group and the intervention group.

**Table 6**
**Results of Shapiro-Wilk Normality Test**

| Variabel REEDA scale | Df | Statistic | Nilai-Sig |
|---|---|---|---|
| Intervention | 16 | 0,697 | 0.000 |
| Control | 16 | 0,648 | 0.000 |

Based on the above, the data distribution is said to be normal, with a p-value of <0.05.

**Table 7**
**The effect of boiled red betel leaves (Piper Crocatum) on healing perineal wounds in postpartum mothers**

| Group | N | Mean Rank | Corelation Coefficient | P value |
|---|---|---|---|---|
| Intervention i | 16 | 9.25 | 1,00 | 0.001 |
| Control | 16 | 23.75 | - | |

Bivariate analysis was conducted to test the research hypothesis on the effect of red betel leaf decoction (piper crocatum) on perineal wound healing in postpartum mothers. Hypothesis testing was carried out by analyzing the difference in mean values in the intervention group and the control group. The test used was the Mann Whitney test because the data was not normally distributed. From the results of the statistical test, it was found that there was an effect of red betel leaf decoction (piper

crocatum) on perineal wound healing in postpartum mothers with a value (p-value) of 0.001 with a mean rank of the intervention group of 9.25 and the control group of 23.75 with a positive Correlation Coefficient of 1.00.

## DISCUSSIONS

Based on univariate analysis data, the average healing of perineal wounds in the intervention group was 5.00 days. Showing that on the 1st day there were still signs of redness, edema, discharge, and approximation, then on the 7th day there were no more signs. The perineum is part of the lower pelvic door between the vulva and anus. The perineum consists of muscles and urogenital fascia, as well as the pelvic diaphragm (Fatimah & Nuryaningsih, 2017). Perineal wounds are wounds caused by tears in the birth canal. Due to tears or episiotomy when giving birth to the fetus (Walyani E. S, 2015). In the wound healing process, there is an inflammatory phase which is a resistance to infection and as a bridge between injured tissue and the growth of new cells. So if the perineal wound is infected because it is not treated properly, the inflammatory phase will be prolonged and inhibit the proliferation phase, so that the wound will take longer to heal (Kurniarum, 2016). Based on research conducted by Futri O Gultom (2018), the time needed for kinetic and metabolic processes in an effort to restore tissue integrity from the inflammatory, proliferation and maturation phases. Normally the healing time is around <7 days postpartum. Another study conducted by (Rostika, Choirunissa, & Rifiana, 2020) entitled "The Effect of Giving Red Betel Leaf Decoction on the Healing Time of Perineal Wounds at the Aster Clinic, Karawang Regency, West Java". The results of this study showed that the average healing time of perineal wounds after being given red betel leaf decoction was 5.80 days. There is an effect of giving red betel leaf decoction on the healing time of perineal wounds at the Aster Clinic, Karawang Regency, West Java. Wound healing occurs about 1 week after the wound appears.However, in this study, researchers only took assessments on the first and seventh days. However, researchers observed every day the wound process until it healed and respondents in the intervention group experienced wound healing in less than 7 days, even the fastest was 4 days. This shows that the use of red betel leaf decoction greatly influences and accelerates the wound healing process.

Based on univariate analysis data, the average healing time of perineal wounds in the control group was 6.63 days. Showing that on day 1 there were still signs of redness, edema, discharge,

and approximation, then on day 7 there were no signs of this. Perineal lacerations that occur during vaginal delivery will require suturing. After suturing, a perineal wound examination needs to be carried out to assess the results of the sutures which may cause problems during the postpartum period. The wound healing criteria used are the REEDA scale. The REEDA scale (Redness, Odema, Ecchymosis, Discharge, Approximation) is a wound healing assessment instrument that contains five factors, namely redness, edema, ecchymosis, discharge, and approximation of the two edges of the wound (Molazem et al, 2014).

Wound healing is a quality of tissue life, it is also related to tissue regeneration (Kurniarum & Kurniawati, 2015). Research (Siagian et al., 2020) entitled "The Effect of Giving Red Betel Leaf Decoction (Piper Crocatum) on Perineal Wound Healing in Postpartum Mothers in Tanjung Jati Village, Binjai District, Langkat Regency". The results of this study for 7 days there was a significant difference (p-value 0.001) in the duration of healing between the control group and the experimental group. The duration of healing in the control group was $5.28 \pm 0.958$ with a Min-Max of 3-6 days. Wound healing in the control group was slightly different from the intervention group, wound care only with clean water was slower to heal. The fastest healing of perineal wounds with clean water was 5 days, although the process was not more than 7 days, but from this study there was a difference between the control group and the intervention group. Based on the results of the Mann Whitney test calculation, the significance value is 0.001 <0.05, so it can be concluded that Ho is rejected and Ha is accepted, thus it can be concluded that there is an effect of boiled red betel leaves (piper crocatum) on the healing of perineal wounds in postpartum mothers at TPMB Sulastri, S.ST., M.Kes with a positive Correlation Coefficient of 1.00, then the two variables have a perfect relationship.

Caring for wounds is something that should not be underestimated and cannot be separated from midwifery practice which includes cleaning wounds, covering, and bandaging wounds, so that it can help the healing process. Wound healing is a quality of tissue life, it is also related to tissue regeneration (Kurniarum & Kurniawati, 2015). Perineal lacerations that occur during vaginal delivery will require suturing. After suturing, a perineal wound examination needs to be carried out to assess the results of the sutures which may cause problems during the postpartum period. The wound healing criteria used are the REEDA scale. The REEDA scale (Redness, Odema, Ecchymosis, Discharge,

Approximation) is a wound healing assessment instrument that contains five factors, namely redness, edema, ecchymosis, discharge, and approach (approximation) of the two edges of the wound (Molazem et al, 2014). Red Betel Leaf (Piper Crocatum) is a native Indonesian plant, Piper Crocotum is a plant that is known to grow in various regions in Indonesia, such as in the Yogyakarta Palace environment and on the eastern slopes of Merapi, as well as in Papua and West Java. Red betel can grow well in shady places and not exposed to too much sunlight (Hidayat, 2019).

According to research by Rini Anggeriani (2018) in the scientific journal multi science health, red betel leaf extract (piper crocatum) is known to have antiseptic and antibacterial effects. Piper Crocatum has antiseptic power twice as high as green betel leaves. The chemical content in piper crocatum extract includes essential oils, hydroxychavicol, chavicol, chavibetol, allylprocatechol, carvacrol, eugenol, p-cymene, cineole, cariofelen, kadimen estragol, terpenes and phenyl propada. Carvacrol is a disinfectant and antifungal as an antiseptic drug. Piper crocatum extract contains flavonoids, alkaloids, tannins and essential oils which are mainly antimicrobial. Research conducted by Siagian et al (2020) entitled "The Effect of Giving Red Betel Leaf Decoction (Piper Crocatum) on Perineal Wound Healing in Postpartum Mothers in Tanjung Jati Village, Binjai District, Langkat Regency". The results of this study for 7 days showed a significant difference (p-value 0.001) in the healing time between the control group and the experimental group. The healing time in the control group was 5.28 ± 0.958 with a Min-Max of 3-6 days, while in the intervention group the average healing time was 3.00 ± 1.372 with a Min-Max of 2-5.

It can be concluded that there is an effect of giving green betel leaf decoction on healing perineal wounds. Another study was conducted by Maximilianus Dasril Samura (2021) which was stated in the Green Princess Community Service entitled "Giving red betel leaf decoction to healing perineal wounds in postpartum mothers at the Fina Sembiring midwife clinic, Medan Polonia district". This study used a Quasi Experiment with the design used was the Pre Post Test Two Group Design, namely to see the differences between the intervention group and the control group. The population in this study was 10 respondents. This study used the Independent Sample T Test. The results showed that there was a difference between before and after being given betel water decoction, namely 1,300 with Std. Deviation 1.031 with 95% CI = 817-1.783 with a p value = 0.000. Red betel leaves (piper crocatum) have an effect on healing perineal wounds in postpartum mothers where boiled red betel leaves (piper crocatum) have content that can accelerate the wound healing process such as flavonoids, essential oils and carvacrol. The content in boiled red betel leaves (piper crocatum) has antimicrobial benefits as an antibiotic, disinfectant and antifungal as an antiseptic drug so that the wound healing process is faster.

## CONCLUSION

There is an effect of red betel leaf decoction (Piper Crocotum) on healing perineal wounds in postpartum mothers.

## SUGGESTIONS

The application of red betel leaf decoction can be used as an alternative to help healing in cases of perineal wounds.

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# THE EFFECTIVENESS OF COUNTER PRESSURE AND EFFLEURAGE MASSAGE ON THE INTENSITY OF LABOR PAIN DURING THE ACTIVE PHASE I

**Dianna[1*], Dwi Oktaviyani[2]**

[1] Poltekkes Kemenkes Pontianak
[2] RSUD dr. Rubini Mempawah
* dianismail78@gmail.com

**ABSTRAK EFEKTIVITAS COUNTER PRESSURE DAN EFFLEURAGE MASSAGE TERHADAP INTENSITAS NYERI PERSALINAN KALA I FASE AKTIF**

Latar Belakang: Nyeri dapat meningkatkan pernapasan dan denyut jantung ibu, dan jika tidak ditangani dengan cepat, bisa berakibat fatal bagi ibu dan bayi. Bidan biasanya menghabiskan lebih banyak waktu dengan pasien yang mengalami nyeri dibandingkan dengan petugas kesehatan lainnya. Peran bidan meliputi mengidentifikasi dan mengatasi penyebab nyeri serta memberikan intervensi yang tepat untuk mengurangi nyeri. Karena itu, penanganan dan pemantauan nyeri pada fase aktif persalinan sangat penting untuk menentukan apakah persalinan akan berlangsung normal atau memerlukan tindakan medis karena komplikasi yang disebabkan oleh nyeri yang sangat hebat.

Tujuan: Menganalisis efektivitas counter pressure dan effleurage massage terhadap intensitas nyeri persalinan kala I fase aktif di RSUD dr. Rubini Mempawah.

Metode: Penelitian ini menggunakan desain kuasi-eksperimen dengan rancangan pretest-posttest nonequivalent control group design. Populasi yang diteliti adalah ibu-ibu yang menjalani persalinan pada fase aktif selama bulan Mei dan Juni, dengan jumlah 78 orang. Sampel penelitian terdiri dari 20 orang, dibagi menjadi 10 orang untuk intervensi counter pressure dan 10 orang untuk intervensi pijat effleurage. Teknik pengambilan sampel yang digunakan adalah consecutive sampling.

Hasil: Terdapat perbedaan signifikan dalam intensitas nyeri persalinan pada fase aktif sebelum dan setelah penerapan metode counter pressure dengan nilai p < 0,004. Begitu pula, terdapat perbedaan signifikan dalam intensitas nyeri sebelum dan setelah penerapan pijat effleurage, juga dengan nilai p < 0,004. Selain itu, efektivitas antara metode tekanan kontra dan pijat effleurage dalam mengurangi intensitas nyeri persalinan pada fase aktif juga berbeda secara signifikan, dengan nilai p < 0,001.

Kesimpulan: Counter pressure lebih efektif daripada effleurage massage dengan nilai post-test counter pressure memiliki selisih nilai median 3 sedangkan nilai post-test effleurage massage memiliki selisih nilai median 2.

Saran: Diharapkan peneliti selanjutnya dapat menerapkan terapi komplementer untuk mengurangi intensitas nyeri persalinan. Penelitian ini diharapkan dapat menjadi referensi untuk studi lebih lanjut mengenai efektivitas metode counter pressure dan pijat effleurage dalam mengurangi intensitas nyeri persalinan pada fase aktif.

