

Proceedings of AIPKIND Scientific Meeting

Asosiasi Institusi
Pendidikan Kebidanan
Indonesia (AIPKIND)

Vol. 1 No. 1 (2025)



PROCEEDINGS OF AIPKIND SCIENTIFIC MEETING 2025

Publisher : Asosiasi Pendidikan Kebidanan Indonesia (AIPKIND)

<http://proceeding.journal-aipkind.or.id>

Relationship Between Menarche Age and Family History of Dysmenorrhea with the Incidence of Dysmenorrhea in Adolescent Girls at SMAN 2 Bengkulu City

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ABSTRACT

Background: dysmenorrhea or menstrual pain is a complaint that is often experienced by adolescent girls precisely in the lower abdomen. Dysmenorrhea has a major impact on a person's quality of life, namely physical, social, psychological and emotional disorders. One of the factors associated with dysmenorrhea in adolescent girls is the age of menarche and family history of dysmenorrhea.

Purpose: of this study was to determine the relationship between age of menarche and family history of menstruation with the incidence of dysmenorrhea in adolescent girls at SMAN 2 Bengkulu City.

Methods: used is quantitative, with a cross-sectional approach, the sampling technique uses purposive sampling technique, the population is class X and class XI students totaling 477 students, the sample is 110 students with the number of class X totaling 54 students and class XI totaling 56 students. Results showed that out of 110 students who experienced dysmenorrhea, 89 students experienced dysmenorrhea, menarche age (< 12 or > 15 years) as many as 34 students and 76 students had a family history of dysmenorrhea.

Results: showed that age of menarche (p value $0.596 > 0.05$), length of menstruation (p value $0.003 < 0.05$; OR = $0.199 < 1$), family history of dysmenorrhea (p value $0.000 < 0.05$; OR = $46.867 > 1$).

Conclusion: this shows that the age of menarche does not have a significant relationship with the incidence of dysmenorrhea, but the history of dysmenorrhea in the family has a relationship with the incidence of dysmenorrhea in adolescent girls at SMAN 2 Bengkulu City.

Keywords: *Dysmenorrhea; Family History; Menarche Age*



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BACKGROUND

Dysmenorrhea is lower abdominal pain during menstruation, the pain or cramping spreads to the thighs or spine due to the production of prostaglandin substances. Dysmenorrhea pain often begins soon after the first menstrual period (menarche). And the pain decreases after menstruation, but in some women the pain usually continues to be experienced during the menstrual period. The cause of pain comes from the contracting and relaxing muscles of the uterus (Isir et al., 2023).

Dysmenorrhea has a major impact on a person's quality of life, namely physical, social, psychological and emotional disorders. The severity of symptoms and the impact of dysmenorrhea vary greatly between individuals, adolescents suffering from dysmenorrhea also experience comorbidities such as indigestion, headaches, fatigue, poor sleep, and depression/anxiety. Psychological disorders, such as depression/anxiety can affect one's social functioning and activities. Dysmenorrhea is also the most common cause of school absenteeism (Macgregor et al., 2023).

Adolescence is a period in which individuals experience changes in cognitive (knowledge), emotional (feelings), social (interaction), and moral (morals) aspects. Adolescence is also called a transitional period or a connecting period between childhood and adulthood (Suryana et al., 2022). Data from the World Health Organization (WHO) shows that the incidence of dysmenorrhea is quite high worldwide. The average incidence of dysmenorrhea in young women is between 16.8-81%. On average in European countries dysmenorrhea occurs in 45-97% of women, with the lowest prevalence in Bulgaria 8.8% and the highest reaching 94% in Finland. The prevalence of dysmenorrhea in Indonesia is 64.25% which occurs from 54.89% primary dysmenorrhea and 9.36% secondary dysmenorrhea. Primary dysmenorrhea is experienced by 60-75% of adolescents, with three quarters of these adolescents experiencing mild to severe pain (WHO, 2021).

One of the factors associated with the incidence of dysmenorrhea in adolescent girls is the age of menarche and family history of dysmenorrhea. Menarche age Menarche is when menstruation comes for the first time that occurs in adolescent girls who are entering adulthood, and is a sign that women are able to become pregnant. The age of menarche that occurs at the age of <12 years is the age of menarche which is classified as early or fast, while the normal menarche is 12-15 years. Adolescents who experience premature menstruation are caused by internal factors due to congenital hormonal imbalances, this also correlates with external factors such as nutritional intake in the food consumed. The faster menstruation occurs causes continuous uterine contractions, causing the availability of blood to the uterus to stop temporarily so that dysmenorrhea occurs (Hamzah & B, 2021).



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Family history is a genetic factor where a person's condition will usually duplicate the traits of his parents. Family history is a risk factor for dysmenorrhea because anatomically and physiologically a person is generally the same as his descendants or parents (Wariyah et al., 2019). Women who have a family history of dysmenorrhea have a greater prevalence of dysmenorrhea. Some researchers predict that children of mothers who have unpleasant menstrual problems, this is a reason that can be linked to learned behavior from the mother. Children of mothers who have menstrual problems will experience unpleasant menstruation; this is a reason that can be attributed to learned behavior from the mother. The reason that family history is a risk factor for dysmenorrhea may be related to conditions such as endometriosis (Mouliza, 2020).

Based on data from the Department of Education and Culture of Bengkulu Province in 2022, the largest number of students in SMA Negeri 2 Kota Bengkulu with a total of 720 students (BPS Bengkulu, 2022). Based on the basic education data of SMAN 2 Kota Bengkulu, the number of students in class X is 234 people, class XI is 243 people, and class XII is 243 people. The initial survey conducted by the author of 10 respondents who experienced primary dysmenorrhea consisting of class X and XI, obtained from 10 respondents whose age of menarche was not normal as many as 3 people (30%) and had a history of dysmenorrhea in the family of 3 people (30%).

OBJECTIVE

This study aims to determine the factors associated with the incidence of dysmenorrhea in adolescent girls at SMAN 2 Bengkulu City.

METHODS

The research method used is quantitative, with a cross-sectional approach, the sampling technique uses purposive sampling technique, the population is class X and class XI students totaling 477 students, how to calculate the sample using the Slovin formula, the sample amounted to 110 students with a total of class X totaling 54 students and class XI totaling 56 students. Determination of research respondents by setting inclusion and exclusion criteria, inclusion criteria are healthy students, class X and XI students, students aged 14-17 years, willing to be respondents, and willing to fill out questionnaires. The research was conducted by collecting all respondents divided into 2 rooms, room 1 containing class X and room 2 containing class XI. This research was conducted at SMAN 2 Bengkulu City which is located at Jalan Mahoni No.14, RT.003/RW.06, Padang Jati, Kec. Ratu Samban, Bengkulu City. The results of the study will be carried out univariate analysis that is to see the description of the dependent and independent variables, bivariate analysis using the Chi-Square test, this test is used to determine the relationship between variables that have categorical data.



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The instrument used in this study was a questionnaire sheet. The questionnaire used has been tested for validity and reliability from previous research, namely Salamah's research (2021). The data analysis process is carried out after obtaining the answers from the collected questionnaires, then data processing is carried out using univariate analysis and bivariate analysis. Ethical clearance from the Poltekkes Kemenkes Bengkulu NO.KEPK.K/028/01/2022

RESULTS

Table 1. Cross Tabulation Between the Relationship between Age of Menarche and History of Dysmenorrhea in the Family with the Incidence of Dysmenorrhea at SMAN 2 Bengkulu City

Table 1. Cross Tabulation of Menarche Age and Family History of Dysmenorrhea with Dysmenorrhea Incidence at SMAN 2 Bengkulu

Variabel	Dismenore				Amount		<i>p -value</i>	OR
	Yes		No					
	F	%	F	%	F	%		
Menarche age								
< 12 or > 15 years	26	23,6	8	7,3	34	30,9	0,596	0,671
12 - 15 years	63	57,3	13	11,8	76	69,1		
Family History								
Yes	74	67,3	2	1,8	76	69,1	*0,000	46,867
No	15	13,6	19	17,3	34	30,9		

Notes: * *p* value <0.005 means significant

Based on table 1, it can be seen that out of 110 adolescent girls at SMAN 2 Bengkulu City, in the age group of menarche < 12 or > 15 years who experienced dysmenorrhea as many as 26 people (23.6%), and there were 8 people (7.3%) who did not experience dysmenorrhea. The presence of a history of dysmenorrhea in the family was found to have the most dysmenorrhea, namely 74 people (67.3%) while there was no history of dysmenorrhea in the family experiencing dysmenorrhea as many as 15 people (13.6%).

DISCUSSION

Relationship between Menarche Age and the Incidence of Dysmenorrhea in Adolescent Girls at SMAN 2 Bengkulu City

The results showed that a small proportion of adolescent girls who experienced dysmenorrhea with menarche age < 12 years or > 15 years were 26 students (23.6%) and most of the adolescent girls who experienced dysmenorrhea with menarche age 12 - 15



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years were 63 students (57.3%). The results of statistical tests $p\text{-value} = 0.596 > 0.05$ can be concluded that there is no relationship between menarche age and the incidence of dysmenorrhea in adolescent girls at SMAN 2 Bengkulu City. This is because in this study it was found that respondents with risky and non-risky menarche age all almost experienced complaints of dysmenorrhea. The results also showed that out of 63 female students with menarche age (12 - 15 years), 57.3% experienced dysmenorrhea. This happens because several factors can influence such as the length of menstruation is more than normal, there is a history of dysmenorrhea in the family, stress, lack of exercise, consuming coffee and not paying attention to healthy nutritional intake can increase the risk of dysmenorrhea.

Menarche at an earlier age causes the reproductive organs to not function optimally and are not ready to experience changes so that pain occurs during menstruation. The reproductive organs must function properly, but if menarche occurs at an earlier age than normal where the reproductive organs are not ready to undergo changes and there is still a narrowing of the cervix, it causes dysmenorrhea (Indarna, 2021).

The results of previous research conducted by Fatmawati & Aliyah, (2020) analyzing the relationship between menarche and the incidence of dysmenorrhea from 40 female students who experienced dysmenorrhea, there were 18 female students (45%) included in early menarche (< 12 years), while from female students who did not experience dysmenorrhea there were (5%) who included early menarche (< 12 years). Statistical test results $p\text{-value} = 0.165 > 0.05$ means that there is no significant relationship between menarche and the incidence of dysmenorrhea. The results of the study found that the age of menarche was not associated with dysmenorrhea because the age of menarche was not a trigger for pain but the length of following the ovulation cycle. In the first years after menarche, ovulation has not occurred, because prostaglandins that trigger pain are produced more during ovulation, menstrual pain tends to increase several years after menarche rather than directly at menarche.

Relationship between Family History of Dysmenorrhea and the Incidence of Dysmenorrhea in Adolescent Girls at SMAN 2 Bengkulu City

The results of this study showed that out of 74 female students who experienced dysmenorrhea with a history of dysmenorrhea in the family experienced dysmenorrhea (67.3%). The results of statistical tests $p\text{-value} = 0.000 < 0.05$ can be concluded that there is a relationship between family history of dysmenorrhea with the incidence of dysmenorrhea in adolescent girls at SMAN 2 Bengkulu City with an OR value = 46.867 > 1 means that adolescent girls who have a family history of dysmenorrhea are 46.867 times more likely to experience dysmenorrhea when compared to adolescent girls who do not have a family history of dysmenorrhea. This is because specific genetic



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polymorphisms of many SNPs in genes such as MIF, TNF- α , ESR1, CYP2D6, GSTM1, and NGF play a role in inflammation, prostaglandin regulation, uterine nerve sensitivity, and hormone/drug metabolism. These variations are inherited from parents, so girls with mothers or sisters who have dysmenorrhea are more likely to have it too.

The history of dysmenorrhea in the family has more potential for dysmenorrhea because it is related to genetic factors that pass on traits to offspring and siblings. In addition to these factors, Wariyah et al., (2019), states family history is a risk factor for dysmenorrhea because anatomically and physiologically a person is generally the same as his descendants or parents. Physiologically, metabolic genes affect pharmacodynamics and toxicity, the mechanism of changes in estrogen metabolism and inflammatory substances causes the accumulation of pain mediators or minimizes the elimination of prostaglandins, so that the level of pain increases.

The results of this study also showed that of the 15 adolescent girls with no family history of dysmenorrhea, a small proportion (13.6%) experienced dysmenorrhea. According to the researchers' assumptions, this occurs due to several factors that can increase the risk of dysmenorrhea, namely stress, early menarche, longer-than-normal menstrual periods, and unhealthy lifestyles.

The results of this study are in line with research conducted by Nurfadillah et al., (2021) the results of bivariate analysis using the chi-square test obtained a value of p -value = 0.000 and OR = 25.364 which indicates that there is a significant relationship between family history and the incidence of primary dysmenorrhea. This study is also in line with Sari et al., (2023) based on the chi-square test obtained p -value = 0.003 < 0.05, this shows that there is a significant relationship between family history and the incidence of dysmenorrhea. Studies on factors affecting primary dysmenorrhea in schoolgirls state that family history of dysmenorrhea, early age at menarche, irregular menstrual cycles, drinking cold drinks, high caffeine intake, stress, and special diseases are risk factors (Liu et al., 2024).

Another study that is in line is research conducted by Hamzah & B, (2021) on factors related to the incidence of dysmenorrhea in female students of SMAN 1 Lolak with the results of statistical tests obtained a value of p -value = 0.039 < 0.05 so that there is a relationship between family history and the incidence of dysmenorrhea. This study is in line with the research of Nurfadillah et al., (2021), the results of bivariate analysis using the chi-square test obtained a value of p -value = 0.000 and OR = 25.364 which indicates that there is a significant relationship between family history and the incidence of dysmenorrhea.

The limitation in this study is that it only uses one school so that it cannot be generalized to a wide population, suggestions for future researchers to be able to use a wider population and sample.



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CONCLUSION

From the research conducted at SMAN 2 Bengkulu City, it was found that there was no relationship between menarche age and the incidence of dysmenorrhea ($p\text{-value} = 0.596 > 0.05$) and there was a relationship between family history of dysmenorrhea with the incidence of dysmenorrhea ($p\text{-value} = 0.000 < 0.05$) with an OR value = $46.867 > 1$, meaning that adolescent girls who have a history of dysmenorrhea in the family are 46.867 times more likely to experience dysmenorrhea when compared to adolescent girls who do not have a family history of dysmenorrhea.

The results of this study are expected to provide scientific information and can add references, especially about dysmenorrhea and for the community, especially adolescent girls, can explore knowledge about what factors affect the incidence of dysmenorrhea. The results of this study recommend that schools can provide special toilets that maintain privacy, provide soap, clean water, and garbage disposal. Schools can include training on menstruation, stigma, and menstrual psychology in teacher training to improve knowledge, attitudes and support for female students.

REFERENCES

- BPS, B. (2022). *Jumlah Sekolah, Guru, dan Murid Sekolah Dasar (SD) di Bawah Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Menurut Kabupaten/Kota di Provinsi Bengkulu, 2021/2022 dan 2022/2023 - Tabel Statistik - Badan Pusat Statistik Provinsi Bengkulu*. <https://bengkulu.bps.go.id/id/statistics-table/1/MTY0MiMx/number-of-schools--teachers-and-elementary-school-students--sd--under-the-ministry-of-education--culture--research-and-technology-by-district-city-in-bengkulu-province--2021-2022-and-2022-2023.html>
- Fatmawati, E., & Aliyah, A. H. (2020). Faktor Usia Menarche Dan Riwayat Keluarga Dengan Kejadian Dismenorrhea. *Jurnal Kesehatan Madani Medika*, 11(1), 12–20. <https://doi.org/10.36569/jmm.v11i1.92>
- Hamzah, S., & B, H. (2021). Faktor-Faktor Yang Berhubungan Dengan Kejadian Dismenorea Pada Siswi Sman 1 Lolak. *PREPOTIF : Jurnal Kesehatan Masyarakat*, 5(2), 804–813. <https://doi.org/10.31004/prepotif.v5i2.2094>
- Indarna, A. A. (2021). Usia Menarche Dan Lamanya Menstruasi Dengan Kejadian Dismenore Primer Pada Siswi Kelas X Di Smk Kesehatan Bhakti Kencana Subang. *Journal of Nursing and Public Health*, 9(2), 11–17. <https://doi.org/10.37676/jnph.v9i2.1789>
- Isir, M., Abdullah, V. I., & Kamalah, R. (2023). Penanganan Dismenorhoe dengan Minuman Mix Kulit Buah Naga dan Air Kelapa Hijau. *Malahayati Nursing Journal*, 5(6), 1947–1961. <https://doi.org/10.33024/mnj.v5i6.8291>
- Liu, J., Wang, Y., Wu, L., Wang, L., & Fang, H. (2024). Study on the influencing factors



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- of primary dysmenorrhea in female college students: Systematic review and meta-analysis. *Medicine (United States)*, 103(49), e40906. <https://doi.org/10.1097/MD.00000000000040906>
- Macgregor, B., Allaire, C., Bedaiwy, M. A., Yong, P. J., & Bougie, O. (2023). Disease Burden of Dysmenorrhea: Impact on Life Course Potential. *International Journal of Women's Health*, 15(April), 499–509. <https://doi.org/10.2147/IJWH.S380006>
- Mouliza, N. (2020). Faktor yang Berhubungan dengan Kejadian Dismenore Pada Remaja Putri di MTS Negeri 3 Medan Tahun 2019. *Jurnal Ilmiah Universitas Batanghari Jambi*, 20(2), 545. <https://doi.org/10.33087/jiubj.v20i2.912>
- Nurfadillah, H., Maywati, S., & Aisyah, I. S. (2021). Faktor-Faktor Yang Berhubungan Dengan Kejadian Dismenore Primer Pada Mahasiswi Universitas Siliwangi. *Jurnal Kesehatan Komunitas Indonesia*, 17(1), 247–256. <https://doi.org/10.37058/jkki.v17i1.3604>
- Sari, T. M., Suprida, Amalia, R., & Yunola, S. (2023). Faktor - Faktor yang Berhubungan dengan Dismenore Pada Remaja Putri. *Jurnal 'Aisyiyah Medika*, 8, 219–231.
- Suryana, E., Hasdikurniati, A. I., Harmayanti, A. A., & Harto, K. (2022). Perkembangan Remaja Awal, Menengah Dan Implikasinya Terhadap Pendidikan. *Jurnal Ilmiah Mandala Education*, 8(3), 1917–1928. <https://doi.org/10.58258/jime.v8i3.3494>
- Wariyah, W., Sugiri, H., & Makhrus, I. (2019). Faktor-Faktor Yang Berhubungan Dengan Dismenorea Pada Siswi Smp Negeri 3 Karawang Barat Kabupaten Karawang Tahun 2018. *Jurnal Kebidanan Indonesia*, 10(1), 39. <https://doi.org/10.36419/jkebin.v10i1.243>
- WHO. (2021). *Mentoring Health For The SDGs*.