Kata Kunci : counter pressure, effleurage, nyeri persalinan

## ABSTRACT

Background: Pain can increase maternal breathing and heart rate, and if not treated quickly, can be fatal for both mother and baby. Midwives usually spend more time with patients experiencing pain than other health workers. The role of midwives includes identifying and addressing the causes of pain and providing appropriate interventions to reduce pain. Therefore, pain management and monitoring in the active phase of labor are very important to determine whether labor will proceed normally or require medical intervention due to complications caused by very severe pain.

Purpose: To analyze the effectiveness of counter pressure and effleurage massage on the intensity of labor pain in the first stage of the active phase at RSUD dr. Rubini Mempawah.

Methods: This study used a quasi-experimental design with a pretest-posttest nonequivalent control group design. The population studied were mothers who underwent labor in the active phase during May and June, totaling 78 people. The study sample consisted of 20 people, divided into 10 people for counter pressure

intervention and 10 people for effleurage massage intervention. The sampling technique used was consecutive sampling.

Results: There was a significant difference in the intensity of labor pain in the active phase before and after the application of the counter pressure method with a p value <0.004. Likewise, there was a significant difference in the intensity of pain before and after the application of effleurage massage, also with a p value <0.004. In addition, the effectiveness between the counter pressure method and effleurage massage in reducing the intensity of labor pain in the active phase also differed significantly, with a p value <0.001.

Conclusion: Counter pressure is more effective than effleurage massage with post-test counter pressure values having a median value difference of 3 while post-test effleurage massage values have a median value difference of 2.

Suggestions; It is hoped that further researchers can apply complementary therapy to reduce the intensity of labor pain. This study is expected to be a reference for further studies on the effectiveness of the counter pressure method and effleurage massage in reducing the intensity of labor pain in the active phase.

Keywords: : counter pressure, effleurage, labor pain

## INTRODUCTION

Pain is an unpleasant experience arising from both sensory and emotional responses to a stimulus that indicates potential or actual harm to body tissues. It is subjective and varies greatly between individuals, influenced by factors such as culture, perception, attention, and other psychological variables. These factors can impact ongoing behavior and motivate individuals experiencing pain to seek relief or stop the discomfort (Apriana et al., 2024; Pratiwi & Diarti, 2019; Wahyuni et al., 2024).

The labor process starts with uterine contractions that induce pain and discomfort in expectant mothers. Most women will experience pain during labor, but the perception of this pain varies individually. Each person reacts differently to the same stimulus based on their own pain threshold. Pain is an unpleasant sensation caused by sensory nerves consisting of two physiological and psychological components. The physiological component is the process of receiving impulses by sensory nerves and channeling them to the central nerve. While the psychological component includes recognition of sensations, interpretation of pain, and reactions to the results of interpretation of pain (Rejeki, 2020) (Damayanti et al., 2021; Rahmi et al., 2024).

At the beginning of labor, contractions may feel like regular low back pain or cramps during menstruation. These initial contractions are usually short and weak. It comes approximately every 15-20 minutes. However, some labor begins with increasingly frequent strong contractions. Many women initially feel pain in the back, then to the front. If his keeps coming but lasts less than 30 seconds, it means that he has just entered the early labor period. In labor, contractions will actually get stronger, longer, and more frequent (Mardiana et al., 2024; PADILA, 2018)

According to the Ministry of the Republic of Indonesia from several studies that have been conducted, about 90% of childbirth is accompanied by pain. Based on the report of the Family Health and Nutrition section of the West Kalimantan Provincial Health Office, the largest maternal mortality rate is in Mempawah regency, which is 350 per 100,000 live births, and the smallest is in Pontianak City at 119 per 100,000 live births (Dinas Kesehatan Provinsi Kalimantan Tengah, 2022). Based on data from Dr. Rubini Mempawah Hospital in 2022, it was recorded that there were 4 maternal deaths, 671 cesarean sections, and as many as 301 mothers gave birth spontaneously.

Based on research by Ebirim, Buowari, and Ghosh in 2012, among 300 mothers in the active phase of labor, 32% reported experiencing severe pain, 57% reported moderate pain, and 11% reported mild pain. In a similar study conducted in the UK, 93.5% of mothers described their labor pain as severe. Additionally, research from Firland found that 80% of women characterized their pain as severe and unbearable or intolerable  (Pratiwi & Diarti, 2019).

Pain is a natural aspect of labor. If not managed effectively, it can lead to additional complications, such as heightened anxiety due to insufficient knowledge and experience with labor. This anxiety increases the production of adrenaline, which causes vasoconstriction and reduces blood flow from the mother to the fetus. As a result, the fetus may experience hypoxia, while the mother might endure prolonged labor and increased systolic and diastolic blood pressure. (Friscila et al., 2023; Hikmah Annisa et al., 2019; Norani et al., 2024).

Pain can lead to increased breathing and heart rate in the mother, and if not addressed promptly, it may result in severe consequences for both mother and baby, potentially leading to death. Therefore, managing and controlling pain during the active phase of labor is crucial for determining whether labor will proceed normally or require medical intervention due to complications from severe pain. Unresolved pain can cause hyperventilation, which increases oxygen demand, elevates blood pressure and heart rate, disrupts blood flow to the placenta, and impairs intestinal motility and urinary function. (Ante et al., 2026; Fitriani, Friscila, et al., 2023; Fitrianingsih et al., 2017).

Midwives spend more time with patients experiencing pain than any other health worker. Midwives play a role in identifying and addressing the cause of pain and providing appropriate interventions to reduce pain so it is very important for midwives to know the right interventions in reducing pain. In general, pain management is grouped into two, namely pharmacological and non-pharmacological pain management (Norhalimatussa'diah et al., 2023; Pratiwi & Diarti, 2019).

Non-pharmacological pain management is a method that is more effective, simpler, and does not cause side effects (Sugianti & Joeliatin, 2019). Non-pharmacological methods for managing labor pain include various techniques such as stimulation and cutaneous massage, effleurage, deep back massage, rubbing massage, firm counter pressure, abdominal lifting, ice and heat therapy, transcutaneous electrical nerve stimulation, distraction, relaxation techniques, acupressure at point L14, acupressure at GB21, lavender therapy, rose effleurage, finger grip relaxation compress, rebozo, progressive relaxation, and the use of a birth ball. These methods are relatively simple and can be easily performed by anyone. The role of midwives is crucial in utilizing these techniques to enhance patient comfort and reduce the intensity of labor pain. (Fitriani, Mauyah, et al., 2023; Maimunah et al., 2023; Utami & Fitriahadi, 2019).

Counter pressure massage involves applying pressure to the sacrum area to block the transmission of pain signals from the uterus to the brain, often using the fists. This technique aims to alleviate tension, stiffness, and restlessness in the body, particularly in the back or sacral region. According to research by Muldaniyah in 2022, counter pressure massage significantly affects pain intensity during the active phase of labor, with a p-value of 0.000, indicating a statistically significant

result (p < 0.05). (Damayanti et al., 2021; Muldaniyah & Ardi, 2022).

Effleurage massage involves gently rubbing the abdomen in sync with the mother's breathing during contractions to help distract her from focusing on the pain. According to Herinawati's research in 2019, effleurage massage significantly reduces pain during the active phase of labor at the Nuriman Rafida Midwife Independent Practice and the Latifah Independent Midwife Practice in Jambi City, with a p-value of 0.000, indicating a statistically significant effect (p < 0.05). (Herinawati et al., 2019).

The results of research conducted by (Paseno et al., 2019) regarding "Counter Pressure Massage and Effleurage Massage are Effective in Reducing Labor Pain During Phase I" indicates that both counter pressure massage and effleurage massage interventions resulted in a reduction in labor pain intensity. However, counter pressure massage was found to be more effective than effleurage massage in decreasing the intensity of labor pain during the active phase I.

In a preliminary study conducted by the author at RSUD dr. Rubini Mempawah in February 2023, involving 10 mothers in labor during the active phase I, the findings were as follows: one person reported mild pain with a score of 2, six individuals reported moderate pain with scores ranging from 4 to 6, and three individuals reported severe pain with scores between 7 and 8. This study differs from previous research by examining the combined effect of counter pressure and effleurage massage on labor pain intensity.

## RESEARCH METHODS

This research is a quantitative study utilizing a quasi-experimental design. It is termed quasi-experimental because it does not constitute a true experiment due to the presence of external variables that may influence the dependent variables. The specific design used is the pretest-posttest nonequivalent control group design. In this design, a pretest is conducted before the treatment is applied, allowing for a more accurate assessment of the treatment's effects by comparing conditions before and after the intervention.

The population in this study is 78 mothers who underwent labor during the first active phase in May and June 2023 in the obstetrics room of Dr. Rubini Mempawah Hospital. Sampling in this study was determined by the author using 2 small sample groups, namely 10 in the counter pressure group and 10 in the effleurage massage group so that the number of respondents in this study was 20 respondents.

The independent variables in this study were Counter Pressure and Effleurage Massage. Counter Pressure is a massage with strong pressure by placing the heel of the hand or flat part of the hand on the sacral region at the time of his appearance until his subsides for 20 minutes every hour during the active phase. Effleurage Massage is a mild and firm abdominal rubbing massage performed when his arises until his subsides for 20 minutes every hour during the active phase. The variables tied to this study are labor pain, which is pain that occurs due to cervical dilation and distension of the lower segment of the uterus, pain felt compared to the strength of contractions and pressure that occurs. Primary data in this study were collected through observation using the Numeric Rating Scale pain measuring instrument.

Data collection techniques in this study were carried out in the following ways:
1. Determine respondents who fit the inclusion criteria
2. Respondents who meet the inclusion criteria are then given information about the research to be carried out
3. The willing respondent then signs informed consent
4. Measuring the intensity of pain in maternity mothers during the active phase before counter pressure treatment is given
5. Counter pressure
6. Measuring the intensity of pain in maternity mothers during the active phase I that has been given counter pressure
7. Write the results of pain intensity in pre-post counter pressure mothers on the Numeric Rating Scale (NRS) observation sheet.
8. After 10 counter pressure respondents were met, researchers intervened on 10 respondents of effleurage massage.

In this study, univariate analysis was used to assess the distribution and average frequency of labor pain intensity during the active phase before and after administering either the counter pressure or effleurage massage method. Bivariate analysis was then conducted to explore the relationship between two variables and evaluate the effectiveness of these massage methods in reducing labor pain intensity during the active phase at RSUD dr. Rubini Mempawah.

Before conducting bivariate analysis, normality tests were performed using the Shapiro-Wilk test, appropriate for samples of fewer than 50 respondents. The test revealed a significance value of <0.05, indicating that the data were not normally distributed. Consequently, the Wilcoxon test was used for data analysis, which showed that the pretest-posttest results (p-value < 0.05) indicated a significant effect of both counter pressure and effleurage massage on labor pain intensity during the active phase I. After assessing the impact of each intervention, the researchers compared the effectiveness of counter pressure and effleurage massage using the Mann-Whitney test, finding a significant difference in effectiveness between the two methods (p-value < 0.05).

## RESEARCH RESULTS

**Table 1**
**Frequency Distribution Based on Respondent Characteristics**

| Characteritics | n | % |
|---|---|---|
| Age | | |
| <20 | 3 | 15 |
| 20-35 | 14 | 70 |
| >35 | 3 | 15 |
| Employment | | |
| housewives | 19 | 95 |
| employee | 1 | 5 |
| Education | | |
| Elementary | 5 | 25 |
| High school | 14 | 70 |
| College | 1 | 5 |
| Parity | | |
| Primi gravida | 10 | 50 |
| Multi gravida | 8 | 40 |
| Grande multi gravida | 2 | 10 |

Based on Table 1, the distribution of respondents is as follows: 3 respondents (15%) are under 20 years old, 14 respondents (70%) are between 20 and 35 years old, and 3 respondents (15%) are over 35 years old. The optimal reproductive age for a mother is between 20 and 35 years, as ages outside this range can increase the risks associated with pregnancy and childbirth. Women under 20 may face risks because their reproductive organs are not fully developed and their psychological maturity is insufficient, which can lead to obstetric complications and higher maternal and perinatal mortality rates.