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The Effectiveness of Animation Video and Flipchart for Increasing Level of Knowledge about Family Planning

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ABSTRACT

Background: The postpartum family planning coverage at Prambanan Hospital, Yogyakarta from 2019 to 2021 was below the BKKBN target of 70%. Increasing knowledge and supporting informed decision-making through effective educational media is essential.

Purpose: To examine the effect of counseling using animated video media on knowledge and planning for postpartum family planning decision-making.

Methods: This quasi-experimental study was conducted from October 2022 to May 2023 with 60 third-trimester pregnant women as participants. The intervention group received counseling through animated video media, while the control group received flipchart-based counseling. Data were collected using a validated knowledge questionnaire and analyzed using paired t-tests, independent sample t-tests, and McNemar tests.

Results: Animated video media significantly increased postpartum family planning knowledge ($p = 0.000$) and influenced decision-making regarding contraceptive type ($p = 0.000$) and timing ($p = 0.002$). In the flipchart group, only timing showed a significant change ($p = 0.001$), while contraceptive type did not ($p = 0.219$).

Conclusion: Counseling with animated video media is effective in enhancing knowledge and decision-making about postpartum family planning. This approach supports nursing practice through innovative, accessible, and evidence-based education strategies.

Keywords: *Animated video; knowledge; planning; postpartum birth control.*



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BACKGROUND

The increase in population in Indonesia is still high. Based on the data, there was an increase in the population in Indonesia. In 2020, the population will range from 270.2 million people to 272.6 million people in 2021 (BPS, 2022). An uncontrolled increase in population can affect the emergence of several problems, such as unfulfilled health services (BKKBN, 2020). Therefore, the government seeks to control the population through postpartum family planning programs (Nabhan et al., 2023).

Postpartum birth control is an effort to prevent pregnancy by using contraceptive methods, devices, or drugs immediately after giving birth up to 42 days or 6 weeks after giving birth (BKKBN, 2020). The government, through the National Population and Family Planning Board (BKKBN), implements postpartum family planning programs. The postpartum birth control usage rate is still below the target set by BKKBN of 70%. The use of postpartum family planning in the DIY provincial area in 2021 is based on the district or city area: Sleman (3.6%), Bantul (10.9%), Gunungkidul (20.6%), Yogyakarta City (22.7%), and Kulonprogo (33.8%) (Dinkes, 2021).

The use of postpartum birth control is still low due to a lack of knowledge about postpartum birth control (Chandrawati et al., 2025). Knowledge is included in the predisposing factors that can facilitate the occurrence of one's behavior (Setiyawati et al., 2022). According to Muharomah & Zimmerman research in 2025, birth control planning is important before entering labor so that mothers have time to discuss it (Muharomah & Zimmerman, 2025). Other research conducted by Robinet and Pardosi stated that there were factors that influence knowledge, namely education, parity, occupation, and age (Pardosi et al., 2021; Robinet et al., 2023). One of the programs related to population control is aimed at increasing knowledge, especially in the third trimester of pregnant women, by providing information about the benefits of postpartum birth control, the types of postpartum birth control, and the advantages and disadvantages of using postpartum birth control.

Improvements in knowledge and postpartum contraceptive planning can be achieved through the provision of effective counseling. At Prambanan Hospital, postpartum family planning counseling still uses flipcharts, which have limitations such as being impractical to carry, lacking audio capabilities, and having high printing costs. A study by Nurcahyani et al., (2023) shows that the use of the "Si KB Pintar" app in counseling increases the likelihood of mothers using postpartum contraception by up to 2.4 times compared to the use of flipcharts, indicating the need for more interactive and efficient educational media innovations in reproductive health services.

The use of animated video media can be used as an alternative medium for providing postpartum birth control counseling. Video is one of the technology-based educational literacy media that is easy to create but has a big role. Video information about health is



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also an effective health promotion strategy (Susanti et al., 2020) Various types of applications can be used to make animated videos, one of which is the Powtoon application (Purnami et al., 2022). The Powtoon application has the advantage of having interesting animation features, can add sound effects, and can add videos (Jasa et al., 2021) The purpose of this study was to determine the effect of counseling with animated video media on knowledge and decision-making planning in postpartum birth control.

OBJECTIVE

To determine the effect of counseling using animated video media on third-trimester pregnant women's knowledge and decision-making regarding postpartum family planning.

METHODS

This research had a quasi-experimental design (pretest-posttest with a control group). The respondents were divided into 2 treatment groups: the first group was given counseling with animated video media, and the second group was given counseling with a flipchart. The animated video was created with the app Powtoon, and the duration of the video is 12 minutes. The flipchart was created by the Indonesian Ministry of Health. The material from the animated video and flipchart is about the understanding, benefits, types of birth control, advantages and disadvantages, and side effects of birth control.

The independent variable in this research was counseling with animated video media. The dependent variable in this research is knowledge and decision-making planning in postpartum birth control. The type of data needed in this study was primary data. Data were obtained from respondents by filling out the same questionnaire during the pretest and posttest. The one who provides education is the midwife. The questionnaire has been tested for validity and reliability. The study was conducted from October 2022 to May 2023. The population is all third-trimester pregnant women at Prambanan Regional Hospital in Yogyakarta. The sampling technique uses an accidental sampling technique. The sample size of this study was 30 respondents in each experimental group and control group.

Data analysis is carried out with statistical test software. Analysis of knowledge data using paired t-tests and independent sample t-tests and family planning using McNemar. The Ethics Committee of the Poltekkes of the Ministry of Health Yogyakarta, number No. DP.04.03/e-KEPK.2/226/2023, dated February 22, 2023, granted ethical approval for this research.



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RESULTS

Characteristics of the respondents

The respondents to this study were third-trimester pregnant women at Prambanan Regional Hospital. The sample of pregnant women is 60 respondents. The characteristics of respondents based on education, age, parity, and occupation are described in Table 1.

Table 1. Characteristics of respondents.

Characteristics of respondents	Respondent group				p-value
	Experimental group		Control group		
	n	%	n	%	
Recent Education					
Primary education	5	16,7	5	16,7	0,368
Secondary education	18	60,0	22	73,3	
Higher education	7	23.3	3	10,0	
Age	6	20,0	5	16,7	0,739
Mother's age <20 years and >35 years	24	80,0	25	83,3	
Mother's age 20-35 years					
Parity					
Nullipara	9	30,0	16	53,3	0,186
Primipara	15	50,0	10	33,3	
Multipara	6	20,0	4	13,3	
Work	10	33,3	12	40,0	0,592
Work	20	66,7	18	60,0	
Does not work					

The education level of respondents in the experimental group and the control group showed that most respondents graduated from secondary education, as many as 60.0 percent and 73.3%, respectively. The age range in both groups is most likely 20–35 years. The highest parity of respondents in the experimental group was primiparous (50%). In the control group, most respondents were nullipara (53%). Meanwhile, from the employment data in the experimental group and control group, most mothers were not working.

The effect of counseling with animated video media and flipchart decision-making tool on increasing knowledge



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The effect of counseling with animated videos and flipchart on increasing knowledge was tested at the bivariate analysis stage. Data normality tests were performed on pretest and posttest values with the Kolmogorov-Smirnov one-sample test. While the data homogeneity test is carried out with a statistical Levene test. The normality test and homogeneity test were described in Table 2.

Table 2. Data normality

Measured variables	P Value	Conclusion
Experimental group knowledge	0,164	Normal
Control group knowledge	0,065	Normal

Increased knowledge about postpartum birth control after counseling with animated video media and was tested with a paired t-test. The results of statistical tests are described in Table 3.

Table 3. Postpartum birth control knowledge score

		Pretest	Posttest	p-value	t	df	95% Confidence Interval of the Difference	
							lower	upper
Experimental group	Mean	66,26	83,46	0,000	-7,200	29	-22,085	-12,314
	Median	68,00	84,00					
	Maximum	88,00	92,00					
	Minimum	48,00	72,00					
Control group	Mean	64,40	75,46	0,000	-6,722	29	-14,433	-7,699
	Median	66,00	74,00					
	Maximum	84,00	96,00					
	Minimum	40,00	56,00					

In Table 3, it can be seen that the mean knowledge score in the experimental group before treatment was 66.26, while after treatment it was 83.46. In the control group, the mean knowledge score before treatment was 64.40, while it was 75.46 after treatment. The results of statistical tests in the experimental group and the control group obtained a p-value of 0.000, which showed that there was a significant difference in the mean knowledge score of third-trimester pregnant women about postpartum birth control between before and after treatment with animated video media and flipchart.

The difference mean of knowledge increase



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The difference mean increase of knowledge after counseling with animated video media and flipchart decision-making tool can be seen in Table 4.

Table 4. The difference mean of knowledge scores

Group	t	n	Std Deviation	p- value	Mean	Mean difference	95% Confidence Interval of the Difference	
							Lower	Upper
Experimental group	3,739	30	5,531	0,000	83.466	8,000	3,717	12,282
Control group	3,739	30	10,331	0,000	75.466	8,000	3,717	12,282

In Table 4, it can be seen that the mean knowledge score in the experimental group was 83.466 and the control group was 75.466. Bivariate statistical tests were used with independent sample t-tests. The results of statistical tests showed a p-value of 0.000, which showed that there was a significant difference between the knowledge value in the experimental group and the control group. Both interventions can increase knowledge, but the provision of counseling using animated video media is more effective at increasing knowledge than the provision of counseling using a flipchart.

Planning postpartum family planning decision making before and after counseling with animated video media and flipchart decision-making tool

Contraceptive planning decision-making in postpartum labor is divided into two categories: type of contraception and time of contraceptive use. Bivariate statistical tests were used, such as the McNemar test. The results of the statistical tests can be seen in Table 5.

Table 5. Postpartum birth control decision-making planning

Decision making planning	Category	Pretest		Posttest		p-value
		n	%	n	%	
	Longterm contraceptive	15	50	23	76,7	0,008



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Decision making planning		Category	Pretest		Posttest		p-value
			n	%	n	%	
Experimental group	Types of Contraception	Not Longterm contraceptive	15	50	7	23,3	0,002
		Postpartum birth control	16	53,3	27	90,0	
	Time of use	Not postpartum birth control	14	46,7	3	10,0	
Control group	Types of Contraception	Longterm contraceptive	12	40	15	50	0,219
		Not Longterm contraceptive	18	60	15	50	
	Time of use	Postpartum birth control	15	50,0	26	86,7	0,001
		Not postpartum birth control	15	50,0	4	13,3	

Our findings in Table 5 show that there were differences in the type of contraception used in the experimental group. The results of statistical tests in the experimental group obtained a p-value of 0.008. The results of statistical tests in the control group obtained a p-value of 0.219, so it can be concluded that there is no difference in the type of contraception used. The results of statistical tests based on the time of use in the experimental group and the control group have known p-values of 0.002 and 0.001, so it can be concluded that there is a difference in the time of use of postpartum birth control before and after the intervention is given

DISCUSSION

Based on the result, this study showed that education is one of the factors that affect a person's knowledge and perception of something, including postpartum birth control. Highly educated mothers will have a broader view and be receptive to change or new things. In line with Tohir's research in 2019, most respondents had 20 (44.5%) secondary education and at least 6 (13.3%) higher education respondents (Tohir, 2020).

Women's reproductive age is divided into 3 groups: 20 years, 20–35 years, and >35 years. The safest age to get pregnant is 20–35 years old because the uterus and other parts of the body are completely ready to accept pregnancy to minimize the risk of pregnancy and childbirth. In line with Dewiyanti's research in 2020, the most respondents aged 20–35 years were as many as 59 (62.8%) (Dewiyanti, 2020).

The amount of parity will affect the choice of contraceptive method. Research conducted by Dewiyanti, (2020), with the highest number of respondents being primiparous, as many as 53 (56.4%), found that there was a significant relationship between the number of children and parity and the use of contraceptive methods. A person who has more than one parity should be an acceptor of birth control to manage or minimize pregnancy, but today many birth control acceptors still have difficulty making their choice (Dewiyanti, 2020)



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Work can affect planning the use of postpartum birth control. Working mothers will be free to choose the type of birth control they use because they have their own income and do not only depend on their husband's income. In line with Jasa et al research in 2021, it is known that out of 194 respondents, 125 (64.4%) were third-trimester pregnant women who did not work. Respondents who worked as many as 69 respondents (36.6%) The results showed that there was a relationship between the selection of family planning and the mother's work. A woman who has an income will find it easier to make decisions about the contraceptive method to use (Jasa et al., 2021)

Providing contraceptive counseling can increase knowledge (Skogsdal et al., 2019). The use of animated video media can facilitate the delivery of counseling material that will increase knowledge. Fitto et al research in 2021 shows that counseling using audiovisual media is effective in increasing the knowledge of women of childbearing age about cervical cancer (Fitto et al., 2021). In line with Wati research in 2020, it showed an average increase in the value of knowledge before and after intervention using animated video media (Wati, 2020). The use of flipcharts can also facilitate the delivery of counseling material that will increase knowledge. In line with the results of research conducted by Ginting et al. in 2022, which showed a significant influence between knowledge before and after counseling with a decision-making tool flipchart (Ginting et al., 2022), Following the theory of behavior change of Lawrence Green, which states that health education can affect one of the predisposing factors, namely knowledge (Susanti et al., 2020).

Higher knowledge increases in counseling groups using animated video media. In line with the results of research conducted by Widyawati et al 2021, which showed an increase in knowledge about early detection of breast cancer in adolescent girls at SMAN 1 Sanden Bantul, with cartoon animation video media, knowledge was higher than using leaflet media (Widyawati et al., 2021). According to research, it showed the influence of counseling using animated video media with a p-value of 0.000 (Fadhilah et al., 2022).

Planning types of contraception are divided into two categories, namely MKJP and non-MKJP. MKJP consists of an IUD, an implant, a tubectomy, and a vasectomy. Non-MKJP consists of injections, pills, and condoms. The planning of birth control is divided into two categories: postpartum birth control and non-postpartum birth control. Our findings from Table 6 in the experimental group show that there were differences in the type of contraception before and after counseling with animated video media. In line with Karno et al research in 2022, it is known that family planning counseling using video can affect the choice of contraceptive type (Karno et al., 2022). Research in 2020 showed research results that showed the influence of health education with audio-visual media on MKJP's intuitive decision-making (Wardani, 2020). In the control group, it can be known that there is no difference in the type of contraception used before and after counseling.



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In the control group, it can be known that there is no difference in the type of contraception used before and after counseling. These results are contrary to research conducted by Nirwana et al in 2023, which showed that there was an influence of counseling using a flipchart on the choice of contraceptive methods (Nirwana et al., 2023).

The planning of birth control is divided into two categories: postpartum birth control and non-postpartum birth control. Postpartum birth control is an effort to prevent pregnancy by using contraceptive methods, devices, or drugs immediately after giving birth, up to 42 days or 6 weeks after giving birth (Karno et al., 2022). Non-postpartum birth control is birth control that is used more than 42 days or 6 weeks after giving birth. There were differences in the selection of time planning for the use of postpartum birth control before and after counseling using animated video media and a flipchart. In line with Mahardany et al 2023 research, it is known that birth control counseling influences the decision to use postpartum birth control (Mahardany et al., 2023). Nurwita dan Rani research in 2024 also showed that there was a significant influence between counseling pregnant women and ABPK on the use of postpartum contraception (Nurwita & Rani, 2024)

CONCLUSION

There is an increase in knowledge after counseling with animated video media. The mean knowledge in the group that was given counseling treatment using animated video media was higher than the group that was given counseling treatment using a flipchart. Counseling using animated videos is more effective for improving knowledge and planning postpartum birth control decisions. When planning the selection of contraceptive types in groups given counseling with animated video media, it is known that there are more respondents who choose to use the type of contraception MKJP, and the time of contraception use chosen is postpartum birth control. Videos can be used as an educational medium to increase knowledge about postpartum birth control in hospitals. However, the role of midwives in providing postpartum birth control counseling also supports increasing the knowledge of pregnant women. Our findings can be a reference material for future research development and improvement

REFERENCES

- BKKBN. (2020). *Kementerian Kependudukan dan Pembangunan Keluarga / BKKBN*. <https://www.kemendukbangga.go.id/>
- BPS. (2022). *Analisis Profil Penduduk Indonesia*. In *Badan Pusat Statistik*. <https://www.bps.go.id/>



PROCEEDINGS OF AIPKIND SCIENTIFIC MEETING 2025

Publisher : Asosiasi Pendidikan Kebidanan Indonesia (AIPKIND)

<http://proceeding.journal-aipkind.or.id>

- Chandrawati, S. T., Ni, L. putu, Komang, Y., & I, G. (2025). The Relationship between Knowledge Level and Postpartum Contraceptive use Among Postpartum Mothers. *Journal Hafidz*, 1(1), 22–28.
- Dewiyanti, N. (2020). Hubungan Umur Dan Jumlah Anak Terhadap Penggunaan Metode Kontrasepsi Di Puskesmas Bulak Banteng Surabaya. *Medical Technology and Public Health Journal*, 4(1), 70–78. <https://doi.org/10.33086/mtphj.v4i1.774>
- Dinkes. (2021). Profil Kesehatan Kota Yogyakarta Tahun 2021 AKI & AKB. *Jurnal Kajian Ilmu Administrasi Negara*, 107, 107–126. https://kesehatan.jogjakota.go.id/uploads/dokumen/profil_dinkes_2021_data_2020.pdf
- Fadhilah, T. M., Qinthara, F. Z., Pramudiya, F., Nurrohmah, F. S., Nurlaelani, H. P., Maylina, N., & Alfiraizy, N. (2022). Pengaruh Media Video Edukasi terhadap Peningkatan Pengetahuan Anemia pada Remaja Putri. *JPPM (Jurnal Pengabdian Dan Pemberdayaan Masyarakat)*, 5(1), 159. <https://doi.org/10.30595/jppm.v5i1.9823>
- Fitto, M. Z., Putri, E. A., & Armyanti, I. (2021). Efektivitas penyuluhan dengan media audiovisual terhadap tingkat pengetahuan wanita usia subur tentang kanker serviks di Puskesmas Tanjung Sekayam Kecamatan Kapuas Kabupaten Sanggau. *Jurnal Cerebellum*, 6(3), 77. <https://doi.org/10.26418/jc.v6i3.45314>
- Ginting, A. K., Iskandar, M., Humaida, S., & . A. (2022). The Effect Of ABPK KB Module Education On Long-Term Contraceptive Methods On The Level Of Women Of Childbearing Age Knowledge. *Jurnal Kebidanan Kestra (Jkk)*, 5(1), 103–110. <https://doi.org/10.35451/jkk.v5i1.1347>
- Jasa, N. E., Listiana, A., & Risneni, R. (2021). Paritas, Pekerjaan Dan Pendidikan Berhubungan Dengan Pemilihan Alat Kontrasepsi Mkjp Pada Akseptor Kb. *Jurnal Kebidanan Malahayati*, 7(4), 744–750. <https://doi.org/10.33024/jkm.v7i4.5243>
- Karno, R. S., Sinaga, M., Riwu, Y. R., & Wijaya, R. P. C. (2022). Non MKJP Drugs and Device Contraceptive In Couples of Childbearing Age As Active Family Planning Acceptors In Oesao Helath Center. *Media Kesehatan Masyarakat*, 4(3), 1–13. [file:///C:/Users/Administrator/Downloads/8239-Article Text-31312-1-10-20221220.pdf](file:///C:/Users/Administrator/Downloads/8239-Article%20Text-31312-1-10-20221220.pdf)
- Mahardany, B. O., Supriadi, R. F., & Wahida, W. (2023). Pengaruh Konseling terhadap Keputusan Penggunaan KB Pasca Persalinan di Kabupaten Mamuju n Mamuju. *Jurnal Kebidanan*, 13(1), 11–20. <https://doi.org/10.35874/jib.v13i1.1116>
- Muharomah, S., & Zimmerman, L. A. (2025). Determinants of contraceptive use prior to onset of childbearing among ever-married women in Indonesia: a secondary data analysis. *BMC Women's Health*, 25(1). <https://doi.org/10.1186/s12905-025-03724-0>



PROCEEDINGS OF AIPKIND SCIENTIFIC MEETING 2025

Publisher : Asosiasi Pendidikan Kebidanan Indonesia (AIPKIND)

<http://proceeding.journal-aipkind.or.id>

- Nabhan, A., Kabra, R., Allam, N., Ibrahim, E., Abd-Elmonem, N., Wagih, N., Mostafa, N., Kiarie, J., Zenhom, A., Ashraf, A., Alshabrawy, A., Atwa, E., Elghamry, F., Abouelnaga, M., Kodsy, M., Elgendi, M., Snosi, M., Kamel, M., Salama, M., ... Taha, S. (2023). Implementation strategies, facilitators, and barriers to scaling up and sustaining post pregnancy family planning, a mixed-methods systematic review. *BMC Women's Health*, 23(1), 1–12. <https://doi.org/10.1186/s12905-023-02518-6>
- Nirwana, B. S., Khofidhotur, R., Alfika, A., Bintang, F. S., & Arasyesa, D. A. (2023). The Effect Of Family Planning With ABPK Counseling On Decision Making Family Planning In Wus (Women Of Reproductive Age). *Journal for Quality in Public Health*, 6(2), 346–351. <https://doi.org/10.30994/jqph.v6i2.452>
- Nurcahyani, L., Widiyastuti, D., Iman, A. T., Cahyati, Y., & Fitrianiingsih, Y. (2023). Effects of Using an Application for Postpartum Contraceptive Use in Family Planning Counseling during Pregnancy. *Kesmas*, 18(2), 137–144. <https://doi.org/10.21109/kesmas.v18i2.6860>
- Nurwita, A., & Rani, S. (2024). a EFEKTIFITAS KONSELING DENGAN MENGGUNAKAN ALAT BANTU PENGAMBILAN KEPUTUSAN BER-KB (ABPK) PADA IBU HAMIL DALAM PENGGUNAAN KB PASCA PERSALINAN (KBPP). *Jurnal Ilmiah Bidan*, 8(1), 19–26. <https://doi.org/10.61720/jib.v8i1.137>
- Pardosi, M., Nababan, D., Brahmana, N. E., Ginting, D., & Sitorus, M. E. (2021). Faktor - Faktor yang Berhubungan dengan Minat Ibu Bersalin dalam Pemilihan Alat Kontrasepsi KB Pascasalin dengan Metode Kontrasepsi Jangka Panjang di Kecamatan Rantau Utara Tahun 2021. *Journal of Healthcare Technology and Medicine*, 7(2), 1470–1484. <https://jurnal.uui.ac.id/index.php/JHTM/article/view/1729>
- Purnami, N. P. M. D., Sulianingsih, N. W. W., & Widyantari, N. P. E. (2022). Pemanfaatan Powtoon Sebagai Media Pembelajaran Kreatif Berbasis Teknologi Using Powtoon as a Technology-Based Creative Learning Media. *Jurnal Prospek*, 1(1), 25–31. <https://ojs.mahadewa.ac.id/index.php/prospek/article/view/1718/1263>
- Robinet, L., Jeffredo, A., & Clesse, C. (2023). Factors Influencing Contraceptive Choice During the Postpartum Period: A Qualitative Systematic Review. *Journal of Midwifery & Women's Health*, 68(2), 265–286. <https://doi.org/https://doi.org/10.1111/jmwh.13471>
- Setiyawati, N., Meilani, N., & Khafidhoh, N. (2022). Effectiveness of video education on intention for cervical cancer screening. *Journal of Education and Learning (EduLearn)*, 16(2), 284–290. <https://doi.org/10.11591/edulearn.v16i2.20420>
- Skogsdal, Y., Fadl, H., Cao, Y., Karlsson, J., & Tyden, T. (2019). An Intervention in contraceptive counseling increased the knowledge about fertility and awareness of



PROCEEDINGS OF AIPKIND SCIENTIFIC MEETING 2025

Publisher : Asosiasi Pendidikan Kebidanan Indonesia (AIPKIND)

<http://proceeding.journal-aipkind.or.id>

- preconception health a RCT. *Uspala Journal of Medical Sciences*.
<https://doi.org/https://doi.org/10.1080.03009734.2019.1653407>
- Susanti, N., Wahyuningsih, H. P., & Meilani, N. (2020). *pengaruh konseling dengan media video animasi terhadap pengetahuan dan perencanaan pengambilan keputusan dalam ber kb pasca persalinan pada ibu hamil tm 3 di RSUD prambanan*.
- Tohir, T. (2020). Hubungan Tingkat Pendidikan dan Pengetahuan Ibu Terhadap Pemakaian Alat Kontrasepsi di Wilayah Keluarga Binaan Kesehatan Fakultas Kedokteran Universitas Muhammadiyah Sumatera Utara Angkatan 2016 di Kecamatan Medan Johor Sumatera Utara Tahun 2019. In *Skripsi*.
- Wardani, D. A. (2020). Pengaruh Pendidikan Kesehatan Dengan Media Audio Visual Terhadap Pengambilan Keputusan Intuitif Metode Kontrasepsi Jangka Panjang. *Jurnal Medika : Karya Ilmiah Kesehatan*, 5(1).
<https://doi.org/10.35728/jmkik.v5i1.118>
- Wati, S. (2020). Efektifitas Layanan Informasi dengan Media Powtoon dalam Meningkatkan Pengetahuan Sex Education Peserta Didik Kelas VIII SMP N 4 Bandar Lampung. In *Otonomi* (Vol. 20).
- Widyawati, R., Wijayanti, & Bumi, C. (2021). *Pengaruh Media Video dan Metode Ceramah Terhadap Pengetahuan Tentang Deteksi Dini Kanker Payudaea pada Remaja Putri di SMA N 01 Banjar Agung*. 14, 63–65.
<https://doi.org/10.15900/j.cnki.zylf1995.2018.02.001>



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Anthropometric-Based Preliminary Design of an Ergonomic Breastfeeding Chair for Postpartum Mothers: A Descriptive Study

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ABSTRACT

Background: Breast milk is the best food for both containing nutrients needed by babies to grow and develop, therefore it is important to provide exclusive breastfeeding to newborns up to six months of age. However, incorrect breastfeeding positions and unsuitable breastfeeding chairs for breastfeeding mothers often cause pain and discomfort during or after breastfeeding. This condition can cause musculoskeletal disorders for mothers.

Purpose: This study aimed to apply anthropometric measurements of postpartum mothers to inform the preliminary design of an ergonomic breastfeeding chair.

Methods: The research method is descriptive study. The sample in this study consists of 30 postpartum mothers in the hospital. The instrument used in this study was an anthropometric measurement sheet which was carried out to measure the physical dimensions of the design. Data analysis used percentile value.

Results: The results of the study obtained were a prototype chair according to body dimensions with a chair width 52.61 cm (95th), chair length 46.66 cm (5th), backrest width 52.53 cm (95th), seat back 83.83 cm (50th), chair height 48.90 cm (50th), armrest height 60.70 cm (50th), and, armrest length 26.90 cm (50th).

Conclusion: The dimensions of the chair can be used as a basis for designing a breastfeeding chair and are in accordance with ergonomic aspects. A comfortable and ergonomic breastfeeding chair can make it easier for mothers to adjust their position while breastfeeding their babies.

Keywords: *Model development; breastfeeding chair prototype; ergonomic; anthropometric; breastfeeding*



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BACKGROUND

Breastfeeding is the activity of giving breast milk to a child directly without using a pacifier or bottle. Every child has the right to receive breast milk from birth to six months of age and then continue until the age of two years. Breast milk is the best source of nutrition for babies that contains substances needed for growth and development (Shah et al., 2021). Breastfeeding can reduce stress and anxiety in mothers (Handayani et al., 2025). Breastfeeding can also affect the mother's mood, stress, and care (Castro et al., 2025).

Breastfeeding can provide various benefits for the mother's health, however, mothers must also pay attention to their position when breastfeeding so that they can get the benefits of breastfeeding perfectly. When breastfeeding, mothers tend to move their necks and backs forward, not leaning on the chair. In addition, mothers often bend over to breastfeed their babies so that this position puts pressure on the joints, ligaments, and muscles (Gumasing et al., 2019). Because of this action, incorrect positioning can cause pain in the lower back and neck. Breastfeeding mothers usually bend over for long periods; this can disrupt the mother's comfort and the breastfeeding process. To reduce this risk, an ergonomic and comfortable position is necessary.

Prolonged sitting while breastfeeding can also cause back pain, so a comfortable and ergonomic sitting position is needed by paying attention to lumbar support (Sharma & Roopa, 2024). Research conducted by Rani, et al, breastfeeding mothers who experience neck pain are 36.8% and lower back pain is 22.0% (Rani et al., 2019). There are seven criteria for the correct position when breastfeeding, namely a comfortable and relaxed position, sitting upright and supported by a good chair back, sitting position facing forward and flat lap, baby's neck straight or slightly bent back and body straight, baby's body facing the mother, baby's body is close to the mother's body and facing the mother's breast, and the mother supports the baby's entire body (Nduagubam et al., 2022).

Sitting is how most Indonesians breastfeed their babies. because it is more feasible. The same as the research of Prima, et al., most mothers prefer to breastfeed while sitting on a chair (Prima et al., 2020). Although practical, the chair facilities that exist so far for breastfeeding mothers are not ergonomic and cause discomfort. This condition can interfere with the process of breast milk production because the mother gets tired easily, has pain in the neck, back, and waist. Therefore, it is necessary to pay attention to ergonomics in designing chairs for breastfeeding mothers. Ergonomic chairs can reduce the risk of pain, soreness, and fatigue (Santhosh & Malavika, 2019). The mother can feel more comfortable and be able to breastfeed for longer if she adopts an ergonomic position.

Several studies on ergonomic chairs have been conducted. An ergonomic breastfeeding chair can enhance comfort, improve good posture, and reduce the risk of injury (Gumasing et al., 2019). Identify the design specifications of an ergonomic



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breastfeeding chair by measuring the anthropometry of breastfeeding mothers while seated. This ergonomic breastfeeding chair has pedals and footrests that reduce hand pressure when you are holding your baby (Rahayu et al., 2024). However, no study exists on the initial design of ergonomic chairs that accounts for the anthropometric dimensions of postpartum mothers.

OBJECTIVE

This study aimed to apply anthropometric measurements of postpartum mothers to inform the preliminary design of an ergonomic breastfeeding chair.

METHODS

The design study was quantitative and descriptive, focusing solely on the physical characteristics and dimensions of the initial breastfeeding chair design as determined by anthropometric measurements. This study involves 30 postpartum mothers at the Ibu dan Anak Bantul Hospital Yogyakarta. The sample was taken through purposive sampling according to the inclusion criteria. Inclusion criteria consist of a history of normal delivery or cesarean section, postpartum on the second day, and being physically and mentally healthy. Meanwhile, the exclusion criteria are that the baby does not have any abnormalities or disabilities. This study took place from May to July 2021. Data collection was conducted by measuring the anthropometry of breastfeeding mothers, which included hip width, buttock-popliteal length, shoulder width, sitting height, popliteal height, sitting elbow height, and setting elbow length. This data was used as a reference in determining the dimensions of the chair parts were Chair width, chair length, backrest width, seat back, chair height, chair height, armrest height, and, armrest length.

The initial chair design uses anthropometric data, with postpartum mothers' body measurements taken using standard anthropometric measuring tools. All anthropometric measurements were taken in a sitting position while breastfeeding, and then their dimensions were measured. Anthropometric data underwent normality tests, data uniformity tests, data adequacy assessments, and percentile calculations. The normality test is used to determine whether the collected data is normally distributed or not, and the normality test is conducted using the Kolmogorov-Smirnov test with a p-value > 0.05 , which means the data is normally distributed (Habibzadeh, 2024). Data homogeneity is conducted to determine whether the obtained data is already in a controlled state or not. Controlled data is data that falls within the Upper Control Limit (UCL) and Lower Control Limit (LCL) (Habibzadeh, 2024). Meanwhile, data sufficiency is used to determine whether the amount of data obtained meets the required number of observations by knowing the value of N . Next, the percentile calculation to show the percentage of the size, namely the 95th percentile, the 50th percentile, and the 5th



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percentile (Fitri et al., 2021). Normality, homogeneity, and sufficiency tests in anthropometric measurements aim to ensure that the collected data can be used to design ergonomic chairs suitable for various body sizes and enhance comfort. Analysis of anthropometric data using mean, minimum, maximum, standard deviation, 5th percentile, 50th percentile, and 95th percentile (Fitri et al., 2021). Tethics committee of Universitas 'Aisyiyah Yogyakarta has approved this study (No. 1847/KEP-UNISA/VII/2021).

RESULTS

Table 1. Normality Test of Postpartum Mothers Body Dimension

Dimension	N	Mean (cm)	SD	Kolmogorov-Smirnov Z	<i>P-value</i> *
Hip width	30	46.63	3.63	1.090	0.186
Buttock-popliteal length	30	52.40	3.49	0.615	0.844
Shoulder width	30	48.13	2.67	0.679	0.745
Sitting height	30	83.83	5.04	0.658	0.779
Popliteal height	30	48.90	2.19	1.057	0.214
Sitting elbow height	30	60.70	3.21	1.021	0.248
Sitting elbow length	30	26.90	2.01	1.131	0.155

* Test distribution is normal *p-value* > 0.05; SD = Std. Deviation

This study involves 30 postpartum mothers on the second day. Anthropometrically measured postpartum mothers to determine the initial dimensions for the breastfeeding chair design. The dimensions measured are hip width, buttock-popliteal length, shoulder width, sitting height, popliteal height, sitting elbow height, and sitting elbow length. To design the chair, the mean value measurement provides a measure of the data's central tendency. Each dimension has been measured with the following mean values are hip width (46.63 cm), buttock-popliteal length (52.40 cm), shoulder width (48.13 cm), sitting height (83.83 cm), popliteal height (48.90 cm), sitting elbow height (60.70 cm), and sitting elbow length (26.90 cm). The standard deviation was calculated to provide a measure of the dispersion of the average data. The standard deviation values are hip width (3.63 cm), buttock-popliteal length (3.49 cm), shoulder width (2.67 cm), sitting height (5.04 cm), popliteal height (2.19 cm), sitting elbow height (3.21 cm), and sitting elbow length (2.01 cm). The mean and standard deviation are required to determine the dimensions of body measurements and to provide the foundation for normalcy tests when designing ergonomic chairs. The results show that all dimensions are normally distributed (*P-value* > 0.05). This means that all postpartum mothers have body sizes close to the (table 1).



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Table 2. Results of Data Homogeneity Test and Data Sufficiency from Respondent's Anthropometric Data

Dimensions	N	Mean	SD	Min	Max	LCL	UCL	N'	Data Testing	
Hip width	30	46.63	3.63	41	53	39.36	53.90	9.39	Homogeneous	Sufficient
Buttock-politeal length	30	52.40	3.49	47	58	45.42	59.38	6.86	Homogeneous	Sufficient
Shoulder width	30	48.13	2.67	43	52	42.78	53.48	4.78	Homogeneous	Sufficient
Sitting height	30	83.83	5.04	74	97	73.76	93.91	5.59	Homogeneous	Sufficient
Popliteal height	30	48.90	2.19	46	55	44.53	53.27	3.09	Homogeneous	Sufficient
Sitting elbow height	30	60.70	3.21	54	69	54.29	67.21	4.31	Homogeneous	Sufficient
Sitting elbow length	30	26.90	2.01	24	30	22.89	30.91	8.60	Homogeneous	Sufficient

* LCL = Lower Control Limit; UCL = Upper Control Limit

The next step involved measuring all dimensions to ensure homogeneity and data sufficiency. Homogeneity helps in determining whether data points are within control limits. Every anthropometric dimension that has been assessed has consistent data and is within normal control ranges, with each measurement falling between the upper and lower control limits. Moreover, a data sufficiency test was conducted; for each dimension, the number of data N is greater than the number of data N' ($30 > N'$), so all data are declared sufficient (Table 2). Thus, it is suitable for further analysis, namely percentile calculation. The percentile sizes used are the 5th for the lower percentile, the 50th for the average percentile, and the 95th for the upper percentile.