The number of respondents based on the characteristics of the number of parity as many as 10 people (50%) are primigravida, 8 people (40%) are multigravida, and 2 people (10%) are grande multi

gravida pregnancies. In grande multi gravida has a greater risk than primigravida or multigravida such as anemia, malnutrition, sagging in the abdominal wall which can cause bleeding during labor and after delivery.

The results of the univariate analysis in the table 2 above based on counter pressure treatment of labor pain intensity during the active phase I, showed that respondents before counter pressure treatment with pain intensity 6 as many as 4 people (40%), pain intensity 7 as many as 1 person (10%), pain intensity 8 as many as 3 people (30%), and pain intensity 9 as many as 2 people (20%). While the number of respondents after counter pressure treatment with pain intensity 3 was 3 people (30%), pain intensity 4 was 2 people (20%), and pain intensity 5 was 5 people (50%).

The results of univariate analysis based on effleurage massage treatment on labor pain intensity during the active phase I, showed that respondents before the treatment of effleurage massage with pain intensity 6 as many as 2 people (20%), pain intensity 7 as many as 2 people (20%), and pain intensity 8 as many as 6 people. While the number of respondents after effleurage massage treatment with pain intensity 5 was 4 people (40%), pain intensity 6 as many as 4 people (40%), and pain intensity 7 as many as 2 people (20%).

**Table 2**
**Distribution of Respondents' Frequency Based on Counter Pressure and Effleurage Massage Treatment on the Intensity of Labor Pain During the Active Phase I**

| Categories Labor Pain | n | % |
|---|---|---|
| Counter Pressure | | |
| Before | | |
| 6 | 4 | 40 |
| 7 | 1 | 10 |
| 8 | 3 | 30 |
| 9 | 2 | 20 |
| After | | |
| 3 | 3 | 30 |
| 4 | 2 | 20 |
| 5 | 5 | 50 |
| Effleurage Massage | | |
| Before | | |
| 6 | 2 | 20 |
| 7 | 2 | 20 |
| 8 | 6 | 60 |
| After | | |
| 5 | 4 | 40 |
| 6 | 4 | 40 |
| 7 | 2 | 20 |

**Table 3**
**Data Normality Test Before and After Counter Pressure and Effleurage Massage Treatment**

| Variabels | Saphiro-Wilk | |
|---|---|---|
| | p-value | description |
| Before Counter Pressure | 0.034 | Not normally distributed |
| After Counter Pressure | 0.004 | Not normally distributed |
| Before Effleurage Massage | 0.001 | Not normally distributed |
| After Effleurage Massage | 0.025 | Not normally distributed |

It can be concluded that the data is abnormally distributed. So that both pre-test and post-test groups were analyzed with the Wilcoxon test.

Based on the table above, it can be seen that there is a significant effect before and after counter pressure with a p-value of 0.004<0.05, as well as the effleurage massage group, there is an influence before and after effleurage massage with a p-value of 0.004<0.05. Meanwhile, to test the difference in the effectiveness of post-test counter pressure and effleurage massage using the Mann-Whitney test.

In the counter pressure group, the lowest value of labor pain intensity before intervention was 6 and the highest value was 9. After counter pressure was carried out, there was a significant decrease in pain intensity with the lowest value of 3 and the highest value of 5. While the lowest value before effleurage massage is 6 and the highest value is 8. After effleurage massage there was a decrease in the intensity of labor pain with the lowest value of 5 and the highest value of 7.

**Table 4**
**Analysis of the Effect of Counter Pressure and Effleurage Massage on the Intensity of Labor Pain During the Active Phase I**

| Variabels | Median | SD | Min | Max | *p-value* |
|---|---|---|---|---|---|
| *Counter Pressure* | | | | | |
| Pre-Test | 7.50 | 1.252 | 6 | 9 | 0.004 |
| Post Test | 4.50 | 0.919 | 3 | 5 | |
| *Effleurage Massage* | | | | | |
| Pre-Test | 8.00 | 0.843 | 6 | 8 | 0.004 |
| Post Test | 6.00 | 0.789 | 5 | 7 | |

**Table 5**
**Differences in the Effectiveness of Counter Pressure and Effleurage Massage on the Intensity of Labor Pain During the Active Phase I**

| Variabels | Mean | SD | Mean Difference | p |
|---|---|---|---|---|
| *Counter Pressure*  Post Test | 4.50 | 0.919 | 3.00 | 0.001 |
| *Effleurage Massage* Post Test | 6.00 | 0.789 | 2.00 | |

Based on the table above, it can be seen that the p-value is 0.001<0.05, with the median value in the counter pressure group with a difference of 3.00 and in the effleurage massage group with a difference of 2.00. Based on these results, it can be concluded that there is a difference in effectiveness between counter pressure treatment and effleurage massage, where in the counter pressure treatment group proved to be more effective in reducing the intensity of labor pain during the active phase I. These results show that the null hypothesis (H0) is rejected and the alternative hypothesis (Ha) is accepted.

## DISCUSSIONS
**The effect of counter pressure on the intensity of labor pain during the active phase I.**

Based on the study results, the median pain intensity value for the group receiving counter pressure treatment was 7.50 before the intervention and 4.50 after the intervention. Data analysis revealed a significant effect of counter pressure on reducing labor pain intensity during the active phase I, with a p-value of 0.004.

Counter pressure is a technique designed to alleviate labor pain. It involves applying a consistent, firm pressure to a specific area in the lower back during contractions, typically using a fist, the base of the palm, or another strong object. Alternatively, pressure can be applied to both side thighs using the hands, and this technique is usually performed by a birth attendant or healthcare provider. (Rejeki, 2020)

The counter pressure technique is applied to the lumbar region, where the sensory nerves of the uterus and cervix converge with the sympathetic nerves of the uterus, traveling through the spinal cord from the thoracic nerves (T10-T12) to lumbar nerve 1. This method blocks pain impulses by stimulating large-diameter nerves, which helps close the gate control mechanism and prevents pain signals from reaching the cerebral cortex. (Mander, 2004).

Based on research conducted by (Muldaniyah & Ardi, 2022) on the impact of counter pressure massage on pain intensity during the first active phase of labor at the Jumpandang Baru Makassar Health Center, the pain levels before the intervention showed that 25 respondents (78.1%) experienced severe pain, while 7 respondents (21.9%) reported mild pain. After the counter pressure massage, the majority of respondents reported mild pain, with 28 individuals (87.5%) experiencing this level, and only 12.5% reported severe pain. The McNemar test results indicated a p-value of 0.000, which is less than 0.05, demonstrating a significant effect of counter pressure massage in reducing pain intensity during the active phase of labor.

Applying the counter pressure massage technique helps close the pain gate by blocking the transmission of pain signals to the spinal cord and brain. Additionally, the strong pressure from this technique stimulates the release of endorphins at the synapses of spinal cord and brain cells, which inhibits the transmission of pain messages and leads to a reduction in the perception of pain (Muldaniyah & Ardi, 2022)

The results of this study agree with research conducted by (Hazma et al., 2023) which investigated the impact of counter pressure on labor

pain intensity during the active phase I at the Tanjungsari Natar Health Center, South Lampung Regency. Their study also found a significant effect of counter pressure on labor pain, with a p-value of 0.000, indicating a substantial reduction in pain levels during this phase.

The results of this study are also in line with research conducted by (Novitasari, 2019) which found that applying counter pressure massage with a fist to the mother's lower back for 20 minutes led to a reduction in pain levels. In Novitasari's study, respondents showed a decrease in pain scale, with 4 respondents (40%) experiencing moderate pain and 6 respondents (60%) reporting mild pain after the intervention. This indicates a significant reduction in pain levels during the active phase I before and after the counter pressure massage technique was applied to maternity mothers at the Bergas Health Center.

The counter pressure technique is highly effective for use at the end of labor. It involves applying pressure to the lower back or sacrum area of the laboring mother using a fist for 20 minutes, which helps alleviate pain during contractions. This method targets the innervation in the lower back to provide relief from labor pain (Novitasari, 2019)

Another similar study is a study conducted by (Puspitasari et al., 2020) which demonstrated a significant reduction in labor pain intensity following a counter pressure massage on the sacral vertebra. In this study, continuous, firm pressure was applied using the palm of the hand for 10-15 minutes during contractions, effectively alleviating pain.

**The effect of effleurage massage on the intensity of labor pain in the first active phase.**

Based on the results of the effleurage massage group research before the intervention was given a median value of 8.00 and after the effleurage massage intervention a median result of 6.00 was obtained. Based on the results of data processing conducted by researchers, it was concluded that there was an influence before and after effleurage massage was carried out on maternity mothers during the active phase I with a p-value of 0.004.

Effleurage is a gentle massage technique applied using the fingertips, typically on the abdomen, in sync with the mother's breathing during contractions. This method can be performed by the mother herself or a labor support person. Its primary purpose is to help distract the mother from the pain of contractions. Effleurage operates on the Gate Control Theory, which aims to "close the gate" and block the transmission of pain signals to higher

centers of the central nervous system (Herinawati et al., 2019)

According to research conducted by (Herinawati et al., 2019) at the Independent Practice of Midwives Nuriman Rafida and the Independent Practice of Midwives Latifah Jambi City in 2019 conducted on 30 respondents, after effleurage massage for 20 minutes in each contraction there was a significant decrease in labor pain during the I active phase. As many as (57%) respondents felt mild pain, (33%) felt moderate pain, and (10%) felt severe pain.

Therefore, it can be concluded that effleurage massage effectively closes the gate or inhibits pain impulses, resulting in a reduced amount of pain reaching the central nervous system. When both tactile and pain stimuli are present simultaneously, the tactile sensations can travel to the brain and effectively close the internal pain gates. This process, combined with the distraction provided by the massage or touch, can also enhance the production of endorphins in the descending control system and promote muscle relaxation.

The results of this study are in line with research conducted by (Rosita & Lowa, 2020) which examined the impact of deep back and effleurage massages on labor pain reduction during the active phase I at the Jumpandang Baru Makassar Health Center. Their study demonstrated that a 30-minute effleurage massage effectively reduced labor pain intensity. Effleurage massage proves effective in alleviating labor pain by stimulating and regulating the body, enhancing blood circulation, and ensuring that oxygen, nutrients, and waste products are efficiently transferred from the mother to the placenta. Additionally, it helps relax tension, lower emotions, and reduce pain during labor.

The results of this study are also in line with research conducted by (Novitasari, 2019) esearch on the comparative effectiveness of effleurage and counter pressure massages for labor pain during the active phase I at the Bergas Health Center. Novitasari's study found a significant reduction in pain scale following the application of effleurage massage. This is attributed to the fact that massage can make mothers feel more refreshed, relaxed, and comfortable during labor, serving as a distraction and altering their perception of pain. Additionally, the effleurage massage can be administered by family members, particularly the husband, which can enhance the mother's sense of support and trust through the comforting touch of her loved ones.

Another similar study is a study conducted by (Purwandari et al., 2022) titled "Effleurage Massage by Husband on The Level of Pain in Maternal When

The I Phase is Active" found a p-value of < 0.05. This indicates a significant difference in pain levels after administering effleurage massage to maternity mothers during the active phase I at the Sifra Lawongan Maternity Clinic.