Table 3. Percentile Calculation of Postpartum Mother Body Dimension

Dimensions	Explanation	Percentile		
		5 th (cm)	50 th (cm)	95 th (cm)
Hip width	Chair width	40.66	46.63	52.61
Buttock-politeal length	Chair length	46.66	52.4	58.14
Shoulder width	Backrest width	43.73	48.13	52.53
Sitting height	Seat back	75.54	83.83	92.12
Popliteal height	Chair height	45.30	48.90	52.50
Sitting elbow height	Armrest height	55.42	60.70	65.98
Sitting elbow length	Armrest length.	23.60	26.90	30.2

Determination to provide comfort levels for your Chair users, it is necessary to add percentiles to each seat dimension (Table 3) :

a. Chair width

The width of the seat was determined by the dimensions Hip width. Hip width measured from the outer right hip to the outer left hip in an upright sitting



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condition. The 95th used was 52.61 cm. It was expected that the dimensions can accommodate breastfeeding mothers with the largest hip size so that all parts of the hip can be accommodated and feel comfortable.

b. Chair length

The length of the chair was determined by the dimensions of the buttock-popliteal depth. The buttock-popliteal depth was measured from the inner knee to the buttocks horizontally in an upright sitting position (Afshariani et al., 2019). These dimensions were mostly for designing chairs including KORSIMU. The 5th used was 46.66 cm. It was expected to be able to accommodate breastfeeding mothers with both calves attached to the surface of the chair to the inside of the knee in a comfortable condition.

c. Backrest width

The width of the seatback was determined by the dimensions of the shoulder width. Shoulder width measured from the outermost side of the right arm to the outer part of the left arm in sitting or standing upright conditions. The percentile used was 95th (52.53 cm). It was expected that the dimensions can accommodate breastfeeding mothers with the largest new size so that all dimensions of the population can be accommodated and feel comfortable.

d. Seat back

The seat back was determined by the dimensions of the sitting height. The sitting height measured from the buttocks to the very tip of the head in an upright sitting position. The 50th used was 83.83 cm. It was expected that breastfeeding mothers can accommodate from the back to the head, both small and medium dimensions.

e. Chair height

The seat height was determined by the dimensions Popliteal height. The popliteal height was measured from the floor surface to the deepest part of the knee in an upright sitting condition. These dimensions were mostly for designing chairs including KORSIMU. The 50th used was 48.90 cm. It was expected that the dimensions can accommodate breastfeeding mothers with both calves attached to the surface of the chair to the inside of the knee in comfortable conditions.

f. Armrest height

Armrest height was determined by the dimensions sitting elbow height. The sitting elbow height was measured from the top of the floor to the bottom of the hand in an upright sitting position. The 50th used was 60.70 cm. It was expected to be able to accommodate breastfeeding mothers with free hands resting in an upright sitting position. The armrest is not high, this causes the



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shoulders to lift causing pain in the shoulders and neck (Santhosh & Malavika, 2019).

g. Armrest length.

The length of the seat armrest was determined by the dimensions of the sitting elbow length. Sitting elbow length was measured from wrist to elbow, in sitting or standing upright conditions. The 50th used was 26.90 cm. It was expected that the dimensions can accommodate breastfeeding mothers with the largest new size so that all dimensions of the population can be accommodated and feel comfortable.

Table 4. Breastfeeding Chair (KORSIMU) Measurement

Dimensions	Explanation	Percentile	Size (Cm)
Hip width	Chair width	95 th	52.61
Buttock-popliteal length	Chair length	5 th	46.66
Shoulder width	Backrest width	95 th	52.53
Sitting height	Seat back	50 th	83.83
Popliteal height	Chair height	50 th	48.90
Sitting elbow height	Armrest height	50 th	60.70
Sitting elbow length	Armrest length.	50 th	26.90

Table 4, The results of the percentile calculations are that the chair design uses the specified dimensions, where chair width is 52.61 cm (95th), chair length is 46.66 cm (5th), backrest width is 52.53 cm (95th), seat back is 83.83 cm (50th), chair height is 48.90 cm (50th), armrest height is 60.70 cm (50th), and armrest length is 26.90 cm (50th). These anthropometric dimension measurements can be used to design breastfeeding chairs.

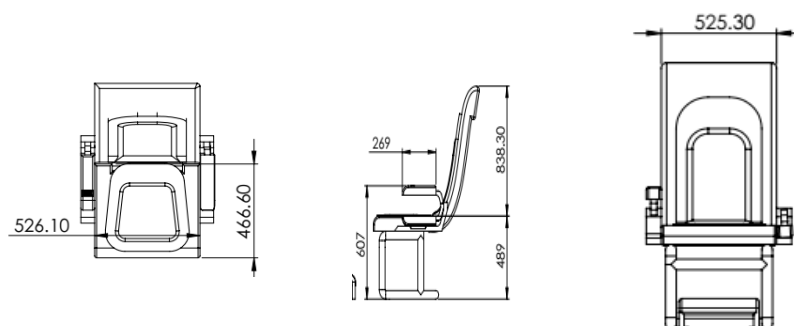


Figure 1. Preliminary Design of an Ergonomic Breastfeeding Chair



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DISCUSSION

An ergonomic breastfeeding position can affect the breastfeeding process. The design of an ergonomic chair must consider the anatomical and biological perspectives of the breastfeeding process (Santhosh & Malavika, 2019). The process of breastfeeding is an important part of a baby's life, providing the necessary nutrition for the baby's growth and development. Breastfeeding is the process of providing breast milk to a baby directly through the breast. (Kalarikkal & Pflleghaar, 2023). However, problems when the mother is about to start breastfeeding and during breastfeeding, causing the failure of breastfeeding is mothers feel that breast milk production is lacking. Feelings of perceived insufficient milk are the condition of mothers who feel that their milk is not sufficient for the needs of their babies (Santhosh & Malavika, 2019).

Another common complaint among breastfeeding mothers is discomfort in the neck, shoulders, elbows, wrists, and back due to poor posture. The cross-cradle hold is the most commonly used position while breastfeeding, and this is related to the discomfort that often arises (Irfan et al., 2023). Breastfeeding in a sitting position can put pressure on the back and neck muscles, with chair height not matching body posture and feet not placed on the floor and not flat. So that sitting upright and using supports in the arm or back and leg areas can provide balance and comfort for the mother (Afshariani et al., 2019). An ergonomic position while breastfeeding can enhance the mother's comfort and help her increase the duration of breastfeeding Sharma & Roopa, (2024) therefore, an ergonomic chair that considers the body's anthropometric dimensions is needed to assist the mother in a sitting position, providing comfort and reducing the risk of pain and injury during or after breastfeeding.

Anthropometry is a branch of ergonomics related to the measurement of human body dimensions that can be used as a basis for designing ergonomic facilities. Anthropometry essentially pertains to the dimensions of human body functions, including linear measurements, weight, volume, range of motion, and others (Prasetyo & Budiyo, 2020). The results of ergonomic anthropometric measurements can help create comfort, safety, well-being, and suitability and reduce musculoskeletal disorders (Silviana et al., 2022). Ergonomically, anthropometry is used as a basis for preparing a space to provide comfort (Hutabarat et al., 2023). Anthropometric measurements are conducted to assess the size, shape, and composition of the human body. Designing chairs using anthropometric and ergonomic approaches can improve work efficiency, minimize lower back pain, and reduce musculoskeletal disorders (Fitrianto et al., 2025).

Results of the study of the anthropometric measurements used are based on the 5th to 95th percentile values, with the anthropometric dimensions being chair width, chair length, backrest width, seat back, chair height, chair height, armrest height, and armrest length (table 4), relevant and can be used as initial design measurements for a chair for



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mothers when breastfeeding their babies in a sitting position. Same as the research Gumasing, et al., The size of the chair from an anthropometric aspect must be considered, including hands, feet, soles, back, and waist, to assess stability because this is a determinant of the success of an ergonomic chair design (Gumasing et al., 2019). The anthropometric dimensions measured are bench surface height, bench depth and width, backrest width and height, backrest angle, desk height, desk depth, width, and desk angle (Silviana et al., 2022).

The design of this chair also includes armrests and a backrest (Figure 1). Primagung's research on armrests, adjustable footrests, head support cushions for babies, headrests, foam cushions, adjustable backrest angles, and wheels are important features in designing an ergonomic breastfeeding chair to meet the needs of breastfeeding mothers (Prima et al., 2020). Moreover, the position of the neck, back, arm support with a pillow, and footrest are very important during breastfeeding (Widiastuti et al., 2020). Therefore, each dimension must be adjusted to the condition and sitting posture while breastfeeding. This study also takes body posture into account. The chair is designed to maintain a neutral position while the mother is breastfeeding. Neutral posture is a position where the body is aligned and balanced, maintaining the joints in harmony while sitting or standing. During breastfeeding, this neutral position allows the mother to keep her position close to the center of gravity, thereby minimizing the risk of discomfort and pain during or after breastfeeding.

Body posture is greatly influenced by the design and dimensions of the chair, so it is necessary to pay attention to appropriate anthropometric measurements to produce an ergonomic chair (Mohamaddan et al., 2022). An ergonomic chair is highly needed for mothers when breastfeeding their babies in a sitting position to enhance comfort and support for the mother during breastfeeding, thereby reducing back pain caused by prolonged breastfeeding in a sitting position (Santhosh & Malavika M D, 2019). Therefore, anthropometric dimension measurements are used to determine the appropriate size of the chair parts to provide comfort while breastfeeding and assist the mother in the breastfeeding process. However, the limitations in this study highlight the need for further development of the breastfeeding chair design by involving a larger sample size and longer observation and clinical testing periods to refine the chair design.

CONCLUSION

Postpartum breastfeeding mothers and women who have undergone cesarean section have different sizes and shapes, namely small, medium, and large based on the average percentile. The results of this study obtained a chair prototype according to the standard size required for the comfort of breastfeeding mothers by considering ergonomic aspects. The chair prototype fits the body dimensions with a Chair width 52.61 cm (95th),



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chair length 46.66 cm (5th), backrest width 52.53 cm (95th), seat back 83.83 cm (50th), chair height 48.90 cm (50th), armrest height 60.70 cm (50th), and, armrest length 26.90 cm (50th). The backrest is adjusted to the width of the head to prevent back and waist fatigue for comfort, and the armrest chair is adjusted to prevent fatigue when holding the baby while breastfeeding so that the baby does not fall. The ergonomic parameters in this study can be used to design an ergonomic breastfeeding chair to improve comfort, reduce back pain issues, and alleviate musculoskeletal disorders while breastfeeding in a sitting position.

ACKNOWLEDGMENTS

We would like to thank BRIN-DIKTI for facilitating this research and breastfeeding mothers who participated in this research.

REFERENCES

- Afshariani, R., Kiani, M., & Zamanian, Z. (2019). The influence of ergonomic breastfeeding training on some health parameters in infants and mothers: A randomized controlled trial. *Archives of Public Health*, 77(1), 1–10. <https://doi.org/10.1186/S13690-019-0373-X/TABLES/5>
- Castro, R. T. A., Ehlert, U., Glover, V., & O'Connor, T. G. (2025). Psychological factors affecting breastfeeding during the perinatal period in the UK: an observational longitudinal study. *BMC Public Health*, 25(1). <https://doi.org/10.1186/s12889-025-22020-y>
- Fitri, M., Adelino, M. I., & Putra, F. A. (2021). Usulan Perancangan Kursi Plus Meja Ergonomis dengan Pendekatan Antropometri. *MENARA Ilmu*, XV(01), 71–76.
- Fitrianto, T. R., Prakoso, G., Nugroho, A. R., Afifah, A. S., Anggiriani, S., & Widiastuti, R. (2025). Evaluation of Office Chairs to Enhance Comfort and Reduce Musculoskeletal Risk in Sedentary Work Environments. *Jurnal SENOPATI: Sustainability, Ergonomics, Optimization, and Application of Industrial Engineering*, 6(2), 114–121. <https://doi.org/10.31284/j.senopati.2025.v6i2.6750>
- Gumasing, M. J. J., Villapando, A. C., & Siggaoat, C. D. (2019). An ergonomic design of breastfeeding chair for Filipino mothers. *ACM International Conference Proceeding Series*, 280–284. <https://doi.org/10.1145/3335550.3339901>
- Habibzadeh, F. (2024). Data Distribution: Normal or Abnormal? *Journal of Korean Medical Science*, 39(3), 1–8. <https://doi.org/10.3346/jkms.2024.39.e35>
- Handayani, L., Prihadi, K. D., Vergawita, T., Fitriani, I., Hafidz, B., & Aisyahrani, A. I. B. (2025). The role of social-psychological support in breastfeeding promotion among young mothers: literature review. *International Journal of Public Health*



PROCEEDINGS OF AIPKIND SCIENTIFIC MEETING 2025

Publisher : Asosiasi Pendidikan Kebidanan Indonesia (AIPKIND)

<http://proceedingjournal-aipkind.or.id>

- Science (IJPHS)*, 14(1), 148. <https://doi.org/10.11591/ijphs.v14i1.25515>
- Hutabarat, J., Pradana, J. A., Ruwana, I., Basuki, D. W. L., Sari, S. A., & Septiari, R. (2023). Ergonomic Chair Design as a Solution to Musculoskeletal Disorders among Traditional Cobblers: An Anthropometric Study. *Journal Europeen Des Systemes Automatises*, 56(4), 697–701. <https://doi.org/10.18280/jesa.560419>
- Irfan, A., Umara Iftikhar Rana, Iqra Tul Hussain, Usman Saeed, Hammad Tahir, & Muhammad Talha Ahmad. (2023). Frequency of Musculoskeletal discomforts with various breast feeding positions and its associated factors among nursing mothers. *MedERA - Journal of CMH LMC*, 5(2), 74–81. <https://doi.org/10.61982/medera.v5i2.116>
- Kalarikkal, S. M., & Pflgebraar, J. L. (2023). Breastfeeding. In StatPearls. StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK534767/>
- Mohamaddan, S., Rahman, A., Shanat, M., Dawal, S. Z. M., & Hanafusa, A. (2022). Ergonomics Simulation and Analysis of Specially Designed Chair. *International Journal of Mechanics*, 16, 115–119. <https://doi.org/10.46300/9104.2022.16.14>
- Nduagubam, O. C., Ndu, I. K., Bisi-Onyemaechi, A., Onukwuli, V. O., Amadi, O. F., Okeke, I. B., Ogbuka, F. N., Ezenwosu, O. U., & Iheji, C. C. (2022). Assessment of breastfeeding techniques in Enugu, South-East Nigeria. *Annals of African Medicine*, 20(2), 98. https://doi.org/10.4103/AAM.AAM_22_20
- Prasetyo, F. A., & Budiyanto, T. (2020). Designing a Rotary Composter Tool With an Ergonomic Approach to the Organic Garbage Processing Process. *Logic : Jurnal Rancang Bangun Dan Teknologi*, 20(3), 152–159. <https://doi.org/10.31940/LOGIC.V20I3.2044>
- Prima, F., Vella, V., Lusi, S., & Hilma Raimona, Z. (2020). Redesign of breastfeeding chair for nursery room. *Malaysian Journal of Public Health Medicine*, 20(Specialissue1), 64–71. <https://doi.org/10.37268/MJPHM/VOL.20/NO.SPECIAL1/ART.701>
- Rahayu, T. S., Alfirsta, A. Z., Zaenab, Z. Y., Ferry, M., Rizky Ridho Sembada, & Ninuk Angelia. (2024). Efektivitas Breastfeeding oxytocin massage chair BOMASIR. *Jurnal Akademik Pengabdian Masyarakat*, 2(4), 100–109. <https://doi.org/10.61722/japm.v2i4.2128>
- Rani, S., Umm Habiba, Wardah Ajaz Qazi, & Naureen Tassadaq. (2019). Association of breast feeding positioning with musculoskeletal pain in post partum mothers of Rawalpindi and Islamabad. 69(04).
- Santhosh, B. M., & Malavika, M. D. (2019). Exploration in to the Ergonomics of Sitting Posture of Lactating Mothers. *International Journal of Engineering Research And*, 08(07), 908–913. <https://doi.org/10.17577/ijertv8is070386>
- Shah, R., Sabir, S., & Alhawaj, A. F. (2021). Physiology, Breast Milk. In StatPearls.



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Publisher : Asosiasi Pendidikan Kebidanan Indonesia (AIPKIND)

<http://proceeding.journal-aipkind.or.id>

- StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK539790/>
- Sharma, A. M., & Roopa, R. (2024). Exploring Modern Breastfeeding Practices: An Insight Into Optimal Positioning For Today's Mothers. *International Journal of All Research Education and Scientific Methods*, 12(11), 1064–1071. <https://doi.org/10.56025/ijaresm.2024.1211241064>
- Silviana, Hardianto, A., & Hermawan, D. (2022). the Implementation of Anthropometric Measurement in Designing the Ergonomics Work Furniture. *EUREKA, Physics and Engineering*, 2022(3), 20–27. <https://doi.org/10.21303/2461-4262.2022.001967>
- Widiastuti, I. A. K. S., Rustina, Y., & Efendi, D. (2020). The use of breastfeeding pillow to reduce discomfort for breastfeeding mothers. *Pediatric Reports*, 12, 47–51. <https://doi.org/10.4081/pr.2020.8702>



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Effectiveness of Consuming Boiled Chicken Eggs in Accelerating Healing of Second-Degree Perineal Rupture During the Proliferation Phase in Postpartum Mothers

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ABSTRACT

Background: Perineal rupture is an injury to the tissue around the vagina and anus that occurs during vaginal delivery. This wound can occur directly or using tools, and generally occurs in the middle between the perineum and anus. From the results of a preliminary study at the Paradise Hospital in South Kalimantan in 2024, there were 104 (36.3%) mothers giving birth with perineal rupture out of 395 mothers giving birth. While in 2023, there were 160 (40.5%) mothers giving birth with perineal rupture out of 395 postpartum mothers with an average acceleration of perineal wound healing on the 7th to 10th day.

Purpose: The aim was to determine how boiled chicken eggs can accelerate the healing of grade II perineal rupture in the proliferation phase.

Methods: The research design used Quasi Experiment with Posttest Only Non Equivalent Control Group. The sample in this study were 36 postpartum mothers with grade II perineal rupture, with Purposive Sampling technique.

Results: The results of the study using the Man Whitney test showed differences in values in the experimental group, data obtained that the acceleration of perineal wound healing was almost entirely, namely 16 people (88.9%) respondents experienced wound healing ≤ 7 days, while in the control group most of them, namely 10 people (55.6%) respondents experienced wound healing > 7 days, the results of the p value (exact. Sig / 2 tailed) were $0.003 < 0.05$.

Conclusion: The conclusion of this study is that there is an effect of boiled chicken eggs on accelerating the healing of grade II perineal rupture, Proliferation Phase in Postpartum Mothers. It is recommended that the provision of boiled chicken eggs can be applied in providing health services, especially in accelerating the proliferation of perineal wound healing in mothers..

Keywords: *Perineum Rupture; Post Partum; Boiled Chicken Eggs; Proliferation.*



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BACKGROUND

Perineal tears are tears that occur in the perineum, either spontaneously or as a result of the use of instruments or procedures that often occur in primiparous patients during childbirth. Data shows that out of 1,951 spontaneous deliveries, 57% of mothers required perineal sutures, with 8% caused by episiotomy and 29% by spontaneous tears. Perineal tears are more common in primiparous mothers than in multiparous mothers (Sinaga & Fifi, 2025). One of the problems during the postpartum period that often causes infection is perineal tears. Perineal tears occur in almost all first deliveries and not infrequently in subsequent deliveries (Idhayanti et al., 2020).