**The difference in the effectiveness of counter pressure and effleurage massage on the intensity of labor pain during the active phase.**

Based on the results of research on the effectiveness of counter pressure and effleurage massage on the intensity of labor pain during the first active phase, it can be seen that the p-value is 0.001<0.05, with the median value in the counter pressure group with a difference of 3.00 and in the effleurage massage group with a difference of 2.00. Based on these results, it can be concluded that there is a difference in effectiveness between counter pressure treatment and effleurage massage, where in the counter pressure treatment group proved to be more effective in reducing the intensity of labor pain during the active phase I. These results show that the null hypothesis (H0) is rejected and the alternative hypothesis (Ha) is accepted.

The results of this study are in line with research conducted by (Paseno et al., 2019) which demonstrated that both counter pressure and effleurage massages are effective in reducing labor pain. The study revealed a significant difference in pain intensity before and after the application of counter pressure. Although both techniques are beneficial for alleviating pain, counter pressure is more effective because it works more quickly to block pain. This technique rapidly inhibits or reduces the nerve pathways responsible for transmitting pain sensations, leading to a more substantial decrease in the intensity of pain experienced by the mother.

The data above are the same results as the results of a study (Saribu et al., 2021) which compared the effectiveness of effleurage and counter pressure massages on labor pain intensity in parturient mothers. The study indicated that counter pressure is more effective than effleurage, with an average pain intensity score of 30.31 for counter pressure compared to 42.69 for effleurage. Counter pressure reduces labor pain by applying direct pressure, which alleviates the pain experienced. This technique helps to minimize strain on the pelvic region and the iliac sacro by mitigating internal compression from the fetal head.

Counter pressure is more effective in managing labor pain during the active phase I. Applying counter pressure techniques can effectively close the pain gate, preventing pain signals from reaching the spinal cord and brain. Additionally, the firm pressure used in this technique can stimulate the release of endorphins at the synapses in the spinal cord and brain, which helps inhibit the transmission of pain signals, thereby reducing the overall sensation of pain. (Rejeki, 2020).

This research is also in line with research conducted by (Novitasari, 2019) which examined the effectiveness of effleurage and counter pressure massages on labor pain during the active phase I at the Bergas Health Center. The study revealed that a t-independent test produced a calculated t-value of 0.580 and a p-value of 0.005. Since the p-value is less than 0.005, it indicates that counter pressure massage is significantly more effective than effleurage massage in reducing labor pain during the active phase I for maternity mothers at the Bergas Health Center.

The results indicated that before receiving either effleurage or counter pressure massage, respondents reported moderate pain. After the counter pressure massage, there was a noticeable reduction in pain levels, with respondents experiencing mild pain. This improvement is attributed to the counter pressure massage's effectiveness in alleviating intense pain and providing a more comfortable experience during and between contractions.

**CONCLUSION**

Counter pressure is more effective than effleurage massage with post-test counter pressure values having a median value difference of 3 while post-test effleurage massage values have a median value difference of 2.

**SUGGESTION**

It is anticipated that future researchers will explore complementary therapies to further alleviate labor pain, and that this study will serve as a valuable reference for investigating the effectiveness of counter pressure and effleurage massages in managing pain during the active phase of labor.

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**Alyxia Gita Stellata, Nispi Yulyana, Eliana, Tonny Cortis Maigoda**

# THE EFFECTIVENESS OF GIVING JATROPHA CURCAS L. SAP SOLUTION TO THE FREQUENCY OF  TODDLER DIARRHEA

**Alyxia Gita Stellata[1], Nispi Yulyana[2], Eliana[3], Tonny Cortis Maigoda[4]**

[1]Department of Midwifery, Health Polytechnic  of Health Ministry Padang, Indonesia
[2,3]Department of Midwifery, Health Polytechnic  of Health Ministry Bengkulu, Indonesia
[4]Department of Nutrition, Health Polytechnic  of Health Ministry Bengkulu, Indonesia
*Email correspondence:  alyxiastell@gmail.com

**ABSTRAK** : **KEEFEKTIVITASAN PEMBERIAN LARUTAN GETAH JARAK PAGAR (JATROPHA CURCAS L.) TERHADAP FREKUENSI DIARE BALITA**

Latar Belakang: Diare adalah penyebab kematian kedua (14%) terbanyak di Indonesia untuk anak di bawah 5 tahun. Pengobatan non-medis yang sering digunakan pada penderita diare adalah pemanfaatan zat "Tanin" pada getah jarak pagar.

Tujuan: penelitian ini adalah untuk menilai efektivitas larutan getah jarak pagar terhadap frekuensi  diare balita tanpa dehidrasi dibandingkan dengan zink.

Metode: Metode penelitian quasi eksperimental, populasi balita usia 2-4 tahun dengan diare akut tanpa dehidrasi di wilayah kerja puskesmas sukamerindu. Sampel intervensi sebanyak 15 orang dan kontrol 15 orang yang diambil secara accidental sampling. Penelitian  berlangsung ditanggal 2-28 Januari 2019 di Kota Bengkulu. Analisis penelitian menggunakan uji  Wilcoxon dan Mann-Whitney.

Hasil: Perbedaan rata-rata frekuensi BAB yang mengkonsumsi larutan getah jarak pagar adalah 4 sedangkan pada kelompok  zink perbedaan rata-rata frekuensi diare adalah 0.27. Sehingga perbedaan rata-rata frekuensi diare antarkedua kelompok  adalah 4 dengan nilai p=0.002.

Kesimpulan: Larutan getah jarak pagar lebih efektif untuk mengurangi frekuensi buang air besar (BAB) balita dengan diare akut  tanpa dehidrasi dibandingkan dengan zink.

Saran: Diharapkan getah dari tanaman Jathropha L. Curcas dapat dimanfaatkan untuk mengatasi diare pada balita  karena sudah terbukti efektif untuk mengurangi frekuensi diare akut tanpa dehidrasi.

Kata kunci: Diare;  getah jarak pagar; zink; frekuensi BAB; balita

**ABSTRACT**

Background: Diarrhea is the second leading cause of death (14%) in Indonesia for children under five years. Non-medical treatment often used in patients with diarrhea is using "tannin" substances in the sap of Jatropha curcas.

Purpose: This study aimed to assess the effectiveness of Jatropha curcas sap solution on the frequency of defecation diarrhea in toddler without dehydration compared with zinc.

Method: Quasi-experimental research method, the population of children aged 2-4 years with acute diarrhea without dehydration in the working area of Sukamerindu Public Health Center. The intervention sample was 15 people, and the control group of 15 people was taken by accidental sampling. The research conducted on January 2-28, 2019, in Bengkulu City—research analysis using Wilcoxon and Mann-Whitney test.

Results: The average frequency difference of defecation in the Jatropha Curcas L. sap solution group was 4, while the zinc group was 0.27. So the difference in the average frequency of diarrhea between the two groups was 4 with a p-value = 0.002.

Conclusion: Jatropha Curcas L. sap solution is more effective in reducing the frequency of defecation in toddlers with acute diarrhea without dehydration than zinc.

Suggestion: It is expected that the sap from the Jathropha L. Curcas plant can be used to treat diarrhea in toddlers because it has been proven effective in reducing the frequency of acute diarrhea without dehydration.

Keywords: Diarrhea; Jatropha Curcas L. sap; zinc; defecation frequency; toddler

## INTRODUCTION

In 2012, the World Health Organization (WHO) and the World Bank reported that around 6.6 million children died before five. The under-five mortality rate in Indonesia is still relatively high at 29 per 1,000 KH compared to neighboring countries such as Malaysia and Singapore, which are already below ten deaths per 1,000 KH. The most common causes of death for children under five years of age are pneumonia morbidity (14%), diarrhea (14%), other infections (9%), malaria (8%), and non-communicable diseases (4%) (WHO, 2017).

Diarrhea became one of the causes of children's death. One way to deal with acute diarrhea without dehydration is with medical and non-medical therapy. Medical therapies often used to treat diarrhea are ORS, zinc, and intravenous therapy (Direktorat Jenderal Pengendalian Penyakit dan Penyehatan Lingkungan, 2011). While non-medical treatments often used by the community are tea, honey, ginger, guava, and Jatropha (Afrida & Sanova, 2020; Arranury, 2023; Putri et al., 2023; Suntara, 2022; Utshudi et al., 2022; Fajrina et al., 2016). Current non-medical treatment often used by the community to reduce the frequency of defecation in diarrhea sufferers is to utilize the substance "tannins" in certain plants. Tannins are compounds widely found in plants with astringent taste in fruits, leaves, and stems and their sap which can reduce gastrointestinal motility. One type of plant that contains tannins is Jatropha (Jatropha Curcas L.) (Purnomo, 2013). Jatropha Curcas L. sap contains 37% more tannin levels than tea's 5-15% tannin content (Fajrina et al., 2016). According to previous research, there are differences in the frequency of defecation before and after administration of Jatropha Curcas L. sap solution in patients with acute with a p-value of (0.000). Tannins in Jatropha Curcas L. sap have a unique compound and are very easily absorbed by the intestinal lumen to provide a fast reaction in the body (Purnomo, 2013).

Data from the Bengkulu City Health Profile 2018 from 20 Puskesmas located in Bengkulu City in January-August, Sukamerindu Health Center, is the Puskesmas with the most findings of diarrheal diseases under five, 122 (16.5%) of 778 cases. The determination of this diarrhea is also diarrhea with specifications without dehydration and mild/moderate dehydration. According to data obtained on 3-18 September 2018, there were 13 visits by sick toddlers with diarrhea at this health center, including eight children with diarrhea without dehydration (61. 3%) and five toddlers (38.46%) had mild/moderate dehydration diarrhea and the treatment given was ORS and zinc; and zinc alone for diarrhea without dehydration. The second highest incidence of diarrhea was in the Sawah Lebar Health Center area of 71 (9.13%) cases, the third highest was in the Anggut Atas Public Health Center area of 63 (8.1%) cases, and the lowest diarrhea case was found in the Beringin Raya Public Health Center with 0 (0%) cases (Profil Kesehatan Kota Bengkulu 2018, 2018). Therefore, based on the statement above, this study aimed to assess the effectiveness of Jatropha curcas sap solution on the frequency of defecation diarrhea in toddler without dehydration compared to zinc in Sukamerindu Public Health Center working area in Bengkulu City.

## RESEARCH METHODS

This research method used a quasi-experiment with a pretest-posttest control group design. The study participants were 30, with 15 in the intervention group and 15 in the control group. The inclusion criteria in this study were toddlers willing to become respondents aged 2-5 years. The intervention was carried out on the second day of diarrhea, toddlers with diarrhea caused by food, diarrhea < 7 days, and living permanently at the study site. Samples were taken by accidental sampling method. The research occurred on January 2-28, 2019, in the Sukamerindu Public Health Center working area in Bengkulu City.

The intervention group in this study was treated using a solution of Jatropha Curcas L. sap added with a surplus of grapes at a dose of 1 time per day, as much as 100 ml, which was then assessed the next day directly. The control group used zinc following the standard guideline procedure for toddler diarrhea. The Jatropha Curcas L. sap solution is 100 ml with a composition of 0.1 Jatropha Curcas L. sap taken using a syringe and 100 ml of boiled water. Stir all the ingredients in the glass evenly until it becomes a homogeneous solution. The solution that has been made is then drunk on toddlers with acute diarrhea without dehydration. If the child does not want to drink it all at once, give it a little at a time using a spoon until the solution runs out. Use up as soon as the solution is finished. The administration of Jatropha Curcas L. sap and zinc solution was carried out on the second day of diarrhea and continued by measuring the difference in the frequency of diarrhea before being given the solution and after one day of consuming the solution as well as in the control group who were observed after one-day consuming zinc.