Preliminary study results from Paradise Hospital in 2024 indicate that out of 395 mothers who gave birth, 104 (36.3%) experienced postpartum bleeding, and out of 395 postpartum mothers, 160 (40.5%) experienced postpartum bleeding, with an average acceleration in perineal wound healing from day 7 to day 10. One consequence of postpartum infection is caused by wounds at the site of the placental scar, tears in the genital tract including episiotomy on the perineum, vaginal wall, and cervix. Wounds on the perineum due to episiotomy, uterine tears, or tears are areas that are difficult to dry. The incidence of infection due to episiotomy remains high, with an estimated 70% of women who give birth vaginally experiencing perineal trauma or episiotomy, more or less experiencing perineal trauma (Mawadah, 2021)

Factors that affect perineal wound healing include perineal care, sleep quality, postpartum exercise, nutrition, type of suture material, suture technique and timing of suture. The role of protein as a substance for building blocks of muscle, body tissue, but cannot be stored by the body, so for the wound healing stage, daily protein intake is needed. Protein content will greatly affect the perineal wound healing process. Damaged tissue requires high protein for the regeneration process of new cells. Foods with high protein can be obtained from eggs, both free-range chicken eggs, broiler chicken eggs and broiler chicken eggs. The best treatment for eggs is by boiling them until cooked (Purnani, 2024).

One solution for postpartum mothers is an idea obtained from the world of animal food, namely boiled eggs. Eggs are a type of animal protein side dish that is cheap, easy to find, economical and one of the most nutrient-dense foods. The nutritional content of eggs is 90% calcium and iron, one egg contains 6 grams of quality protein and 9 essential amino acids. Protein is a substance that is responsible as a building block in the body, so in healing wounds, protein is needed every day (Wulandari et al., 2024). In this case, chicken eggs are more often used in healing wounds than duck eggs / quail eggs / kampung chicken eggs, because in addition to being easy to get, chicken eggs have a



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distinctive taste, are not fishy, do not cause nausea, and have a fairly high protein content (Nurhayati et al., 2020).

Boiled eggs will reduce the fat content and increase the vitamin content contained in it while fried eggs will increase the fat content many times compared to boiled eggs and the vitamin content in eggs decreases if compared to boiled eggs so that giving boiled eggs will accelerate wound healing when compared to fried eggs (Wulandari et al., 2024). Boiled eggs are proven for healing perineal stitches in postpartum mothers or postpartum mothers because the acceleration of perineal wound healing during the postpartum period is very much expected to avoid postpartum mothers from the danger of infection. According to Handayani et al., (2020) perineal wound healing begins with the improvement of the perineal wound with the formation of new tissue that covers the perineal wound within 6–7 days postpartum with the criteria of dry wounds, closed stitches and no signs of infection (swelling, redness, pus and fever).

OBJECTIVE

One solution for postpartum mothers is an idea obtained from the world of animal food, namely boiled eggs.

METHODS

This study uses a Quasi Experimental design, which is a study that tests a treatment on a group of subjects with the aim of revealing cause and effect. The design used is the Posttest only non Equivalent Control Group design. In this design, there is no initial measurement (pre-test) and measurements are only carried out once in the final group (posttest).

The conclusion of the research results is obtained by comparing post-test data between the treatment group and the control group.

: R1-----> X1 -----> O2 R2 -----> X0 -----> O2

Keterangan :

R1 : Treatment subjects

R2 : Subjek kontrol

X1 : Control subjects

X0 : Control group without intervention

O2 : Post test on both groups after treatment

The sample is part of the number and characteristics possessed by the population in the study amounting to 18 people in the experimental group and 18 people in the control group. So the total sample needed is 36 people. This study uses a non-probability technique which is a technique that does not provide equal opportunities or chances for



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each element or member of the population to be selected as a sample. The samples that will be selected are those that meet the inclusion criteria of this study, namely: Postpartum mothers with grade II perineal rupture who do not have a history of diabetes mellitus, do not have an allergy to eating eggs or do not eat eggs, Postpartum mothers in the register book / postpartum mothers registered in the register book who have grade II perineal wounds, aged 20-35 years, Primipara and Multipara, taking medication (antibiotics and painkillers), willing to consume boiled eggs as side dishes or snacks 2 times a day for 7 days after 2 hours postpartum. Meanwhile, the exclusion criteria for this study were: postpartum mothers with grade II perineal rupture who did not have complete data at the Paradise Maternity Hospital (RSIA) in South Kalimantan, unable to communicate well, postpartum mothers whose homes were not reachable.

Bivariate analysis in this study uses a nonparametric test, namely the Mann Whitney U-test as a hypothesis test. This method is applied to data measured with ordinal and nominal scales.

RESULTS

Binivariate Analysis

Table 3 Analysis of the results of the study on the effect of boiled chicken eggs on accelerating the healing of perineal rupture.

Value P	Accelerasi		Grup		Total		Healing
	Luka	N	%	N	%	N	
1.	≤ 7 day	16	88,9	8	44,4	24	66,65
2.	>7 day	2	11,1	10	55,6	12	33,35
	Total	18	100	18	100	36	100

Based on table 3, data on differences in the acceleration of perineal rupture healing between the control group and the experimental group were obtained. In postpartum mothers who did not consume boiled chicken eggs ≤7 days, most (55.6%) experienced perineal rupture healing and postpartum mothers who experienced perineal rupture healing ≤7 days were almost half (44.4%). while in postpartum mothers who consumed boiled chicken eggs ≤7 days almost all (88.9%) experienced perineal rupture healing and postpartum mothers experienced perineal rupture healing >7 days a small portion (11.1%). The test used was the Man Whitney alternative test conducted using SPSS where the p value (exact. Sig / 2 tailed) was obtained at 0.003 <0.05, meaning that there was a difference in the acceleration of perineal rupture healing between the control group and the experimental group.

Therefore, H0 was rejected and H1 was accepted, meaning that there was an effect of consuming boiled chicken eggs on the acceleration of perineal rupture healing in the



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proliferation phase of grade II. The Mann Whitney test is used to test the difference in mean ranks (ordinal data) of 2 independent groups (2 different groups).

DISCUSSION

Effectiveness of Consuming Boiled Chicken Eggs to Accelerate the Healing of Second Degree Perineal Rupture in the Proliferation Phase.

The results of the analysis of the Effectiveness of Consuming Boiled Chicken Eggs on Accelerating the Healing of Grade II Perineal Rupture Proliferation Phase obtained results using the Mann Whitney Test where the P Value was $0.003 < 0.05$ so that H_0 was rejected and H_a was accepted which means there is an Effect of Consuming Boiled Chicken Eggs on Accelerating the Healing of Grade II Perineal Rupture Proliferation Phase. The results of the statistical analysis are supported by the findings of the healing results of perineal ruptures before being given boiled chicken eggs entirely (100%). After being given boiled chicken eggs, postpartum mothers who experienced accelerated healing of perineal ruptures ≤ 7 days were almost all (88.9%), while postpartum mothers who experienced healing of perineal ruptures > 7 days were a small part (11.1%).

Based on recent research on the effect of high phyto-protein consumption on the quality of perineal wound healing, one important aspect that plays a significant role in the healing process is nutrient intake particularly protein, which supports tissue regeneration and collagen synthesis. This aligns with the study conducted by Sulistyoningtyas & Komala, (2020), titled "Effect of High Consumption of Phyto-Protein on Quality of Perineal Wound Healing in Postpartum Mothers at the Mlati II Health Center, Sleman Regency." The study used an experimental design and assessed wound healing using the REEDA scale and food record. The results showed a statistically significant effect, with a p-value of $0.000 < 0.05$, indicating that high phyto-protein intake positively influences perineal wound healing quality.

Based on previous research, knowledge about postpartum nutrition for healing perineal wounds has shown a significant influence on recovery outcomes. A recent study by Farlikhatun & Sari, (2025) entitled "The Impact of Postpartum Food Abstinence on Perineal Wound Healing Duration" examined how cultural practices particularly food abstinence affect nutritional status and wound healing in postpartum mothers. This study used a cross-sectional analytical design involving 36 postpartum women with perineal wounds. The results revealed a statistically significant relationship between food abstinence and prolonged wound healing duration ($p = 0.003$), indicating that avoiding protein-rich foods such as chicken, meat, fish, and eggs can delay the healing process. The similarity with the current research lies in the independent variable, namely perineal wound healing. However, the difference lies in the dependent variable, which in this study is food abstinence behavior, and the statistical test used, which was Chi-Square, while the



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current research uses Correlational Analytic.

Based on recent research, the consumption of boiled eggs has been shown to accelerate the healing of perineal wounds in postpartum mothers. A study conducted by Wulandari et al., (2024) entitled “Effectiveness of Consuming Boiled Eggs on Healing Time of Perineal Wounds in Postpartum Mothers” explored the impact of protein-rich nutrition on wound recovery. This study used an observational case study method with a continuity of care approach, conducted at Adeyane Midwife Independent Practice in Tanggamus Regency. Postpartum mothers were given boiled egg whites twice daily for one week. The results showed a significant improvement in wound healing, with faster recovery observed in mothers who consumed boiled eggs compared to those who did not. The study concluded that boiled eggs, being nutrient-dense and rich in protein, play a vital role in tissue regeneration and reducing inflammation. The similarity with the current research lies in the dependent variable, namely boiled egg consumption, while the difference lies in the independent variable and the method used, which in this study was observational rather than Wilcoxon statistical testing. Nonetheless, both studies support the conclusion that boiled egg consumption positively influences perineal wound healing.

According to researchers consuming boiled chicken eggs to accelerate the healing of perineal rupture in the experimental group, most experienced faster wound healing compared to the control group whose wound healing was only a small part. Because it has a high nutritional content containing more than 90% calcium and iron, one egg contains 6 grams of quality protein and good nutrition will facilitate wound healing and inhibit or avoid malnutrition. The treatment of consuming 1 boiled chicken egg measuring 60 grams in the control group was consumed 2 times a day for 7 days eaten directly or used as side dishes. From the results of the study, it was found that in the experimental group almost all of them, namely 16 people (88.9%) and in the control group, wound healing was faster, almost half, namely 8 people (44.4%), although in the experimental group did not fully experience fast wound healing, but from the Mann Whitney Test statistical test value, a P Value of 0.003 was obtained which is <0.05 . Therefore, H_0 is rejected and H_1 is accepted, which means that there is an effect of consuming boiled chicken eggs on the healing of grade II perineal rupture in the proliferation phase.

CONCLUSION

The Effectiveness of Consuming Boiled Chicken Eggs on Healing Grade II Perineal Rupture Proliferation Phase

Based on the results of the research that has been done, the researcher would like to provide suggestions to several related parties:

1. The results of this study are expected to increase insight into the benefits of consuming boiled chicken eggs to accelerate the healing of perineal wounds



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2. It is hoped that health programs will be better in the future, especially in the field of "Obstetrics" through the IBI organization and can be used as input in providing Educational Information Communication to postpartum mothers who experience grade II perineal wounds in the proliferation phase.
3. For further researchers, it can be used as a reference and can develop what has been done in this study. In addition, to strengthen further research, it must be able to assess the honesty of respondents, control the compliance of respondents in believing in tradition and lack of knowledge, and observe mobilization movements in order to obtain compliance from each respondent and be able to monitor respondents so that they will get maximum results.

REFERENCES

- Farlikhatun, L., & Sari, D. P. (2025). *The Impact Of Postpartum Food Abstinence On Perineal Wound Healing Duration : A Cross-Sectional Study At Anugrah Mulia Clinic , Indonesia*. 4(1), 52–60.
- Handayani, E., Damailia, H. T., & Pujiastuti, W. (2020). Factor Affecting Perineal Wound Healing. *Journal of Midwifery Science: Basic and Applied Research*, 2(2), 38–42. <https://doi.org/10.31983/jomisbar.v2i2.6506>
- Idhayanti, R. I., Warastuti, A., & Yuniyanti, B. (2020). Mobilisasi Dini Menurunkan Nyeri Akibat Jahitan Perineum Tingkat Ii Pada Ibu Post Partum. *Jurnal Jendela Inovasi Daerah*, 3(2), 29–43. <https://doi.org/10.56354/jendelainovasi.v3i2.85>
- Mawadah, A. A. (2021). *Faktor yang Berhubungan dengan Penyembuhan Luka Perineum pada Ibu Post Partum di Wilayah Kerja UPTD Puskesmas Wek 1 Kota Padangsidempuan*.
- Nurhayati, N., Maulida, I., & Chikmah, A. (2020). Boiled Chicken Eggs Against Rate of Perineum Tears on Postpartum Mothers in Kramat Health Center, Tegal Regency. *Siklus : Journal Research Midwifery Politeknik Tegal*, 9(1), 35–38. <https://doi.org/10.30591/siklus.v9i1.1688>
- Purnani, W. T. (2024). Perbedaan Efektivitas Pemberian Putih Telur Dan Ikan Gabus Terhadap Penyembuhan Luka Perineum Ibu Nifas. *Indonesian Scholar Journal of Nursing and Midwifery Science (ISJNMS)*, 3(10), 1459–1466. <https://doi.org/10.54402/isjnms.v3i10.507>
- Sinaga, E. B., & Fifi, R. N. (2025). Hubungan Teknik Meneran Dengan Kejadian Rupture Perineum Pada Ibu Bersalin Di Pmb Herviza Kota Kisaran Tahun 2025 Eliza Bestari Sinaga 1 , Fifi Ria Ningsih Safari 2. *Jurnal Penelitian Keperawatan Kontemporer*.
- Sulistyoningtyas, S., & Komala, Y. (2020). Effect of high consumption the phyto-protein on quality of wound healingperineal on the postpartum at Primary Health Center



PROCEEDINGS OF AIPKIND SCIENTIFIC MEETING 2025

Publisher : Asosiasi Pendidikan Kebidanan Indonesia (AIPKIND)

<http://proceeding.journal-aipkind.or.id>

Mlati II District Sleman. *International Journal of Health Science and Technology*, 1(3), 75–79. <https://doi.org/10.31101/ijhst.v1i3.1275>

Wulandari, L. A., Yulianingsih, W., Safitri, E. Y., Firawati, N., & Sulinanda, W. R. (2024). Effectiveness of Consuming Boiled Eggs on Healing Time Perennial Wounds in Postpartum Mothers. *Journal of Health Science*, IX(2), 46–49.



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A Scoping Review of Breastfeeding Peer Support Models Applied in Primary Healthcare Facilities

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ABSTRACT

Background: Exclusive breastfeeding during the first six months of an infant's life is a primary recommendation by the World Health Organization (WHO) to promote optimal health and development. The successful implementation of this practice greatly depends on adequate maternal knowledge, a positive attitude toward breastfeeding, and appropriate interventions. One approach that is increasingly being adopted to improve breastfeeding practices is the peer support model, particularly when applied in primary healthcare facilities, as an effort to empower mothers through support from individuals with similar breastfeeding experiences.

Purpose: This review aims to map various peer support models for breastfeeding that have been implemented in primary healthcare facilities, and to examine how these approaches contribute to improving maternal knowledge, attitudes, and breastfeeding practices, particularly in the context of exclusive breastfeeding

Methods: This study employed a scoping review method of peer-reviewed literature. The literature search was conducted through electronic databases such as PubMed, Google Scholar, and the Cochrane Library for articles published within the last five years (2019–2024). Selected studies were evaluated based on the peer support model approach, its integration into primary healthcare services, and its impact on exclusive breastfeeding practices.

Conclusion: Peer support models implemented in primary healthcare facilities hold great potential in enhancing the success of exclusive breastfeeding. Structured, sustainable, and



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community-based interventions need to be further developed to support the achievement of WHO's breastfeeding targets.

Keywords: *Peer support; exclusive breastfeeding; maternal knowledge; attitude; breastfeeding practices.*

BACKGROUND

Although 56% of infants receive complementary feeding before reaching 6 months of age, this indicates that exclusive breastfeeding rates remain low and the practice of giving complementary foods is still high in various parts of the world. Global data show an increase in exclusive breastfeeding overall, but the rise is not significant. In other words, approximately 44% of infants aged 0-6 months worldwide were exclusively breastfed during the period 2015-2020, which is still below the target of 50%.

Exclusive breastfeeding during the first six months of an infant's life is a key recommendation issued by the World Health Organization (WHO) as a global standard for optimizing infant health and growth. The success of this practice is strongly influenced by adequate maternal knowledge and a positive attitude toward breastfeeding, supported by appropriate interventions.

Effective support for breastfeeding mothers is a crucial factor in facilitating exclusive breastfeeding practices, especially within the context of primary healthcare services. One approach that is currently gaining traction is the peer support model, which offers guidance and companionship from individuals who have had similar breastfeeding experiences.

This peer support model is widely implemented in primary healthcare facilities as a strategy to improve the sustainability and quality of breastfeeding practices, with the goal of strengthening mothers' capacity to successfully carry out exclusive breastfeeding. The results of this study indicate that Breastfeeding Peer Supporters (BFPS) play an effective role in increasing the rate of exclusive breastfeeding among hospitalized infants. Qualitative data from the study reveal that BFPS successfully establish an emotional connection with mothers during the admission period, which in turn boosts the mothers' confidence to accept and try various new ideas and techniques suggested by the BFPS.

OBJECTIVE

This review aims to map various peer support models for breastfeeding that have been implemented in primary healthcare facilities, and to examine how these approaches contribute to improving maternal knowledge, attitudes, and breastfeeding practices, particularly in the context of exclusive breastfeeding.



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METHODS

Based on previous experience, the literature on breastfeeding peer support models implemented in hospitals in low-income countries remains very limited. Therefore, a scoping review study was conducted to identify the types and amount of information available regarding hospital-based breastfeeding peer support strategies. This study used the Arksey and O'Malley framework as a guide for conducting the scoping review. We followed the six stages of this framework and selected studies that met the inclusion criteria. In the initial stages, we defined the research objectives and search terms, then conducted a literature search in five online databases: PubMed, Cochrane Library, Hinari, Google Scholar, and Open Grey Library. Table 1 shows the search terms and search details used specifically for the PubMed database. The search included keywords such as peer support, breastfeeding, and hospital-based support, which were expanded with related terms and synonyms. The online data search was conducted over the period from 2019 to 2024. Additionally, we sought further articles by reviewing the bibliographies of the identified studies. In the third stage, we screened relevant articles based on the predetermined inclusion and exclusion criteria.