The study results were implemented with a univariate analysis of each independent and dependent variable. In the univariate analysis, homogeneity (equivalence) and normality tests were

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carried out between the intervention and control groups. Because the data were not normally distributed, the Wilcoxon and Mann-Whitney tests were used. The presentation was continued with bivariate analysis, which aims to determine the difference in the frequency of defecation of toddlers before and after being given a solution of Jatropha Curcas L. sap and zinc using the Wilcoxon test. Also tested was the effectiveness of Jatropha Curcas L. sap solution on the frequency of defecation in acute diarrhea without dehydration which was analyzed using the Mann-Whitney test.

## RESEARCH RESULTS

This study was conducted to determine the difference in effectiveness of Jatropha curcas sap solution on the frequency of defecation diarrhea in toddler without dehydration compared with zinc with 30 respondents.

### Univariate Analysis

Distribution of respondent characteristics and frequency of defecation diarrhea in toddler without dehydration.

**Table 1**
**Frequency Distribution of Characteristics of Age, Gender, Parents' Education, and Parents' Occupation**

| Responden Characteristic | Jathropha Curcas L. Sap Frequency (n=15) | Zinc Frequency (n=15) | P-value |
|---|---|---|---|
| Age (years) | | | |
| 2 | 12(80%) | 8(53%) | |
| 3 | 2(13 %) | 4(27%) | 0.028 |
| 4 | 0(0%) | 2(13%) | |
| 5 | 1(7%) | 1(7%) | |
| Gender | | | |
| Male | 3(20%) | 7(47%) | 0.611 |
| Female | 12(80%) | 8(53%) | |
| Parents's Education | | | |
| High: SHS-University | 11(73.3%) | 12(80%) | 0.533 |
| Low: ES-JHS | 4(26.7%) | 3(20%) | |
| Parents's occupation | | | |
| Working | 5(33%) | 4(27%) | 0.875 |
| Not working | 10(67%) | 11(73%) | |

Note: SHS=Senior High School ES=Elementary School. JHS= Junior High School

Table 1 shows that In the two age groups, most research subjects were two years old, as many as 12 (80%) people in the intirvention group and 8 (53%) people in the control group. In both groups, most were female, 12 (80%) people in the intervention group and 8 (53%) people in the control group. Most of the parents in both groups had higher education (80%) but did not work (73%). The results of the univariate analysis describe the distribution of respondents based on the demographic characteristics of the respondents, age, gender, education, and mother's occupation. Characteristics of respondents according to age, most of the respondents are in the age group of 2 years (67%), so for further research, they can be grouped at the same age to obtain homogeneous results. According to gender, most respondents were women (67%; p=0.611). The age of the respondent contributes to the incidence of diarrhea as indicated by the results

of the frequency of defecation. Data processing regarding the age of the respondents showed that the age group that suffered the most from diarrhea was the age group of 2 years (67%; p=0.028).

Most of the respondents who experienced diarrhea had parents with higher education (Senior high school/university) which did not influence the incidence of diarrhea (77%; p=0.533). Respondents who experienced diarrhea mainly were mothers who did not work, and according to data analysis, the mother's occupation did not affect the frequency of diarrhea in children under five (67%; p=0.875).

**Table 2**
**Frequency distribution of defecation before and after being given a solution of distance and zinc sap**

| Diarrhea Frequency | Jatropha Curcas L. Sap | Zinc |
|---|---|---|
| | n (%) | n (%) |
| Before | | |
| Normal | 0(0%) | 0(0%) |
| Diarrhea | 15(100%) | 15(100%) |
| After | | |
| Normal | 15(100%) | 11(73) |
| Diarrhea | 0(0%) | 4(27) |

Table 2 shows that before being given treatment, both groups had diarrhea (100%), and after treatment in the intervention group, the frequency of bowel movements became normal (100%). In the control group, 4 (27%) children still suffered from diarrhea after a day of being given zinc.

**Bivariate Analysis**

The difference in the average in effectiveness of Jatropha curcas sap solution on the frequency of defecation diarrhea in toddler without dehydration compared with zinc .

**Table 3**
**The average frequency of defecation before and after being given a solution of  Jatropha Curcas L. sap and zinc**

| Treatment | Jathropha Curcas L. Sap | | | Zinc | | | P |
|---|---|---|---|---|---|---|---|
| | N | Mean | CI | N | Mean | CI | |
| Before | 15 | 5 | 4.04-5.96 | 15 | 5.27 | 4.56-5.98 | 0.0002 |
| After | 15 | 1 | 0.41-1.59 | 15 | 5.00 | 1.19-7.48 | |
| Differences | | 4 | | | 0.027 | | |

Table 3 shows that, nn the intervention group, the average frequency of defecation after treatment was 1, with an average difference of 4. In the control group, the average frequency of defecation after treatment was 5, with an average difference of 0.27. This significant difference can be seen from the data obtained that all toddlers (100%) had normal bowel movements after a day of giving Jatropha Curcas L. sap solution, with details of 7 toddlers (47%) who consumed the Jatropha resin solution, the frequency was 0 times in one day. Consumption, as many as two toddlers (27%) the frequency of their bowel movements became one time in one day of consumption, as many as 5 toddlers (33%) the frequency of their bowel movements became 2 times in one day of consumption, and as many as 1 toddler (7 %) the frequency of his bowel movements becomes 3 times in one day of consumption. Diarrhea completely stopped on the second day in respondents whose frequency was > 0 on one day of consumption, and the consistency and frequency of bowel movements returned to normal the next day so that the average difference in the frequency of defecation was greatly reduced from 5 to 1.
The data obtained based on this study showed that there were 4 (27%) toddlers who still had diarrhea after one day of consuming zinc, with details of 1 toddler (7%) who consumed zinc, the frequency of defecation became 1 time in one day of consumption, as many as 6 toddlers (40%) had their bowel movements 2 times in one day of consumption. For as many as 8 toddlers (53%), the frequency of their

bowel movements became 3 times in one day of consumption. Diarrhea did not wholly stop on the following day because most respondents took 2-3 days for the frequency of bowel movements to return to normal. Some even increased the frequency on the second day and were hospitalized so that the average difference in the frequency of defecation was not much reduced at first 5.27 to 5.00.

**DISCUSSIONS**

Based on the bivariate analysis results, of 15 children under five with diarrhea who were given the intervention of Jatropha Curcas L. sap before the intervention, the average frequency of diarrhea was 4. After the intervention, the average frequency of diarrhea was 1. It can also be traced from analyzing the defecation frequency difference average before and after the intervention. There was an average decrease from 5 to 1 with an average difference of 4. There is a significant difference between the scores before and after the intervention. Its statistical test results showed that the p-value = 0.002 was smaller than the value of = 0.05. Jatropha Curcas L. sap contains tannins, often used as a non-medical treatment to reduce the frequency of bowel movements in people with diarrhea (Purnomo, 2013; Sarabia et al., 2022). Tannins are compounds widely found in plants with an astringent taste in fruit, leaves, and stems and their sap, reducing gastrointestinal motility (Purnomo, 2013).

In this study, the authors mixed a solution of Jatropha Curcas L. sap with fruit-flavored syrup so

that children were interested in drinking it. Toddlers tend to find it difficult to take medicine, especially if it tastes bitter. Sirplus is an over-the-counter drug that contains natural sugars and fruit-flavored syrups such as strawberry, grape, and orange. Sirplus contains natural sugar, so it does not damage or affect the drug's efficacy. The Food and Drug Administration (FDA categorizes syrup into category A. Researchers used grape-flavored syrup as the sweetening compounds in order to cover the taste and smell of bitter medications and components, commonly used as a drug solvent for children who cannot take bitter medicine. Sirplus hides the bitter taste of the medication, making it easier for children to take medication because it has a grape taste that children like (Klikdokter, 2016). Researchers also package this solution using cups and straws to make it look more attractive, and children think the solution is an ordinary drink, so they like to drink it and run out quickly.

Based on the results of bivariate analysis, from 15 children under five with diarrhea who were given the intervention of Jatropha Curcas L. sap before the intervention, the average frequency of diarrhea was 5.27. After being given the intervention, the average frequency of diarrhea was 4.33. From these data, it can be seen that there is no significant change in the frequency of diarrhea. It can also be seen from the analysis of the difference in the mean frequency of defecation before and after the intervention, an average decrease from 5.27 to 5.00 with an average difference of 0.27. Statistical test results obtained a p-value = 0.072, more incredible than the value = 0.05 means no significant difference between the scores before and after the intervention.

The results of the two-group difference test found a significant difference between the mean frequency of diarrhea in the intervention group and the comparison group, with a p-value=0.002 smaller than the value =0.05. It means there is a significant difference in the frequency of bowel movements when the toddler is given treatment using Jathropha sap and zinc. Treatment of diarrhea using Jatropha Curcas L. sap solution healed faster on the first day; as much as 46.7% of the frequency of diarrhea had stopped (0) than the use of zinc. The results of this study follow previous research conducted by Purnomo (2013), which found that all respondents experienced differences in the frequency of diarrhea in the form of defecation before and after consuming 100 mL Jatropha Curcas L. sap solution (Purnomo, 2013). The paired t-test showed that the p-value = 0.000 (p <0.05). The sap of Jatropha Curcas L. is very effective against all test organisms. The presence of tannins, saponins, alkaloids, and

steroids in the raw sap of J. curcas supports the traditional medicinal use of this plant in the treatment of different ailments (Abubakar et al., 2016). Leaves and stems of Jatropha contain saponins, flavonoids 3,959 mg/L, and polyphenols (Nezriyetti & Novita, 2012). The leaves and sap contain tannins in a reasonably high content, which causes the sap and leaves of Jatropha curcas to taste astringent (Kesumasari et al., 2018).

In general, the properties of tannins can be stated as follows: 1) All types of tannins are soluble in water; the solubility is significant and will be greater when dissolved in hot water; 2) Tannin particles begin to break down at a temperature of 98.8°C; 3) Tannins have bacteriostatic and fungistatic properties (Sujarnoko, 2012). Tannins in Jatropha Curcas L. sap have a unique compound and are very easily absorbed by the intestinal lumen to provide a fast reaction in the body. In contrast, the tannin content in salak fruit is relatively high. It is 29 units per milliliter but requires a long digestive process to be absorbed. The sap and leaves of Jatropha curcas also contain substances and compounds of amalinin, alkaloids, fatty oils, serpentine, and lipolytic enzymes, which are efficacious for treating fever, canker sores, and burns (Sudirga, 2012). Jatropha Curcas L. sap can be used as constipation and laxative drug. Local sweets given a few drops of Jatropha Curcas L. sap can be drunk to treat diarrhea (Biswakarma et al., 2017). Meanwhile, according to another research, as much as 5 ml of Jatropha Curcas L. sap mixed with 125 ml of goat's milk and given orally on an empty stomach for 3 days can cure dysentery (Bora et al., 2016).