We included articles that discuss the use of lay breastfeeding peer supporters in community health centers. These lay breastfeeding peer supporters are mothers who are literate but do not have formal higher education or professional work experience in the health sector. The articles cover various types of peer support regardless of the terms used, such as mother-to-mother support or lactation counselors. The sources of these articles come from peer-reviewed journals as well as grey literature. The articles reported support provided to mothers with infants under 6 months old, without restrictions on geographic location or publication year. This approach aimed to broaden the range of articles identified in this review.

We excluded articles that did not clearly describe a breastfeeding support model; articles that described breastfeeding support provided in outpatient clinics or at the community level; and articles that recruited participants at community health centers but provided breastfeeding support outside the community health centers.

RESULTS

The following table presents a summary of several relevant studies on peer support models in breastfeeding within primary healthcare facilities:

In a systematic review of 113 articles, 10 studies met the inclusion criteria. These studies consisted of randomized controlled trials and cohort studies. The primary focus of assessment in these studies included peer support, exclusive breastfeeding, maternal knowledge, attitudes, breastfeeding practices, and primary healthcare facilities.



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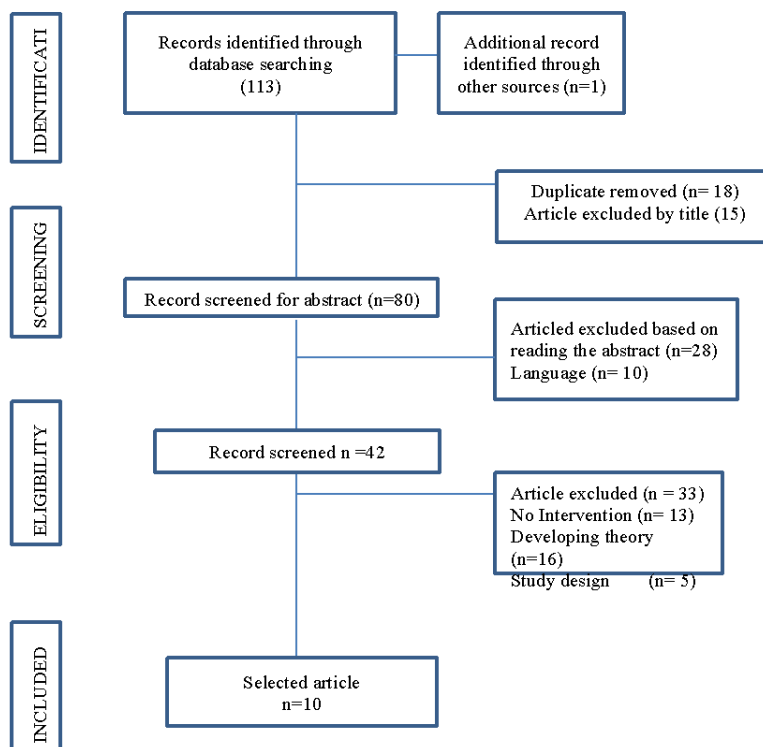


Figure 1. Diagram PRISMA

Table 1. Data Carting

Author	Year	Study Design	Location	Peer Support model	Key Findings
Rezapour et al.	2021	Randomized clinical trial	Ilam, Iran	Counseling and training by 30 peer mothers	Increased breastfeeding self-efficacy scores and duration of exclusive breastfeeding
Piro et al.	2021	Randomized clinical trial	Not specified	Counseling and training by peer mothers	Increased breastfeeding self-efficacy in primiparous mothers
Godarzi et al.	2021	Randomized clinical trial	Not specified	Counseling and training by peer mothers	Increased success in breastfeeding initiation and duration of exclusive breastfeeding
McQueen et al.	2021	Cohort study	Not specified	Counseling by peer mothers	Increased breastfeeding self-efficacy scores, but not statistically significant



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DISCUSSION

The peer support model within primary healthcare facilities shows significant potential in improving mothers' knowledge, attitudes, and breastfeeding practices, especially regarding exclusive breastfeeding. Theoretically, peer support is grounded in the social learning theory, which emphasizes the importance of social interaction and shared experiences in shaping new behaviors (Bandura, 2023). Through guidance by experienced peer mothers, new mothers gain role models who motivate them and enhance their self-confidence (self-efficacy) in breastfeeding practices.

Research by Rezapour et al. (2021) and Piro et al. (2021) reinforces this theory by demonstrating that training and counseling provided by peer mothers can increase breastfeeding self-efficacy and extend the duration of exclusive breastfeeding, particularly among primiparous mothers who may be more vulnerable to early breastfeeding challenges. These findings align with Godarzi et al. (2021), who also reported improvements in breastfeeding initiation success and exclusive breastfeeding duration, indicating that peer support can significantly contribute to better breastfeeding practices at the community level.

In line with this, Rezapour et al. (2021) conducted a randomized controlled trial in Ilam, Iran, involving 240 primiparous mothers divided into two groups: the experimental group received counseling and training from 30 peer mothers, while the control group received routine training. The results showed a significant increase in breastfeeding self-efficacy scores and exclusive breastfeeding duration in the experimental group compared to the control.

Piro et al. (2021) also performed a randomized controlled trial assessing the impact of peer counseling and training on breastfeeding self-efficacy among primiparous mothers. The study found that peer support effectively enhanced mothers' confidence in breastfeeding. Godarzi et al. (2021) evaluated the effect of peer counseling and training on breastfeeding initiation and exclusive breastfeeding duration. Their results showed that peer support improved initiation success and extended exclusive breastfeeding duration among primiparous mothers.

McQueen et al. (2021) conducted a cohort study in which, although breastfeeding self-efficacy scores increased in the intervention group receiving peer counseling, the difference compared to the control group was not statistically significant. This suggests that other factors, such as the quality of interaction between peer mothers and supported mothers, as well as support from professional healthcare workers, might influence intervention outcomes.

Wong et al. (2021) conducted a systematic review and meta-analysis examining the effectiveness of educational and support interventions for primiparous mothers. The results showed that interventions involving peer support effectively improved



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breastfeeding outcomes and self-efficacy.

Nonetheless, the statistically non-significant results in McQueen et al. (2021) indicate variability in the effectiveness of peer support interventions. This may be influenced by factors such as communication quality, frequency, and intensity of peer support. Additionally, support from professional healthcare providers integrated with peer support models plays an essential role in strengthening intervention outcomes. Therefore, researchers suggest that the success of peer support models depends not only on training peer mothers but also on synergy with healthcare professionals and local adaptation, which together can enhance the effectiveness of programs aimed at improving exclusive breastfeeding practices.

CONCLUSION

Peer support strategies for breastfeeding have been implemented in various hospitals and have proven effective in improving breastfeeding success among sick infants under 6 months of age who are hospitalized. However, to achieve optimal integration, expand coverage, and ensure consistent comparability of outcomes, standardization of training as well as the development of uniform implementation and supervision plans for peer supporters across different care facilities are necessary. Further research evaluating the sustainability and cost-effectiveness of peer support strategies in inpatient settings is essential to promote wider adoption and accelerate the scalability of this potentially life-saving intervention.

ACKNOWLEDGMENTS:

The researcher would like to thank the Stikes Hamzar Maben Lombok Timur, Itkes Muhammadiyah Sidrap and Stikes Gunung Sari Makassar

REFERENCES

- Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology*, 8(1), 19–32. <https://doi.org/10.1080/1364557032000119616>
- Bandura, A. (2023). *Social cognitive theory: An agentic perspective on human nature*. Wiley & Sons.
- Godarzi, M., Azadbakht, M., & Rezapour, M. (2021). The effect of peer support on breastfeeding initiation and exclusive breastfeeding duration: A randomized controlled trial. *International Breastfeeding Journal*, 16(1), 45. <https://doi.org/10.1186/s13006-021-00375-7>
- McQueen, K., Dennis, C.-L., & Barrington, K. (2021). Peer support for breastfeeding initiation and continuation: A cohort study. *Maternal & Child Nutrition*, 17(2),



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- e13125. <https://doi.org/10.1111/mcn.13125>
- Mwangome, M., Murunga, S., Kahindi, J., Gwiyo, P., Mwasho, G., Talbert, A., et al. (2019). Individualized breastfeeding support for acutely ill, malnourished infants under 6 months old. *Maternal & Child Nutrition*, 15(2), e12700. <https://doi.org/10.1111/mcn.12700>
- Piro, F. S., Rezapour, M., & Azadbakht, M. (2021). Impact of peer counseling on breastfeeding self-efficacy in primiparous mothers: A randomized controlled trial. *Journal of Nursing and Midwifery Sciences*, 8(4), 280–286. https://doi.org/10.4103/JNMS.JNMS_23_21
- Kahindi, J., Jones, C., Berkley, J. A., & Mwangome, M. (2020). Establishing exclusive breastfeeding among in-patient malnourished infants in a rural Kenyan hospital: Mothers' experiences of a peer supporter intervention. *International Breastfeeding Journal*, 15(1), 87. <https://doi.org/10.1186/s13006-020-00320-8>
- Rezapour, M., Azadbakht, M., & Piro, F. S. (2021). Effectiveness of peer support on breastfeeding self-efficacy and exclusive breastfeeding duration: A randomized controlled trial in Iran. *International Journal of Pediatrics*, 9(3), 13123–13131. <https://doi.org/10.22038/ijp.2021.58031.2592>
- Van Ryneveld, M., Mwangome, M., Kahindi, J., & Jones, C. (2020). Mothers' experiences of exclusive breastfeeding in a postdischarge home setting. *Maternal & Child Nutrition*, 16(1), e12948. <https://doi.org/10.1111/mcn.12948>
- Wong, S. F., Chow, L. P., & Chan, S. W. C. (2021). Effectiveness of peer support interventions for breastfeeding in primiparous mothers: A systematic review and meta-analysis. *Journal of Advanced Nursing*, 77(10), 4073–4085. <https://doi.org/10.1111/jan.14881>
- World Health Organization. (2021). Infant and young child feeding: Model chapter for textbooks for medical students and allied health professionals. <https://www.who.int/publications/i/item/9789241546249>



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The Effect of Warm Water Soaking Therapy on Lower Leg Edema of Pregnant Women in the Work Area of The Bandar Khalifah Health Center Serdang Bedagai

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ABSTRACT

Background: Edema in the legs of pregnant women is one of the physiological things, but if left unchecked it will compromise activities. Foot soak therapy can be used as a non-pharmacological alternative by using methods that are cheaper and easier for pregnant women.

Purpose: The general purpose of this study was to determine the effect of warm water soak therapy on lower limb edema in pregnant women.

Methods: The research design used is Quasi experiment with One Group Pret Post Test Design. The sample of pregnant women who experienced lower limb edema was 17 people. Data processing using dependent t-test (paired sample t-test). The duration of the research began from the research permit was issued, spanning approximately one month, including two weeks for data collection and two weeks for data processing, which involved presenting the findings in the form of a thesis and undergoing the supervision process.

Results: The results of this study the effect of warm water soak therapy on edema in the lower limbs of pregnant women (p-value = 0.019).

Conclusion: The results of this study the effect of warm water soak therapy on edema in the lower limbs of pregnant women (p-value = 0.019).

Keywords: Warm Water Soak Therapy; Edema; Pregnant Women; Third trimester.



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BACKGROUND

Pregnancy is a condition in which there is an embryo or fetus inside a woman's uterus. Pregnancy begins at the time of conception and continues until the birth of the baby. The duration of pregnancy is counted from ovulation to parturition, estimated at approximately 40 weeks and not exceeding 43 weeks. Pregnancy is divided into three trimesters: the first trimester lasts for 12 weeks, the second for 15 weeks, and the third for 13 weeks. Every woman desires a healthy pregnancy without complications until delivery. However, every pregnant woman is at risk of death (Rahayu & Mulyani, 2020).

Pregnancy complications that can lead to death include abortion, infection, pulmonary embolism, postpartum hemorrhage, hypertension, and eclampsia, including both direct and indirect complications. Meanwhile, delivery complications causing maternal death include postpartum hemorrhage, high blood pressure, infection, retained placenta, preeclampsia, eclampsia, and other accompanying diseases (Bayuana et al., 2023).

Changes during pregnancy require both physical and psychological adaptation, which may lead to discomfort—one of which is edema (Handayani et al., 2024). Edema during pregnancy is triggered by changes in estrogen levels, leading to fluid retention. This increased fluid retention is associated with physical changes during late pregnancy, such as the enlarging uterus and increased fetal weight. Additionally, weight gain increases the pressure on the legs to support the mother's body, which may lead to impaired circulation in the leg veins, resulting in edema (Adabiyah, 2021).

In the process of pregnancy there are fluctuating physiological changes. The changes that occur in pregnant women cause discomfort that can be disturbed or ignored during pregnancy. Discomfort during pregnancy includes nausea, vomiting, fatigue, upper and lower back pain, increased frequency of micturition, tingling, swelling of the legs, heartburn (Efendi et al., 2022).

Pregnant women may develop preeclampsia as a result of edema. Pregnancy-related edema usually develops about 20 weeks of pregnancy and lasts until the early postpartum phase. Physical symptoms like nausea and vomiting are common in pregnant women with preeclampsia, and they also cause psychological discomfort. Warm foot soak therapy is a non-pharmacological strategy that can help lessen edema (Adabiyah, 2021).

Foot edema is found in approximately 80% of pregnant women in the third trimester, caused by pressure from the uterus that hampers venous return and gravitational pull, leading to increased fluid retention. Edema can be an early symptom of pathological conditions or an indicator of chronic diseases during pregnancy such as anemia, intrauterine growth restriction (IUGR), preterm labor, hypertension, preeclampsia, eclampsia, placental abruption, and placenta previa with hydramnios. Diseases that may



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cause edema include chronic heart failure, kidney failure, joint disease, excessive salt intake, and physical fatigue (Adabiyah, 2021).

Such non-pharmacological alternative that is inexpensive and easy to use is foot soaking therapy. Warm water foot soaks are easy to apply, accessible, and there is no risk of any side effects. Furthermore, this medicine can help prevent side effects from medication like diuretics, which can cause fluid loss, poor uteroplacental perfusion, elevated hemoconcentration, fetal dehydration, and decreased fetal weight if not employed cautiously (Zaenatulshofi & Eti, 2019).

Foot soaking therapy with warm water has been proven effective in reducing foot edema in pregnant women in the third trimester, as demonstrated in a study by Zaenatulshofi & Eti, (2019) at PMB Supriyatin Jambi, as well as research by Handayani et al., (2024) at the Tanjung Balai Karimun Health Center. This intervention showed a statistically significant reduction in edema ($p < 0.05$) and was evaluated as a safe, easily accessible, and non-pharmacological method with no side effects. Foot soaking therapy is a suitable alternative to the use of diuretics, which can cause uteroplacental blood flow disorders, fetal weight loss, and dehydration risks if not used carefully..

Researchers from the Bandar Khalifah Health Center in Serdang Begagai carried out the first survey, using data collected between August – October 2024 there were up to 28 pregnant women and 17 of them developed edema during the third trimester. They claimed to be unaware that using warm water for foot soak therapy helped lessen edema, given the background information provided, the authors hope to investigate the impact of warm water soaking on pregnant women's lower limb edema in the Bandar Khalifah Serdang Begagai Health Center Working Area.

OBJECTIVE

The objective of the research is to determine the Effect of Warm Water Soak on Lower Limb Edema of Pregnant Women in the Bandar Khalifah Serdang Begagai Health Center Working Area.

METHODS

This research is quantitative in quasi-experimental design, specifically using the one-group pretest-posttest design. This design is chosen because the study aims to compare the pretest and posttest results of the intervention group (Anantasia, 2025). The population and sample in this study consists of third-trimester pregnant women experiencing lower leg edema in the working area of Bandar Khalifah Public Health Center, Serdang Begagai, totaling 17 individuals. The sample in this study includes the entire population, totaling 17 participants. The instruments used in this research are edema observation and warm water soaking.



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Data analysis was conducted in stages, consisting of univariate and bivariate analyses Independent T Test. Respect for human dignity and the protection of participants' rights are important ethical issues in this study. Informed consent was obtained from participants after a complete explanation of the study's objectives, benefits, and risks. Data confidentiality was ensured through a coding system (anonymity), where participants' identities were not included, and data collection forms were kept to a minimum, using only initials or codes. All collected information was kept confidential (confidentiality), and only specific data were reported for research purposes. This study received ethical approval through an ethical clearance from the Ethics Committee of Universitas Sari Mutiara Indonesia, with approval letter number: No.2517/F/KEP/USM/XII/2024.

RESULTS

Bandar Khalifah Public Health Center (Puskesmas Bandar Khalifah) is located in Bandar Khalifah, Serdang Bedagai. It is a non-inpatient health center that offers a variety of healthcare services, including general check-ups, issuance of medical certificates, outpatient care, suture removal, wound dressing, wound stitching, tooth extraction, blood pressure checks, pregnancy tests, child health examinations, blood type tests, uric acid tests, cholesterol tests, and more. The health center also provides referral services for BPJS patients to hospitals for further treatment. The quality of services at Puskesmas Bandar Khalifah is commendable, supported by competent healthcare personnel including nurses and doctors, as well as adequate medical equipment and medications. This health center serves as a reliable option for residents of Serdang Bedagai Regency to meet their healthcare needs.

Table 1. Frequency Distribution of Lower Limb Edema in Pregnant Women Before Foot Soaking

Table 1. Average Distribution of Lower Limb Edema Levels in Pregnant Women Before Warm Water Soaking in the Working Area of Bandar Khalifah Public Health Center

Edema Level	Mean	Median	Standard Max Deviation	Min-
Before		4	0,514	3-4

Based on Table 1 above, the average level of edema in pregnant women before warm water foot soaking was 3.53, with a minimum value of 3 and a maximum value of 4.



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Table 2. Frequency Distribution of Lower Limb Edema in Pregnant Women After Foot Soaking

Table 2. Average Distribution of Lower Limb Edema Levels in Pregnant Women After Warm Water Soaking in the Working Area of Bandar Khalifah Public Health Center

Edema Level	Mean	Median	Standard Max Deviation	Min-
After	1.53	2	0,514	1-2

Based on Table 2 above, the average level of edema in pregnant women after warm water foot soaking was 1.53, with a minimum value of 1 and a maximum value of 2.

Table 3. The Effect of Warm Water Soaking Therapy on Lower Limb Edema in Pregnant Women in the Working Area of Bandar Khalifah Public Health Center

Table 3. The Effect of Warm Water Soaking Therapy on Lower Limb Edema in Pregnant Women in the Working Area of Bandar Khalifah Public Health Center

Result	Mean	Mean Different	SD	p	95% Confidence Interval of The Different	
					Lower	Upper
Before	3,53	0,192	0,791	0,091	1,594	2,406
After	1,53					

The results of the bivariate analysis using the Paired T-Test showed a p-value of 0.019 ($p < 0.05$), indicating that there is a significant effect of warm water soaking therapy on lower limb edema in pregnant women

DISCUSSION

1. Overview of the Average Edema Level in Pregnant Women Before Warm Water Soaking Therapy

Based on the results of the study, the average level of lower limb edema in pregnant women before warm water soaking therapy was 3.53, with a minimum value of 3 and a maximum of 4. Lower limb edema indicates the presence of excessive fluid in body tissues. In many cases, edema primarily occurs in the



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extracellular fluid compartment, but it can also involve intracellular fluid. According to Sawitry et al., (2020); Siregar & Fitriana, (2021), this therapy is usually done at night before bedtime to achieve a relaxing effect during sleep. Sleep is when the body rests and the heart rhythm, pulse and blood flow become more stable. It is therefore a good time for absorption of fluid accumulated in the extravascular space. The reclining position also aids venous return from the lower extremities back to the heart. Sawitry et al., (2020); Siregar & Fitriana, (2021), which reported that the average level of edema in pregnant women before warm water soaking therapy was 2.53, with a minimum value of 1 and a maximum of 4.

According to the present researcher, the average degree of lower limb edema in this study was level 4, where pressure on the limb results in a depression deeper than 7 mm, with a rebound time of approximately 7 seconds. Generally, the edema observed in this study is physiological, caused by the enlarged uterus compressing the major blood vessels on the right side of the abdomen (vena cava), which in turn reduces venous return to the heart, causing fluid accumulation

2. Overview of the Average Edema Level in Pregnant Women After Warm Water Soaking Therapy

The findings revealed that the average level of lower limb edema in pregnant women after warm water soaking therapy was 1.53, with a minimum value of 1 and a maximum of 2 (Siregar & Fitriana, 2021). Edema in pregnant women can cause discomfort, a heavy sensation, and cramps at night. It may also lead to more serious conditions such as cardiac or renal complications, impairing the function of these vital organs. Management of lower limb edema can be addressed through warm foot soaking therapy (foot hydrotherapy), which helps to improve blood circulation by dilating blood vessels and increasing oxygen delivery to swollen tissues (Siregar & Fitriana, 2021). This result aligns with research by Sawitry et al., (2020) which found that the average edema level in pregnant women after warm water soaking therapy was 1.07, with values ranging from 0 to 2.

According to the researcher, the signs and symptoms of lower limb edema require immediate management. One such intervention is warm compress therapy. In this study, edema management was carried out by soaking the feet in warm water (temperature 37– 40°C) up to 10–15 cm above the ankle for 20–30 minutes daily over a period of 7 days. The results showed a change in edema levels from before to after the intervention—from an average of 2.53 to 1.07—with the most significant reduction occurring between days 3 and 5. This indicates that the decrease in edema level is due to the effectiveness of warm water foot soaking therapy in pregnant women.



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3. The Effect of Warm Water Foot Soaking Therapy on Lower Limb Edema in Pregnant Women

Based on research conducted at the Bandar Khalifah Community Health Center, warm water foot bath therapy showed a significant effect on reducing lower extremity swelling in pregnant women ($p = 0.019$; $p < 0.05$). Physiologically, this therapy provides two main benefits. First, warm water triggers vasodilation of blood vessels, thereby improving circulation and accelerating oxygen distribution to tissues experiencing edema. Second, the hydrostatic pressure from the soak stimulates ligaments and muscles, contributing to joint stability and reducing muscle tension. The combination of thermal and mechanical effects makes foot hydrotherapy an effective non-pharmacological intervention for managing physiological edema in the third trimester of pregnancy (Ismail, 2024).

The use of foot soaking therapy can be a more economical and simple non-pharmacological option. This foot soak in warm water can be done easily by anyone, without requiring large costs, and does not cause harmful side effects. With this alternative massage and foot soak can be given to pregnant women who experience oedema to help pregnant women overcome oedema and increase the comfort of pregnant women (Prianti, 2023)

The uncomfortable impact of edema during pregnancy can be reduced by various measures. To reduce the risk of leg swelling, it is recommended to avoid wearing clothes that are too tight so as not to impede venous return, change body position frequently, reduce prolonged standing time, avoid sitting with objects pressing on the knees or thighs to prevent circulation disorders, rest by lying on the left side so as to maximize blood flow in both legs, perform recommended pregnancy exercises, and adopt the habit of doing massage or massage on the legs, as well as soaking the feet in warm water (Vilca et al., 2025)

According to the researcher's assumption, the effect of warm water therapy on lower limb edema occurs because the heat transferred from the warm water to the body causes vasodilation and muscle relaxation, resulting in improved blood circulation. This vasodilation facilitates venous return to the heart, enabling the body to reabsorb fluid from the extracellular space more effectively, thus reducing lower limb edema



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CONCLUSION

1. The average level of lower limb edema in pregnant women before receiving warm water foot soak therapy was 3.53, with a minimum value of 3 and a maximum value of 4.
2. The average level of lower limb edema in pregnant women after receiving warm water foot soak therapy was 1.53, with a minimum value of 1 and a maximum value of 2
3. There was a significant effect of warm water foot soak therapy on lower limb edema in pregnant women, as indicated by a p-value of 0.019.

REFERENCES

- Adabiyah, I. (2021). *Penatalaksanaan Oedema pada Ekstermitas Bawah pada Ibu HAMIL TM III*. 6.
- Anantasia, G. (2025). Metodologi Penelitian Quasi Eksperimen. *Adiba: Journal of Education*, 5(2), 183–192.
- Bayuana, A., Anjani, A. D., Nurul, D. L., Selawati, S., Saiâ€™dah, N., Susianti, R., & Anggraini, R. (2023). Komplikasi Pada Kehamilan, Persalinan, Nifas dan Bayi Baru Lahir: Literature Review. *Jurnal Wacana Kesehatan*, 8(1), 26. <https://doi.org/10.52822/jwk.v8i1.517>
- Efendi, N. R. Y., Selvi Yanti, J., Suci Hakameri, C., & artikel Abstrak, H. (2022). Asuhan Kebidanan Pada Ibu Hamil Dengan Ketidaknyamanan Trimester Iii Di Pmb Ernita Kota Pekanbaru Tahun 2022. *Jurnal Kebidanan Terkini (Current Midwifery Journal) 275 Jurnal Kebidanan Terkini (Current Midwifery Journal, 2, 279*. <https://jom.http.ac.id/index.php/jkt>
- Handayani, P. D., Mariyana, Astri, Y., & Tri, R. S. (2024). Asuhan Kebidanan Pada Ibu Hamil Dengan Penerapan Rendam Kaki Dengan Air Hangat Campur Kencur Untuk Mengurangi Edema Kaki. *Zona Kebidanan: Program Studi Kebidanan Universitas Batam*, 14(1), 101–112. <https://doi.org/10.37776/zkeb.v14i1.1320>
- Ismail, I. (2024). Effect of Foot Hydrotherapy (Soak Feet Warm Water) Against Blood Pressure in Hypertensive Patients: A Literature Review. *Journal Nursing Care Jurusan Keperawatan Politeknik Kesehatan Gorontalo*, 10(1), 1. <https://doi.org/10.52365/jnc.v10i1.965>
- Prianti, A. T. (2023). Efektivitas Rendaman Air Rebusan Kencur Terhadap Penurunan Oedema Kaki pada Ibu Hamil Trimester III. *Kebidanan*, 1, 309–321.
- Rahayu, C. D., & Mulyani, S. (2020). Konsep Asuhan Keperawatan Adaptasi Model



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Publisher : Asosiasi Pendidikan Kebidanan Indonesia (AIPKIND)

<http://proceeding.journal-aipkind.or.id>

- Teori Keperawatan Roy Pada Ibu Hamil Trimester III. *Jurnal Ilmiah Kesehatan*, 19(Mei), 33–42.
- Sawitry, Ulya, F. H., & Adepatiloy, E. J. (2020). Manfaat Rendaman Air Hangat dan Garam dalam Menurunkan Derajat Edema Kaki Ibu Hamil Trimester III. *Jurnal SMART Kebidanan*, 7(2), 76. <https://doi.org/10.34310/sjkb.v7i2.381>
- Siregar, & Fitriana. (2021). Pengaruh Terapi Rendam Air Hangat Terhadap Odema Tungkai Bawah Ibu Hamil. *Jurnal Kesehatan*.
- Vilca, J., Dyna, F., Sriyani, A., & Keperawatan, F. (2025). Penerapan Terapi Rendam Kaki Air Hangat Pada Ibu Hamil Hipertensi. 14(1), 55–66.
- Zaenatulshofi, & Eti, S. (2019). Penerapan Pijat Kaki dan Rendam Air Hangat Mengurangi Oedema Kaki pada Ibu Hamil Trimester III. *Journal Urecol: University Research Colloquium*, 2, 663–668. <http://repository.urecol.org/index.php/proceeding/article/view/705/688>



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The Association Between Obesity and the Risk of Prediabetes Among Adolescents

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ABSTRACT

Background: adolescents who are overweight or obese have an increased risk of developing prediabetes, which can be prevented through healthy lifestyle changes, particularly those related to body weight management. Healthy weight loss achieved through a balanced diet and regular exercise can improve insulin sensitivity, reduce the risk of prediabetes, and enhance overall health.

Purpose: to determine the relationship between obesity and the incidence of prediabetes among adolescents at SMP Negeri 3 Makassar.

Methods: this study employed a quantitative approach with a cross-sectional design. The sample consisted of 34 respondents, selected using total sampling. Data collection was conducted from September 5 to October 5, 2025. The instruments used included a scale to measure body weight, a tape measure for height, a calculator to determine BMI, a glucometer to assess fasting blood glucose levels, and an observation sheet for recording examination results and respondent data. Data analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 26.0, with the chi-square test applied for statistical analysis.

Results: among the respondents, 23.5% were classified as obese, while 76.5% were not obese. Additionally, 14.7% were identified as prediabetic, and 85.3% were not prediabetic. The analysis yielded a p-value of 0.000, indicating a statistically significant relationship ($p < 0.05$).

Conclusion: the study concluded that there is a significant relationship between obesity and the incidence of prediabetes among adolescents at SMP Negeri 3 Makassar.

Keywords: *Obesity; overweight; prediabetes; insulin sensitivity; balanced diet*



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BACKGROUND

The variation in body weight among adolescents today can be influenced by various factors, including lifestyle, diet, physical activity, genetic factors, and social and cultural environments (Agung et al., 2022). Adolescent body weight can vary from one individual to another. Some adolescents experience issues with being overweight (obesity), while others struggle with being underweight. Childhood obesity is considered one of the most serious global public health challenges of the 21st century. Children with obesity are at high risk for prediabetes, dyslipidaemias, hypertension, non-alcoholic fatty liverdisease and obstructive sleep apnoea and are more likely to stay obese into adulthood and to develop associated comorbidities at a younger age (Liu et al., 2024).

Obesity is a multifactorial nutritional disorder resulting from the interaction between genetic and environmental factors, manifested through an imbalance in dietary patterns, eating behaviors, physical activity, and lifestyle changes (Hsieh et al., 2023). Some adolescents experience underweight issues due to poor diet, lack of physical activity, or health factors, leading to malnutrition and growth problems. Conversely, obesity involves excessive fat or energy imbalance. Obesity rates among adolescents have risen recently, driven by unhealthy eating, high-calorie fast food and sugary drinks, and sedentary lifestyles linked to excessive technology use (Czubaj et al., 2025). In response, many countries and health organizations promote healthy lifestyles, balanced diets, and physical activity. Studies indicate that weight gain increases diabetes risk (World Health Organization, 2021).

Prediabetes is a condition in which a person's blood sugar level is higher than normal but not yet high enough to be classified as diabetes. Prediabetes can serve as an important warning sign for the risk of future diabetes. Body weight and being overweight are closely associated with the risk of prediabetes, especially among adolescents (Wood et al., 2024). Cases of increased body weight continue to rise and have contributed to the emergence of prediabetes among adolescents. According to the International Diabetes Federation (IDF) 2021, impaired glucose tolerance a key indicator of prediabetes affected approximately 9.1% of the global adult population, equivalent to 464 million individuals. Although specific data for adolescents aged 13–15 years is limited, the rising trend of youth-onset type 2 diabetes suggests that prediabetes may be increasingly prevalent in younger age groups (Magliano et al., 2021). By the year 2045, this prevalence is projected to rise to 8.3%, or about 587 million people. Based on IDF data from 2017, the highest prevalence of prediabetes was found in North America and the Caribbean, affecting approximately 54.4 million people, or around 15.4% of the population in that region. In South and Central America, the prevalence was around 32.5 million people (10.0%). Meanwhile, in Southeast Asia, the figure was about 29.1 million (3.0%), and in Europe, approximately 360 million people or 5.5%. Therefore, body weight and excess weight are considered major contributing factors to prediabetes.

The incidence of prediabetes continues to increase and may develop into Diabetes Mellitus (DM) if not prevented early. Currently, there is a surge in prediabetes prevalence



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driven by unhealthy lifestyles, particularly among adolescents. There is a need for education related to prediabetes screening and motivation for adolescents to reduce sedentary behavior (Ikatan Dokter Anak Indonesia (IDAI), 2019).

Given the tremendous toll that lifestyle factors such as obesity, physical inactivity, and smoking have on the health of patients with diabetes, ongoing and energetic efforts are needed to address and change the societal determinants at the root of these problems (Syukri et al., 2021). According to the Basic Health Research Riskesdas, (2019), the prevalence of prediabetes in Indonesia is relatively high, at approximately 10.2%, which means around 24 million Indonesians are living with prediabetes. Prediabetes serves as an early warning before the onset of diabetes, and once it is identified, that is the critical time to make lifestyle changes before it progresses to diabetes. The prevalence of overweight and obese adolescents aged 13–15 in Indonesia is 20%, while for adolescents aged 16–18, the rate is 13.6%. The prevalence of overweight adolescents in Indonesia has increased compared to 2013, with the 13–15 age group rising by 0.4% and the 16–18 age group increasing by 2.2%.

South Sulawesi ranks sixth among Indonesian provinces for obesity prevalence, with a rate of 19.1%. Meanwhile, the obesity prevalence in Makassar City is 24.05%, the highest in South Sulawesi and higher than the provincial average of 19.1% (Magliano et al., 2021). Based on initial data collection conducted directly on June 7, 2025, the total number of students at SMP Negeri 3 Makassar is 1,191, of which 34 students were identified as obese.

Previous studies have shown that significant weight loss can occur with appropriate interventions, including dietary modifications, increased physical activity, behavioral therapy, and, in some cases, pharmacological treatment. Several factors may contribute to obesity, including genetic factors, environmental influences, dietary habits, and physical activity. Foods high in sugar content can alter hormonal and biochemical functions in the body, which trigger weight gain. This includes hormones like leptin and ghrelin, which regulate appetite and control fat-burning processes in the body (Yeung, A. Y. Tadi, 2023).

Adolescents who are overweight or obese are at greater risk of developing prediabetes, which can be prevented through healthy lifestyle changes—particularly those related to body weight. By losing weight in a healthy manner through a balanced diet and regular exercise, insulin sensitivity can improve, the risk of prediabetes can be reduced, and overall health can be enhanced. Therefore, this issue has prompted the researcher to conduct a study on the relationship between obesity and the incidence of prediabetes among adolescents at SMP Negeri 3 Makassar.



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OBJECTIVE

To analyze the association between obesity, as measured by Body Mass Index (BMI), and the incidence of prediabetes, as indicated by fasting blood glucose (FBG) levels, among adolescents at SMP Negeri 3 Makassar.

METHODS

This study employed a quantitative approach with an analytic survey design using a cross-sectional method. The aim of the research was to examine the relationship between obesity and the incidence of prediabetes among adolescents at SMP Negeri 3 Makassar. The study was conducted from September 5 to October 5, 2025, at SMP Negeri 3 Makassar.

The population consisted of all students at the school, totaling 34 individuals, all of whom were included in the sample using a total sampling technique. The independent variable was obesity, determined using Body Mass Index (BMI), with obesity classified as $BMI \geq 23$ and non-obesity as BMI between 18.5–22.9. The dependent variable was prediabetes, defined based on fasting blood glucose (FBG) levels: respondents were categorized as prediabetic if their FBG levels were between 100–125 mg/dL, and non-prediabetic if below 100 mg/dL, in accordance with the American Diabetes Association criteria (Elsayed et al., 2023). Both variables were measured using an ordinal scale. Research instruments included a weighing scale and measuring tape to assess weight and height, and a glucometer to measure fasting blood glucose. Primary data were obtained through structured questionnaires and direct observation, while secondary data were collected from school records.

Data processing included editing, coding, and tabulation. Data analysis was conducted using SPSS version 26, with univariate analysis to describe frequency distributions, and bivariate analysis using the Chi-Square test ($\alpha = 0.05$) to assess the relationship between obesity and prediabetes. A result was considered statistically significant if the *p-value* was less than 0.05. Ethical approval for this study was obtained from the Health Research Ethics Committee, with reference number 6081/UN4.14.1/TP.01.02/2025. All participants and their legal guardians provided informed consent prior to participation in the study.



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RESULTS

Univariate Analysis

Table 1. Sociodemographic Characteristics of Respondents (n=34)

Characteristic	Category	Frequency (n)	Percentage (%)
Age	13 years	13	38.2
	14 years	16	47.1
	15 years	5	14.7
Gender	Male	21	61.8
	Female	13	38.2
Religion	Islam	31	91.2
	Christian	3	8.8
Parental Education	Elementary School	20	58.8
	Junior High School	4	11.8
	Senior High School	8	23.5
	Bachelor's Degree	2	5.9
Parental Occupation	Homemaker	19	55.9
	Entrepreneur	7	20.6
	Laborer	4	11.8
	Civil Servant	1	2.9
	Military	1	2.9
	Employee	2	5.9
Living With	Parents	28	82.4
	Grandmother	3	8.8
	Aunt	3	8.8
History of Hypertension	No	34	100.0
History of High Cholesterol	No	34	100.0
Smoking	No	34	100.0
Depression	No	34	100.0
Alcohol Consumption	No	34	100.0
Physical Activity	Yes	34	100.0
Exercise Frequency	Once a week	17	50.0
	Rarely	12	35.3
	Twice every three weeks	5	14.7
Family History of Diabetes Mellitus	Yes	23	67.6
	No	11	32.4



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Table 2. Distribution of Respondents by Obesity Status Based on BMI

Status	N	%
Obese	8	23.5
Non-Obese	26	76.5
Total	34	100.0

Based on the table, 76.5% of respondents were not obese and 23.5% of respondents were obese.

Table 3. Distribution of Respondents Based on Prediabetic

Status	N	%
Prediabetic	5	14.7
Non-Prediabetic	29	85.3
Total	34	100.0

Based on the table, 14.7% of respondents were prediabetic and 85.3% of respondents were non-prediabetic.