Seeds, bark, and leaves of Jatropha curcas, when boiled and the stagnant water boiled, can be used for external therapy for rheumatism and as an anti-inflammatory. Thick water decoction of the roots is drunk to fight pneumonia and syphilis, abortion (abortifacient), deworming, and laxative. The methanol extract of jatropha bark (100, 300 mg/kg) decreased the frequency of feces until there were no more wet feces, and mileage with charcoal plug showed anti-diarrheal activity in rats (K. et al., 2012). Researchers have isolated and characterized many biologically active compounds from all parts of this plant. In addition, the mechanism of action of this active compound has been studied concerning its application in traditional medicine (D. M. Reddy Prasad, 2012). Jatropha leaf extract was effective in inhibiting the growth of Escherichia coli bacteria in vitro covering an area of 24.55 mm with a concentration of 80% (Agnita et al., 2014). Jathropha leaves smeared with eucalyptus oil are very effective in relieving flatulence in toddler 0-2 years old (Riani,

2018). The sap of the Jatropha plant also contains Curcayline A and Curcayline B. Giving 10% Jatropha Curcas L. sap ointment has been proven effective in accelerating the healing process of mice skin cuts in the epithelialization phase (Fauzi et al., 2017; Murti et al., 2017). Histopathological observations showed that the administration of 10% Jatropha curcas Linn sap in an ointment preparation for 10 days could shorten the time for the formation of the distribution of collagen tissue in the wound area, thereby accelerating the healing process of mice (Mus musculus) skin incisions in the remodeling phase (Nanda et al., 2017).

The increase in the frequency of bowel movements, accompanied by large volumes during diarrhea, is caused by an increase in water content due to an imbalance in intestinal function in the absorption process of organic substances and water. If it occurs continuously, the diarrhea child can become dehydrated. Thus, diarrhea must be stopped immediately by replacing lost fluids and improving the condition of the intestinal wall. Jatropha Curcas L. sap solution will coat the intestinal lumen because Jatropha Curcas L. sap also contains saponin compounds that can intensify collagen growth and stimulate the formation of new cells (Ar, 2014). Previous research also obtained significant differences in results, which showed the duration and frequency of defecation in cases of diarrhea in the intervention group (additional sprinkles). When compared between the two groups, there was a 10.45-hour shorter duration of diarrhea and 1.4 times less frequent diarrhea in the intervention group (Sopiyandi et al., 2013). Another research that showed a difference between giving honey and zinc therapy for treating diarrhea in toddlers is, p = 0.000. For those who were given honey, the frequency of diarrhea decreased from an average of 7.30 to 1.52 (Purnawati et al., 2015). It shows that zinc is effective in reducing diarrhea frequency. Still, using traditional medicines such as Jatropha Curcas L. sap and honey is more effective and faster in reducing the frequency and duration of diarrhea.

Acute diarrhea that occurs in children in developing countries is primarily infectious. Zinc affects several immune cells and enterocytes, interacting with contagious agents, and causing diarrhea. Zinc is also effective in modifying membrane function through interaction with oxygen, nitrogen, and hydrophilic macromolecular sulfur ligands, as well as organ antioxidant activity and stabilizing membrane structure. Zinc is also able to inhibit the release of histamine by mast cells and the contraction and secretory response to histamine and serotonin in the intestine so that this can inhibit the increase in endothelial permeability initiated by TNF-a, which can also stimulate damage to the permeability of the endothelial lining in the intestine (Ulfah et al., 2012).

## CONCLUSION

In conclusion, by comparing the effectiveness of Jatropha Curcas L. sap solution which is only consumed once and can directly reduce the frequency of diarrhea and the duration of diarrhea only lasts 1-2 days, it can be concluded that Jatropha Curcas L. sap solution is more capable in reducing the frequency of defecation of toddlers without having to be consumed continuously. Thus, the solution of Jatropha Curcas L. sap is more effective in reducing the frequency of defecation in toddlers with acute diarrhea without dehydration than zinc.

## SUGGESTION

Although this study gave good results, research with a sample of 30 cannot be recommended to be applied, and further research needs to be carried out with a larger sample to be able to carry out socialization immediately regarding the use of Jatropha Curcas L. sap solution for the treatment of diarrhea without dehydration in the community. It is expected to be able to develop for the prevention of diarrhea with dehydration that not only measures the frequency of bowel movements but also the duration of diarrhea that occurs.

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# THE INFLUENCE OF EDUTAINMENT-BASED EDUCATION ON NUTRITION LACTATION, INVOLUTION UTERI AND LOCHEA AGAINST INCREASED KNOWLEDGE, ATTITUDES AND BEHAVIOR OF PUERPERAL MOTHERS

**Karnely[1*], Agussalim Bukhari[2], Healthy Hidayanty[3], Nurpudji Astuti Daud[4], Burhanuddin Bahar[5], Ema Alasiry[6]**

[1]Department of Obstetrics, Graduate School, Hasanuddin University
[2]Faculty of Medical Sciences, Hasanuddin University
[3]Faculty of Public Health, Hasanuddin University
[4]Faculty of Medical Sciences, Hasanuddin University
[6]Department of Pediatrics, Perinatology Subdivision of Hasanuddin University
*Correspondence Email: nelyhilal77@gmail.com

**ABSTRAK: PENGARUH EDUKASI BERBASIS EDUTAINMENT TENTANG GIZI LAKTASI, INVOLUSIO UTERI DAN LOKHEA TERHADAP PENINGKATAN PENGETAHUAN, SIKAP DAN PERILAKU IBU NIFAS**

Kembalinya alat-alat reproduksi seperti sebelum hamil membutuhkan kandungan gizi yang cukup bagi ibu. Makanan yang dikonsumsi ibu nifas harus bermutu, bergizi, dan cukup kalori. Dimana makanan yang dikonsumsi berguna untuk melakukan aktifitas, metabolisme, proses memproduksi ASI, sebagai ASI sendiri yang akan dikonsumsi oleh bayi untuk pertumbuhan dan perkembangan bayi, serta mempertahankan tubuh terhadap infeksi. Tujuan penelitian yaitu untuk mencari pengaruh edukasi berbasis edutainment tentang gizi laktasi, involusio uteri dan lokhea terhadap peningkatan pengetahuan, sikap dan perilaku ibu nifas. Metode Penelitian menggunakan Quasi Eksperimen dengan rancangan Non Equivalent Control Group Design. Di dalam desain ini observasi dilakukan sebanyak 2 kali yaitu sebelum dilakukan perlakuan dan sesudah dilakukan perlakuan. Pada kelompok intervensi dan kelompok kontrol masing-masing dilakukan pretest dan post test. Populasi dalam penelitian ini adalah seluruh ibu Nifas yang berada di RSKDIA Pertiwi dan RSKDIA Siti Fatimah Makassar sebanyak 5843 ibu nifas. Berdasarkan dari hasil perhitungan diatas didapatkan jumlah sampel sebesar 47 orang kelompok intervensi di RSKDIA Pertiwi Makassar dan 47 orang kelompok kontrol di RSKDIA Siti Fatimah Makassar dengan menggunakan teknik Purposive Sampling. Hasil penelitian menunjukkan bahwa terdapat pengaruh signifikan antara pengetahuan dengan edukasi berbasis edutainment tentang gizi laktasi, involusi uteri, dan lochea. Hasil penelitian menunjukkan bahwa terdapat pengaruh signifikan antara sikap dengan edukasi berbasis edutainment tentang gizi laktasi, involusi uteri, dan lochea. Hasil penelitian menunjukkan bahwa terdapat pengaruh signifikan antara perilaku dengan edukasi berbasis edutainment tentang gizi laktasi, involusi uteri, dan lochea. Saran kepada bidan yang bertugas di daerah khususnya di RSKDIA Pertiwi Makassar dan RSKDIA Siti Fatimah Makassar agar lebih meningkatkan kinerja serta perhatiannya dalam memberikan informasi tentang gizi laktasi, involusi uteri, dan lochea

Kata Kunci : Edukasi, Gizi Laktasi, Involusio Uteri, Lokhea, Pengetahuan, Sikap dan Perilaku.

**ABSTRACT**

The return of reproductive organs before pregnancy requires sufficient nutritional content for the mother. The food consumed by the puerperal mother must be of high quality, nutritious, and sufficiently caloric. Where the food consumed is useful for activities, metabolism, and the process of producing breast milk, as its own milk that will be consumed by the baby for the growth and development of the baby, as well as defending the body against infections. The purpose of this study is to find the influence of edutainment-based education on lactation nutrition, uterine and lochia involution on increasing the knowledge, attitudes and behaviors of puerperal mothers. This study used the Quasi-Experimental design method with a Non-Equivalent Control Group Design. In this design, observations are carried out as many as 2 times, namely before treatment and after treatment. In the intervention group and the control group, pre-test and post-test were carried out, respectively. The population in this study was all Puerperal mothers who were at RSKDIA Pertiwi and RSKDIA Siti Fatimah Makassar as many as 5843 puerperal mothers. Based on the results of the calculations above, the number of samples was obtained by 47 intervention groups at RSKDIA Pertiwi Makassar and 47 control groups at RSKDIA Siti Fatimah Makassar using the Purposive Sampling technique. The results showed that there was a significant influence between knowledge and

edutainment-based education about lactation nutrition, uterine involution, and lochia. The results showed that there was a significant influence between attitudes and edutainment-based education about lactation nutrition, uterine involution, and lochia. The results showed that there was a significant influence between behavior and edutainment-based education about lactation nutrition, uterine involution, and lochia. It is recommended to midwives who serve in the regions, especially at RSKDIA Pertiwi Makassar and RSKDIA Siti Fatimah Makassar to further improve their performance and attention in providing information about lactation nutrition, uterine involution, and lochia

Key Words: Education, Lactation Nutrition, Uterine Involution, Lochia, Knowledge, Attitudes and Behaviors.

## INTRODUCTION

According to World Health Organization (2020) data in different countries at least a quarter of all maternal deaths are caused by bleeding, the proportion ranges from less than 10 percent to almost 60 percent. Postpartum hemorrhage, especially primary post-partum hemorrhage, is the bleeding that causes the most maternal death. Primary post-partum hemorrhage is postpartum bleeding that occurs in the first 24 hours of birth.

As a result of the Indonesian Demographic and Health Survey (SDKI) in 2015, the maternal mortality rate in Indonesia is still high at 309 per 100,000 live births. This figure is down compared to 2012 which was only 359 per 100,000 live births. The global target of the SDGs (Sustainable Development Goals) by 2030 is to reduce the Maternal Mortality Rate (MMR) to 70 per 100,000 live births. Sutarjo et al., 2017; Qonitun, U. and Novitasari, F., 2018). According to the Ministry of Health in 2010, the three main factors causing maternal death were Bleeding (28%), Eclampsia (24%), and Infection (11%). In 2013 the cause of maternal death in Indonesia was due to bleeding as much as (30.3%) (Ministry of Health RI, 2016).

Data from the Binkesmas Division of the Health Office of South Sulawesi Province in 2015 showed the number of MMR in South Sulawesi in 2015 was 149 people or 99.38 per 100,000 live births, consisting of the death of 19 pregnant women (12.75%), the death of 44 maternity mothers (29.53%), and the death of postpartum mothers 86 people (57.71%). Based on data from the Directorate of Maternal Health in 2013, the causes of death of postpartum mothers include bleeding (30.3%) and infection (7.3%). One of the predisposing factors for post-partum hemorrhage is due to the presence of uterine subinvolution due to weakness of the uterine muscles. The occurrence of uterine sub-involution causes the uterus not to contract normally so that the discharge of the lochia becomes abnormal as well as the lengthening of the lochia discharge period. One of the efforts to correct uterine contractions is by breastfeeding. Meanwhile, one of the factors predisposing to the occurrence of infection is heavy bleeding and poor nutrition. One of the efforts to prevent infection is to improve nutritional intake because good nutritional status can avoid germ attacks so that infection does not occur during the puerperium (Nugroho., 2014)

Uterine contractions (uterine involution) are the most important process in the post-partum period. If the uterus fails to contract properly (uterine atony) after childbirth it can cause bleeding in the puerperium. The biggest cause of bleeding in post-partum mothers (75-80%) is due to the presence of uterine atony (Sukarni & Sudarti, 2014). Several things can affect the process of uterine involution, namely early mobilization, nutritional status, age, parietas and breastfeeding. At the time of breastfeeding, it will stimulate the production of the hormone's oxytocin and prolactin. This hormone can increase its production if there is contact between the mother and the baby.

In the process of feeding, there is contact of the baby's mouth with the nipple and the process of the baby sucking and swallowing breast milk. It is this sucking of the baby on the nipple that will stimulate the pituitary to produce the hormones oxytocin and prolactin. The hormone oxytocin helps the uterine involution process and prevents bleeding in the post-partum period, while the hormone prolactin is secreted into the blood by the anterior pituitary and spurs glandular cells (alveoli) to produce milk. The amount of prolactin and milk produced is related to the stimulation of suction, namely the frequency, intensity and duration of the baby sucking (Fahrer, H. 2011).

A Ghana study published by the journal Pediatrics showed that 16% of infant deaths can be prevented through breastfeeding a baby from the first day of birth. This figure rises to 22% if breastfeeding begins

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in the first 1 hour after its birth. Turlina Candles, 2015)

However, there are many puerperal mothers in rural areas whose milk expenditure is not smooth due to the lack of balanced nutritional intake (fruits, vegetables), lack of knowledge, family economy, and maternal psychology that lack confidence when giving breast milk to their babies.

Among the changes in the reproductive apparatus that occur after childbirth is an involution. Uterine involution or uterine shrinkage is the process by which the uterus returns to its pre-pregnancy condition. If uterine involution runs normally, it can reduce the incidence of bleeding, especially post-partum bleeding which is one of the direct causes of maternal death. One of the factors affecting the acceleration of uterine involution is the intake of good nutrition (Nelwatri., 2015)

The return of reproductive devices before pregnancy requires sufficient nutritional content for the mother. The food consumed by the puerperal mother must be of high quality, nutritious, and sufficiently caloric. Where the food consumed is useful for activities, metabolism, and the process of producing breast milk, as it is milk that will be consumed by the baby for the growth and development of the baby, as well as defending the body against infections (Rahayu & Sugita., 2015; Waryana., 2010)

Various studies on efforts to overcome complications in the puerperium have been widely published both conventionally such as the intervention of orange juice and pineapple juice to accelerate uterine involution, breastfeeding on demand, and puerperal gymnastics as well as with complementary therapies such as the use of katuk leaves, fenugreek to increase breast milk production, curcumin to treat mastitis, and the use of lavender and aloe vera in the treatment of episiotomy scar wounds (Windayanti., 2017)

Previous research has also proven that lecture methods are not effective in increasing the knowledge of adolescents. Therefore, a need for more effective methods for increasing knowledge, one of the ways that can increase knowledge in adolescents is to use the game method (Tarigan, 2015).

Recently, we have begun to hear about the existence of learning methods based on edutainment (education and entertainment), this is because this method can attract attention and interest in learning.

One method that can be used to improve learning outcomes is the edutainment method. Edutainment is a relatively new term in the world of education. About the edutainment method, Hamid (2011) suggests that "Edutainment comes from the words education and entertainment. Education means education while entertainment means entertainment. So, in terms of language edutainment is an entertaining and fun education". Meanwhile, Roestiyah (2008: 127) said "edutainment is an acronym for education plus entertainment which means as an educational program packaged in the concept of entertainment so that each student is almost unaware that they are being invited to learn or to understand the value of each individual.

Edutainment is a combination of education and entertainment, a way to make the process of education and teaching fun, so that puerperal mothers easily grasp the essence of the education provided to improve knowledge, attitudes and behaviors. Edutainment can be done inside or outside the hospital, besides that it can be given by the method of games (games), role play (role play), demonstrations or using the media (Hamid 2011)

Fun learning, according to the concept of Edutainment can be done by inserting humor and play (games) into the learning process, but it can also be done in other ways, for example by using role-play methods, demonstrations, pictorial media, and multimedia. As the results of the study stated the media used in the learning process became more eye-catching so that it could be easily understood and caused the target not to get bored quickly. The use of learning resources in the form of learning media, can increase new desires and interests, generate motivation stimulate learning activities and even bring psychological influence to students (Diana Mustikaningsih, Et al, 2019).

**RESEARCH METHODS**

This study used a Quasi-Experimental design method with a non-equivalent control group design. In this design, observations are carried out as many as 2 times, namely before treatment and after treatment. The population in this study was all Puerperal mothers who were at RSKDIA Pertiwi and RSKDIA Siti Fatimah Makassar as many as 5843 puerperal mothers. Based on the results of the calculations above, the number of samples was obtained by 47 people in the intervention group at

RSKDIA Pertiwi Makassar and 47 people in the control group at RSKDIA Siti Fatimah Makassar with analysis in this study using tests according to the

objectives and variable measuring scales, namely the Mc-Nemar test.

**RESEARCH RESULTS**

**Table 1**
**Frequency Distribution Based on Respondent Characteristics At RSKDIA Pertiwi Makassar and RSKDIA Siti Fatimah Makassar**

| Respondent Characteristics | Group | | | | Total | | p Value |
|---|---|---|---|---|---|---|---|
| | Intervention | | control | | | | |
| | n | % | n | % | n | % | |
| Age | | | | | | | |
| 20-35 Years | 33 | 70,2 | 28 | 59,6 | 61 | 64,9 | 0,003 |
| >35 Years | 14 | 29,8 | 19 | 40,4 | 33 | 35,1 | |
| Education | | | | | | | |
| Elementary School | 6 | 12,8 | 9 | 19,1 | 15 | 15,9 | |
| Junior High School | 8 | 17,0 | 14 | 29,8 | 22 | 23,4 | 0,005 |
| Senior High School | 24 | 51,1 | 19 | 40,4 | 43 | 45,7 | |
| College | 9 | 19,1 | 5 | 10,6 | 14 | 15,0 | |
| Work | | | | | | | |
| Housewives | 12 | 25,5 | 12 | 25,5 | 15 | 15,9 | |
| Self employed | 13 | 27,7 | 18 | 38,3 | 22 | 23,4 | 0,004 |
| Civil servants | 13 | 27,7 | 11 | 23,4 | 43 | 45,7 | |
| Honorary | 9 | 19,1 | 6 | 12,8 | 14 | 15,0 | |
| Parity | | | | | | | |
| Primipara | 26 | 55,3 | 20 | 42,6 | 46 | 48,9 | 0,001 |
| Multipara | 21 | 44,7 | 27 | 57,4 | 48 | 51,1 | |

Source: Primary Data 2021

Based on the table above, it shows that of the 47 dominant intervention groups aged 20-35 years, 33 people (70.2%). While the dominant control group aged 20-35 years 28 people (59.6%). Meanwhile, the dominant intervention group had a high school education of 24 people (51.1%) and a high school-educated control group of 19 people (40.4%). The intervention group that worked was predominantly self-employed and civil servants as many as 13 people (27.7%) and the dominant control group worked as self-employed 18 people (38.3%). The dominant intervention group of primiparous parity was 26 people (55.3%) and the dominant control group of multipara parity was 27 people (57.4%).

Based on the table above, it shows that of the 47 intervention groups, before being given edutainment-based education on lactation nutrition,

uterine and lochia involution, 8 people were well-informed (17.0%) and 39 were knowledgeable (83.0%). Meanwhile, after being given education, 36 people were well-informed (76.6%) and 11 people were knowledgeable (23.4%). Meanwhile, the attitude variable before being given education had a good attitude of 11 people (23.4%) and an attitude of less than 34 people (72.3%). Meanwhile, after being given an education, who had a good attitude 34 people (72.3%) and an attitude of fewer than 13 people (27.7%) and behavior, before being given an education, who had sufficient behaviour of 15 people (31.9%) and less behavior of 32 people (68.1%). Meanwhile, after being given education, 43 people had enough behavior (91.5%) and less behavior as many as 4 people (8.5%).

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**Table 2**
**Frequency Distribution of Intervention Group Respondents Based on Knowledge, Attitudes and Behaviors**

| Variables | Intervention Group | | | | p-Value |
| | Pre-test | | Post-test | | |
| | n | % | n | % | |
|---|---|---|---|---|---|
| Knowledge | | | | | |
| Good | 8 | 17,0 | 36 | 76,6 | 0,005 |
| Less | 39 | 83,0 | 11 | 23,4 | |
| Attitudes | | | | | |
| Good | 11 | 23,4 | 34 | 72,3 | 0,001 |
| Less | 36 | 76,6 | 13 | 27,7 | |
| Behaviors | | | | | |
| Enough | 15 | 31,9 | 43 | 91,5 | 0,004 |
| Less | 32 | 68,1 | 4 | 8,5 | |

Source: Primary Data 2021

**Table 3**
**Frequency Distribution of Control Group Respondents Based on Knowledge, Attitudes and Behaviors**

| Variabel | Control Group | | | | p Value |
| | Pretest | | Posttest | | |
| | n | % | n | % | |
|---|---|---|---|---|---|
| Knowledge | | | | | |
| Good | 5 | 10,6 | 24 | 51,1 | 0,004 |
| Less | 42 | 89,4 | 23 | 48,9 | |
| Attitudes | | | | | |
| Good | 4 | 8,5 | 25 | 53,2 | 0,002 |
| Less | 43 | 91,5 | 22 | 46,8 | |
| Behaviors | | | | | |
| Enough | 7 | 14,9 | 30 | 63,8 | 0,003 |
| Less | 40 | 85,1 | 17 | 36,2 | |

Source: Primary Data 2021

Based on the table above, it shows that of the 47 control groups, before being given a questionnaire on lactation nutrition, uterine and lochia involution, 5 people were well-informed (10.6%) and 42 were knowledgeable (89.4%). Meanwhile, after being given the questionnaire, 24 people were well-informed (51.1%) and 23 people were knowledgeable (48.9%). The attitude variables before being given the questionnaire, which had a good attitude of 4 people (8.5%) and those with less attitudes of 43 people (91.5%). Meanwhile, after being given a questionnaire that had a good attitude of 25 people (53.2%) and an attitude of fewer than 22 people (46.8%) and behavioral variables, before being given a questionnaire, which had sufficient behaviour of 7 people (14.9%) and behavior of fewer than 40 people (85.1%). Meanwhile, after being given a questionnaire, 30 people had enough behavior (63.8%) and less behavior 17 people (36.2%).

**Table 4**
**Changes in Knowledge, Attitude's and Behavior's About Nutritional Lactation, Involutiono Uteri and Lokhea After Providing Edutainment-Based Education In the Intervention Group**

| Pretest | Posttest | | N | α=0,05 |
|---|---|---|---|---|
| | Less | Good | | |
| Knowledge | | | | |
| Good | 0 | 8 | 8 | p=0,001 |
| Less | 11 | 28 | 39 | |
| Attitudes | | | | |
| Good | 2 | 9 | 11 | p=0,003 |
| Less | 11 | 25 | 36 | |
| Behaviors | | | | |
| Enough | 0 | 15 | 15 | p=0,004 |
| Less | 4 | 28 | 32 | |

*Mc Nemar Test

Based on the table above, it shows that of the 47 people in the intervention group, before being given education, the dominant knowledge was less than 39 people. Meanwhile, after being given the dominant education, 36 people were well-informed. As for attitudes, before being given education, the dominant has less than 36 attitudes. Meanwhile, after being given education, the dominant had a good attitude of 34 people and for behavior, before being given education, the dominant had less behavior as many as 32 people. Meanwhile, after being given education, 43 people had good behavior.

Using the Mc Nemar Test, the value of $\rho$ = 0.001 (knowledge), the value of $\rho$ = 0.003 (attitude) and the value of $\rho$ = 0.004 (behavior) Thus there is an influence between knowledge, attitudes and behaviors with edutainment-based education.

**Table 5**
**Changes in Knowledge, Attitudes and Behaviors About Nutritional Lactation, Involutiono Uteri and Lokhea After Providing Edutainment-Based EducationOn the Control Group**

| Pretest | Posttest | | N | α=0,05 |
|---|---|---|---|---|
| | Less | Good | | |
| Knowledge | | | | |
| Good | 0 | 5 | 8 | p=0,021 |
| Less | 23 | 19 | 39 | |
| Attitudes | | | | |
| Good | 0 | 4 | 11 | p=0,013 |
| Less | 22 | 21 | 36 | |
| Behaviors | | | | |
| Enough | 0 | 7 | 15 | p=0,017 |
| Less | 17 | 23 | 32 | |

*Mc Nemar Test

Based on the table above, it shows that out of 47 people in the control group, before being given the questionnaire, the dominant knowledge was less than 39 people. Meanwhile, after being given dominant education, 24 people were well-informed. As for attitudes, before being given education, the dominant has less than 36 attitudes. Meanwhile, after being given a questionnaire, the dominant had a good attitude of 25 people and for behavior, before being given a questionnaire, the dominant had less behavior as many as 32 people. Meanwhile, after

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being given a questionnaire, the dominant had good behavior as many as 30 people

Using the Mc Nemar Test, the value of ρ = 0.021 (knowledge), the value of ρ = 0.013 (attitude) and the value of ρ = 0.017 (behavior) Thus there is an influence between knowledge, attitudes and behaviors with edutainment-based education

## Table 6
### Changes Between Research Variable Groups Intervention Group and Control Group

| Variables | Control Group | | | | p Value |
| | Intervention | | Control | | |
| | n | % | n | % | |
|---|---|---|---|---|---|
| Knowledge | | | | | |
| Good-Less | 8 | 17,0 | 5 | 10,6 | |
| Less-Good | 36 | 76,6 | 24 | 51,1 | 0,010 |
| Settled | 3 | 6,4 | 18 | 38,3 | |
| Attitude's | | | | | |
| Good-Less | 11 | 23,4 | 4 | 8,5 | |
| Less-Good | 34 | 72,3 | 25 | 53,2 | 0,015 |
| Settled | 2 | 4,3 | 18 | 38,3 | |
| Behavior's | | | | | |
| Enough-Less | 15 | 31,9 | 7 | 14,9 | |
| Less-Enough | 28 | 59,6 | 10 | 21,3 | 0,001 |
| Settled | 4 | 8,5 | 30 | 63,8 | |

*Chi Square Test

Based on the table above, it shows that the dominant knowledge variable experienced a change in knowledge in the intervention group, namely 36 people compared to the control group of only 24 people. Meanwhile, the dominant attitude variable experienced a change in attitudes in the intervention group, namely 34 people compared to the control group of only 25 people and the dominant behavior variable experienced a change in behavior in the intervention group, namely 28 people compared to the control group of only 10 people.

## RESEARCH DISCUSSION
### Intervention Group
Knowledge

The results showed that of the 47 people in the intervention group, before being given education, the dominant knowledge was less than 39 people. Meanwhile, after being given the dominant education, 36 people were well-informed. Using the Mc Nemar Test, a value of ρ = 0.001 is obtained Thus there is an influence between knowledge and edutainment-based education.

Based on the results of the research above, it shows that in the intervention group, after being given edutainment-based education, there was a significant change in knowledge. This is because the provision of edutainment-based education goes well because mothers listen well to the education provided.

The results of this study are in line with those conducted by Arkalgud Govindraju Harikiran, et al (2016), Using a pre-post design, a questionnaire consisting of 32 items and closed assesses children's oral health knowledge, attitudes, and feedback in the game. Changes in the average value for knowledge and attitudes were assessed using the "Wilcoxon Sign Rating test" at P <0.05. The "size of the effect" is calculated. Feedback is categorized by type of response and frequency. As a result, there was a statistically significant increase observed in the group's overall average score, knowledge average, and attitude score, respectively.

In theory knowledge is the result of knowing because of the process of sensing to a certain object, such sensing occurs largely through sight and hearing. This knowledge comes from experience, teachers, parents, friends, books and mass media (Notoatmodjo, 2015). The researchers concluded that in general from the sample provided education,

most respondents understood the education provided during the study.

## Attitudes

The results showed that of the 47 people in the intervention group, before being given education, the dominant attitude was 36 people. Meanwhile, after being given education, the dominant person had a good attitude as many as 34 people.

Using the Mc Nemar Test, the value of $\rho=0.003$ Is thus an influence between attitudes and edutainment-based education.

The same thing done by Cholilatul Zuhriya (2018), the learning method with snakes and ladders edutainment is a learning method with visuals that contain many symbols or images that are easy in conveying learning about menstrual personal hygiene, so that it is easy for adolescents to accept. In addition, this snakes and ladders game is included in the category of social play, where playing it requires more than one participant and is included in active games so that it will be more able to liven up the atmosphere of learning in groups by teenagers and have an influence on knowledge, attitudes and behaviours. The pretest and post-test results gave significant results which were shown by a significant increase in adolescent menstrual personal hygiene knowledge during pretest and post-test, a positive attitude percentage of 9.1%, snakes and ladders edutainment methods given. the percentage of skilled actions drastically increased from 51.5% to 100%.

Based on the results of the study above, it shows that in the intervention group, after being given edutainment-based education, there was a significant change in attitude. This is because the provision of edutainment-based education went well because mothers listened well to the education provided and respondents were able to accept what had been given during the study.

In theory, the change in attitude is inseparable from the influencing factors, namely personal experiences, culture, other people who are considered important, information received from various sources, emotions from the mother herself and facilities and support from families including husbands. Attitude is one of the factors that influence a person's health behaviour. Continuous change in attitudes can change a person's behaviour (Sofiyana & Noer, 2013)

The researcher concluded that basically the respondent when he already understood something, especially regarding lactation nutrition, uterine and lochia involution, changes in applying something should have been made and the researcher could conclude that the respondent's knowledge and understanding were inseparable in responding to everything that the mother herself understood.

## Behaviour

The results showed that of the 47 people in the intervention group, before being given education, the dominant had less behavior as many as 32 people. Meanwhile, after being given education, 43 people had good behavior. Using the Mc Nemar Test, a value of $\rho$ value $\rho = 0.004$ Was obtained Thus there is an influence between behavior and edutainment-based education.

Based on the results of the study above, it shows that in the intervention group, after being given edutainment-based education, there was a significant change in behaviour. This is because the provision of edutainment-based education went well because mothers listened well to the education provided and also respondents were able to accept what had been given during the study conducted.

According to M. Sholeh Hamid (2011) about the concept of edutainment is certainly very interesting to be developed systematically and structured. If it goes well, of course, the learning atmosphere in the classroom will change, from something scary to something fun, from boring to very happy or something hated to something that is missed so that they want and want to continue learning in class because it is filled with a high sense of enthusiasm and enthusiasm to follow the lesson.

The researcher concluded that basically respondents when they already understood something, especially regarding lactation nutrition, uterine and lochiean involution, changes in applying something should have been made and the researcher could conclude that the respondent's knowledge and understanding were inseparable from the mother's behaviour after being given education.

Based on the results of the research above, it was found that 2 people who had higher education (S2) and were well-informed and had good attitudes but had poor behaviour.

## Control Group

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Knowledge

The results showed that of the 47 people in the control group, before being given the questionnaire, the dominant knowledge was less than 39 people. Meanwhile, after being given dominant education, 24 people were well-informed. Using the Mc Nemar Test, the value of $\rho=0.021$ Is obtained, thus there is an influence between variables.

Based on the results of the study above, it showed that in the control group group, after being given a questionnaire, there was a change in knowledge but not significant. This is because respondents are only given questionnaires and researchers only explain the core points of the study so that this is what makes respondents experience a change in knowledge that is not optimal.

Knowledge is gained from planned and well-organized education through training and formal education. Knowledge can also be defined as a set of information that is understood, obtained from the learning process during life and can be used at any time as a tool of self-adjustment, both to oneself and the environment. Knowledge is the result of knowing and this happens after a person has sensed a certain object (Notoatmodjo, 2015).

The researcher concluded that it is important to educate mothers about lactation nutrition, uterine and lokhea involution so that mothers can understand how to maintain a diet during pregnancy to childbirth and can also find out what is meant by uterine and lochia involution.

Attitudes

The results showed that of the 47 people in the control group, before being given the questionnaire, the dominant had less attitudes as many as 36 people. Meanwhile, after being given the questionnaire, the dominant had a good attitude of 25 people.

Using the Mc Nemar Test, the value of $\rho=0.013$ (attitude) Thus there is an influence between variables.

Based on the results of the study above, it showed that in the control group, after being given a questionnaire, there was a change in attitude, but it was not significant. This is because respondents were only given a questionnaire, and the researcher only explained the core point of the study so this

made the respondents experience a change in attitude that was not optimal

Attitude is a person's readiness or willingness to behave or respond to something both positive stimuli and negative stimuli from an object of stimulation. Attitude is not an action or activity but is a predisposing factor for a person to behave. A person's attitude is influenced by internal factors including psychological and physiological factors. External factors in the form of interventions that come from outside the individual, for example in the form of education, training, and others (Sofiyana & Noer, 2013).

The researcher concluded that the importance of respondents being given education so that in responding to everything that is a reference during pregnancy to childbirth about the process of changing the involution of the uteri and lochia post-puerperium.

Behaviour

The results showed that of the 47 people in the control group, before being given the questionnaire, the dominant had less behaviour as many as 32 people. Meanwhile, after being given a questionnaire, the dominant had good behaviour as many as 30 people

Using the Mc Nemar Test, the value of $\rho=0.017$ (behavior) Thus there is an influence between variables.

Based on the results of the study above, showed that in the control group, after being given a questionnaire, there was a change in attitude, but it was not significant. This is because respondents are only given questionnaires and researchers only explain the core points of the study so that this is what makes respondents experience less than optimal behavior changes.

In theory, behavior is a response of living beings to a stimulus that can be observed directly or indirectly. How measure behavioural indicators and obtain data or information on behavioral indicators can be through several ways, namely interviews, observing behaviours, and recalling behaviour's that respondents have done some time ago (days, months, years) (Susilo, 2011).

Research conducted by Halisah, et al (2022) showed that the results of statistical tests found a meaningful relationship between serum zinc (Zn) levels, anthropometry of pregnant women and babies

with a significance value of p<0.05, but there was no meaningful relationship between chest circumference and leg size. Insulin levels like growth factor-1 (IGF-1) in infant anthropometry found a significant relationship to body weight, head circumference, chest circumference, and abdominal circumference, with p<0.05 so it can be concluded that zinc supplementation for pregnant women is important because it can stimulate the growth and development of the fetus in the womb, especially for adolescent pregnant women who lack chronic energy and have poor posture. As we know the interaction between iron and zinc takes place indirectly, the role of zinc in the synthesis of transferrin proteins which are iron-transporting proteins, and due to zinc deficiency also lowers the immune system and can interfere with iron metabolism. In pregnant women with normal Hb and normal birth weight the supply of sufficient blood nutrients for oxygen to the placenta will affect the function of the placenta for the fetus so that the baby is born with a normal birth weight.

Researchers concluded that although knowledge is not the only thing that can affect a person's behaviour, knowledge is the first step to understanding the meaning or benefits of healthy behaviour for oneself, especially regarding lactation nutrition, uterine, and lochia involution.

## CONCLUSION
Edutainment has a significant impact on knowledge, attitudes, and behaviors about lactation nutrition, uterine involution, and lochia

## SUGGESTION
It is hoped that Edutainment can be socialized with other health workers which can be used to facilitate the provision of health education to postpartum mothers

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