Bivariate Analysis

Table 3. Relationship between Obesity and the incidence of Prediabetic at SMP Negeri 3, Makassar

	Cases of Prediabetic						P value
	Prediabetic		Non- Prediabetic		Total		
	n	%	N	%	n	%	
Obese	3	37.5	5	62.5	8	100.	0.000
Non- Obese	2	7.7	24	92.3	26	100.	
Total	5	23.5	29	76.5	34	100	

According to the table above, all 8 respondents classified as obese (100.0%) consisted of 3 individuals (37.5%) who had prediabetes and 5 individuals (62.5%) who did not. Among the non-obese respondents, 2 individuals (7.7%) were found to have prediabetes, while 24 individuals (92.3%) were not prediabetic. Statistical analysis using the Chi-Square test with a significance level of $\alpha = 0.05$ ($p < \alpha$) yielded a p-value of 0.000. Since the p-value is less than



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0.05, and the correlation coefficient was found to be 0.835, it can be concluded that the alternative hypothesis (H_a) is accepted, and the null hypothesis (H_o) is rejected. This indicates a statistically significant relationship between obesity and the incidence of prediabetes among students at SMP Negeri 3 Makassar, with a very strong correlation strength.

DISCUSSION

The results of the Chi-Square test showed a p-value of 0.000, which is less than the significance level $\alpha = 0.05$, indicating that the alternative hypothesis (H_a) is accepted and the null hypothesis (H_o) is rejected. This confirms that there is a significant relationship between obesity and the incidence of prediabetes at SMP Negeri 3 Kota Makassar. The Chi-Square test also yielded a correlation coefficient (r) of 0.835, indicating a very strong relationship between obesity and prediabetes incidence among students at SMP Negeri 3 Makassar.

Based on the findings of this study, although all respondents reported engaging in physical activity, more than half exercised only once a week or less. This indicates that insufficient physical activity may be a contributing factor to the incidence of obesity and prediabetes, in addition to an unbalanced diet. Lin et al., (2020) stated that adolescents who are overweight or obese are commonly influenced by unhealthy lifestyle factors, such as excessive intake of macronutrients and frequent consumption of fast food. In this study, although all respondents reported engaging in physical activity, more than half exercised only once a week or less, indicating a low frequency of physical activity. Adolescents are more likely to experience weight gain during this stage due to increased energy demands required for supporting growth and development.

This study aligns with the findings of Noviriana et al., (2025) which demonstrated that dietary patterns are significantly associated with blood glucose levels in patients with Type 2 Diabetes Mellitus. Their research reported that the majority of respondents had moderately healthy eating habits (60.9%), while 39.1% had good dietary patterns. Statistical analysis revealed a strong relationship between dietary habits and blood glucose levels, with a p-value of 0.000 ($p < 0.05$) and an odds ratio of 9.250, indicating that diet is the most dominant factor influencing blood glucose levels.

This study also found that a portion of respondents were obese, and this condition was strongly associated with the occurrence of prediabetes. The findings indicate that obesity significantly contributes to the risk of developing prediabetes. Typically, obesity is assessed using Body Mass Index (BMI), which reflects overall body fat mass. Prediabetes is a known risk factor for type 2 diabetes and may lead to long-term complications such as cardiovascular disease. The underlying mechanism of prediabetes involves insulin resistance, which may occur in muscle, liver, and adipose tissues. Contributing factors to insulin resistance include genetics, obesity, gender, and lifestyle.

The results of this study suggest that a higher BMI is associated with elevated fasting blood glucose levels. Body Mass Index (BMI) is a commonly used measure to estimate body



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fat by comparing a person's weight to their height. A higher BMI indicates a greater likelihood of obesity. BMI is widely used to classify weight status, ranging from underweight, normal weight, overweight, to obesity. A high BMI reflects excess fat accumulation, which can increase the risk of health problems, including prediabetes, which states that risk factors for type 2 diabetes include overweight/obesity, lifestyle changes from traditional to Western patterns, overeating, and sedentary behavior (Abdulai et al., 2019). However, there were 5 respondents (62.5%) who were obese but did not have prediabetes, which may be due to their fasting blood glucose levels still being within the normal range (around 86 mg/dL). This could explain the absence of prediabetes. These findings are supported by research from Widuri, which found no significant relationship between BMI and fasting blood glucose levels. It was further explained that body fat distribution and quantity do not always reflect metabolic processes in the body (Oktariza et al., 2021).

Furthermore, the study showed that 26 respondents (85.3%) were not obese, and among them, 2 respondents (7.7%) were prediabetic. Based on the physical activity data, some adolescent respondents reported low exercise frequency, which may contribute to impaired insulin release and hyperglycemia. Physical activity plays a critical role in blood glucose utilization. During physical activity, muscles contract to produce movement, which involves the breakdown of stored glucose in muscles into energy. This energy is then used by muscles to perform activity. Glucose use in muscles during activity occurs independently of insulin, which helps in lowering blood glucose levels (Hohberg et al., 2025).

These findings are also supported by research conducted by Syukri et al., (2021), which reported a positive relationship between physical activity and prediabetes. Their study showed that the majority of prediabetic respondents had low levels of physical activity. The current study also found that male respondents were more likely to experience prediabetes compared to female respondents. Similarly, the study by Jeon et al. found that the prevalence of prediabetes was higher among males (14.4%) than females (10.4%).

Additionally, 92.3% of the respondents were neither obese nor prediabetic, which may be related to having a normal Body Mass Index (BMI). However, since specific data on their dietary patterns and physical activity intensity were not collected in detail, no conclusions can be drawn regarding the exact factors contributing to their health status.

This study provides valuable insight into the relationship between obesity and prediabetes among adolescents, particularly in a school-based setting where early detection is crucial. The use of objective measurements, such as BMI and fasting blood glucose levels, strengthens the validity of the findings. However, the study also has several limitations. The sample size was relatively small and limited to a single school, which may affect the generalizability of the results. In addition, physical activity data were self-reported and may be subject to bias. Future research with a larger and more diverse population is recommended.



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CONCLUSION

A significant relationship was found between obesity and the incidence of prediabetes among adolescents at SMP Negeri 3 Makassar. Among the respondents, 76.5% were classified as non-obese, while 23.5% were classified as obese. The prevalence of prediabetes among the respondents was 14.7%, whereas 85.3% were non-prediabetic. These findings suggest that obesity may be a contributing factor to the development of prediabetes in this population. Based on these results, it is recommended that educational institutions implement routine health screening programs, including assessments of body mass index (BMI) and fasting blood glucose (FBG), to facilitate early identification of students at risk. Furthermore, health promotion initiatives emphasizing nutritional education and physical activity should be incorporated into the school curriculum to mitigate the risk of obesity and subsequent metabolic disorders. It is also suggested that future studies involve larger and more heterogeneous adolescent populations to enhance the generalizability of the findings and to explore additional risk factors associated with prediabetes.

ACKNOWLEDGMENTS

The researcher would like to express sincere gratitude to Stikes Gunung Sari Makassar and heartfelt thanks to the participants, teachers, and staff at SMP Negeri 3 Makassar for their cooperation and participation in encouraging the students to be respondents in this study.

REFERENCES

- Abdulai, T., Li, Y., Zhang, H., Tu, R., Liu, X., Zhang, L., Dong, X., Li, R., Wang, Y., & Wang, C. (2019). Prevalence of impaired fasting glucose, type 2 diabetes and associated risk factors in undiagnosed Chinese rural population: The Henan Rural Cohort Study. *BMJ Open*, 9(8), 1–9. <https://doi.org/10.1136/bmjopen-2019-029628>
- Agung, F. H., Sekartini, R., Sudarsono, N. C., Hendarto, A., Dhamayanti, M., Werdhani, R. A., & Sawyer, S. M. (2022). The barriers of home environments for obesity prevention in Indonesian adolescents. *BMC Public Health*, 22(1), 1–10. <https://doi.org/10.1186/s12889-022-14669-6>
- Czubaj, N., Szymańska, M., Nowak, B., & Grajek, M. (2025). The Impact of Social Media on Body Image Perception in Young People. *Nutrients*, 17(9). <https://doi.org/10.3390/nu17091455>
- Elsayed, N. A., Aleppo, G., Aroda, V. R., Bannuru, R. R., Brown, F. M., Bruemmer, D., Collins, B. S., Hilliard, M. E., Isaacs, D., Johnson, E. L., Kahan, S., Khunti, K., Kosiborod, M., Leon, J., Lyons, S. K., Murdock, L., Perry, M. Lou, Prahalad, P., Pratley, R. E., ... Gabbay, R. A. (2023). 2. Classification and Diagnosis of Diabetes: Standards of Care in Diabetes—2023. *Diabetes Care*, 46(January), S19–S40. <https://doi.org/10.2337/dc23-S002>
- Hohberg, V., Lichtenstein, E., Kreppke, J. N., Zanitti, C., Streckmann, F., Gerber, M., & Faude,



PROCEEDINGS OF AIPKIND SCIENTIFIC MEETING 2025

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<http://proceeding.journal-aipkind.or.id>

- O. (2025). Effects of Lifestyle Interventions to Promote Physical Activity on Physical Activity and Glycated Hemoglobin in Patients with Type 2 Diabetes: a Systematic Review and Meta-Analysis. *Sports Medicine*, 55(5), 1165–1181. <https://doi.org/10.1007/s40279-025-02184-8>
- Hsieh, P. P., Sindhu, F. C., Dewi, M. R., & Sidhiarta, I. G. L. (2023). Hubungan antara durasi tidur dengan kejadian obesitas pada anak: sebuah tinjauan sistematis. *Intisari Sains Medis*, 14(1), 229–236. <https://doi.org/10.15562/ism.v14i1.1303>
- Ikatan Dokter Anak Indonesia (IDAI). (2019). Pedoman Pengelolaan Diabetes Mellitus pada Anak dan Remaja. <https://www.idai.or.id>
- Lin, X., Yang, T., Zhang, X., & Wei, W. (2020). Lifestyle intervention to prevent gestational diabetes mellitus and adverse maternal outcomes among pregnant women at high risk for gestational diabetes mellitus. *Journal of International Medical Research*, 48(12). <https://doi.org/10.1177/0300060520979130>
- Liu, R., Figueroa, R., Brink, H. Vanden, Vorland, C. J., Auckburally, S., Johnson, L., Garay, J., Brown, T., Simon, S., & Ells, L. (2024). The efficacy of sleep lifestyle interventions for the management of overweight or obesity in children: a systematic review and meta-analysis. *BMC Public Health*, 24(1), 1–18. <https://doi.org/10.1186/s12889-024-17708-6>
- Magliano, D., Edward, B., Beverley, B., & Barengo, N. (2021). International Diabetes Federation. In *Diabetes Research and Clinical Practice* (Vol. 102, Issue 2). <https://doi.org/10.1016/j.diabres.2013.10.013>
- Noviriana, A., Firdaus, S., Studi, P., Keperawatan, M., Banjarmasin, P. K., Banjarmasin, M., Banjarmasin, K., & Selatan, P. K. (2025). Analisis Hubungan Pola Makan , Aktivitas Fisik dan Tingkat Stres Dengan Kadar Glukosa Darah pada Pasien Diabetes Melitus Tipe 2 di RSUD Sultan Suriansyah Banjarmasin. *Jurnal Penelitian Dan Pengabdian Masyarakat Indonesia*, 4(1), 408–420.
- Oktariza, R. T., Kalanjati, V. P., & Tirthaningsih, N. W. (2021). Body Mass Index, Waist-Hip Ratio and Fasting Blood Glucose Levels amongst the University Students. *Folia Medica Indonesiana*, 57(1), 53. <https://doi.org/10.20473/fmi.v57i1.14661>
- Riskesdas. (2019). Riset Kesehatan Dasar 2019: Prevalensi prediabetes di Indonesia.
- Syukri, M., Debbie, N., & Intan, P. S. (2021). Kejadian Prediabetes pada Kelompok Usia Dewasa di Kota Jambi. *Kodifikasia : Jurnal Penelitian Islam*, Vol 15, No. 01 (2021), 133-158, 15(01), 133–158.
- Wood, M., Bando, H., & Ebe, K. (2024). Standards of Care in Diabetes 2025: Diabetes-Associated Autoantibodies. *SunText Review of Endocrine Care*, 4(1), 2024–2026. <https://doi.org/10.51737/2771-5469.2024.024>
- World Health Organization. (2021). Diabetes. <https://www.who.int/news-room/fact-sheets/detail/diabetes>
- Yeung, A. Y. Tadi, P. (2023). Physiology, obesity neurohormonal appetite and satiety control. In StatPearls. <https://www.ncbi.nlm.nih.gov/books/NBK555906%0A>



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The Effectiveness of Aromatherapy Using Peppermint Leaves on Reducing Anxiety Levels in Postpartum Mothers At RSIA Paradise South Kalimantan

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ABSTRACT

Background: Childbirth is the process of expelling a viable conception from the uterus to the outside world. A mother in labor who is anxious will produce cortisol hormones excessively. The anxious state that can affect the pain perception in mothers.

Purpose: The purpose of this research is to determine the effectiveness of peppermint aromatherapy on reducing anxiety levels in primiparous mothers during the active phase of labor.

Methods: The research design uses a quasi-experimental method while the sampling technique employs purposive sampling, resulting in 11 samples of primiparous mothers in active phase of first stage labor.

Results: The research results obtained a p-value of 0.03 (<0.05), indicating an effect of peppermint leaf aromatherapy on reducing anxiety levels in primiparous mothers during the active phase of the first stage of labor.

Conclusion: The conclusion of this research is that the aromatherapy of peppermint leaves is effective in reducing the anxiety levels of mothers during childbirth at RSIA Paradise South Kalimantan. It is recommended that this aromatherapy be applied in midwifery care during childbirth.

Keywords: *Aromatherapy; Emergency; Peppermint Leaves; Postpartum Mother*



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BACKGROUND

The anxiety of pregnant women in facing childbirth will increase in the third trimester of pregnancy and will affect the childbirth process. Continuous anxiety can also lead to a decrease in fetal well-being. The factors causing anxiety in facing childbirth are beliefs about childbirth, which are responses of belief or disbelief from pregnant women regarding myths they have heard from others. The feelings leading up to childbirth are related to the feelings of fear or lack of fear experienced by the mother before labor, and the pain during labor. Low knowledge leads to an individual's susceptibility to anxiety, information from healthcare professionals regarding childbirth, and support from husbands and family when facing labor (Hanifah, 2019).

Nearly 1 in 5 women experience mental health problems during pregnancy or within a year of giving birth. In high-income countries, 1 in 10 women experience perinatal anxiety and depression, while in low- and middle-income countries, the figure rises to 1 in 5 women (WHO, 2022). In Indonesia, there are about 107,000 (28.7%) pregnant women who experience anxiety in facing childbirth. Research conducted on primigravida mothers shows that 22.5% experience mild anxiety, 30% experience moderate anxiety, 27.5% experience severe anxiety, and 20% experience very severe anxiety.

The maternal mortality rate (MMR) in Indonesia nationwide until 2020 is still high at 305 per 100,000 live births (LB), while the target for MMR in the National Medium-Term Development Plan (RPJMN) 2024 is 183 per 100,000 LB and the target for the Global SDGs MMR is 70 per 100,000 LB. In Indonesia, based on the Sampling Registration System (SRS) data in 2018, from 76% of maternal deaths, about 36% occurred during childbirth. (Ministry of Health of the Republic of Indonesia, 2020). According to the Indonesian Health Profile data in 2022, the number of pregnant women in Indonesia was 4,884,771, with a coverage of third trimester at 4,336,254 (88.8%). Based on the 2022 Indonesian Health Profile, the number of pregnant women in Indonesia was recorded at 4,884,771, with 4,336,254 (88.8%) attending check-ups in the third trimester. The psychological condition of pregnant women, especially primigravida, is a major concern because they are at risk of experiencing anxiety prior to delivery (Kemenkes, 2022).

Childbirth is the process of expelling the result of conception that occurs at full-term pregnancy (Walyani dan Purwoastuti, 2020). The labor process is divided into 4 stages. Stage I of labor begins with the onset of regular contractions that increase until the mother is fully dilated. In Labor Stage I, based on the progress of dilation, Stage I is divided into 2 phases: the latent phase and the active phase. The strength of contractions during labor is related to the degree of pain. The pain felt by the mother in labor will cause anxiety (Pairman et al., 2019).



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During this Active Phase I, there is also an increase in uterine contractions and cervical dilation, which results in heightened labor pain and consequently increases the anxiety of the laboring mother. Feelings of fear and anxiety themselves are the main factors that cause pain during labor and affect uterine contractions as well as cervical dilation, leading to prolonged labor. The phenomenon of the relationship between anxiety and pain, and vice versa, is a positively correlated relationship whereby as the labor process advances, pregnant mothers feel increasingly anxious, and this anxiety causes the pain to become more intense, and vice versa (Wijayanti & Altika, 2020)

Efforts to alleviate labor pain can be done using both pharmacological and non-pharmacological methods. Considering the potential side effects on the mother and fetus, the use of pharmacological methods in the form of analgesics and anesthetics may not be the first choice for delivery (Karaahmet & Fatma, 2023). One of the relaxation techniques and non-pharmacological actions in managing anxiety during childbirth is using Aromatherapy. Accessing aromatherapy through the nose (inhalation) is the fastest route compared to other methods (Alhabardi et al., 2025).

Peppermint aromatherapy functions as an anticonvulsant. One of the anticonvulsant mechanisms is spasmolytic or anti-seizure muscle contraction. Peppermint has spasmolytic activities in vitro and can also reduce skeletal muscle tension. The spasmolytic effect of peppermint acts as a mediator for the release of enzymes that reduce muscle contraction. The action mode of linalool, one of the dominant components in peppermint, provides a reflective taste (Alex et al., 2022).

The results of a preliminary study conducted on July 19-20, 2025, using interviews with 15 first-time mothers in labor revealed that 12 mothers expressed feelings of fear, anxiety, restlessness, and unease due to excessive pain, while 3 mothers did not feel anxious and were more calm.

OBJECTIVE

Efforts to alleviate labor pain can be done using both pharmacological and non-pharmacological methods. Considering the potential side effects on the mother and fetus, the use of pharmacological methods in the form of analgesics and anesthetics may not be the first choice for delivery. One of the relaxation techniques and non-pharmacological actions in managing anxiety during childbirth is using Aromatherapy.

METHODS

The research design in this study is quasi-experimental with the design used being a one group pre-post test without a control. This research was conducted in August-September 2024. The data collection tool used in this study employs a questionnaire and a standard operating procedure for administering peppermint aromatherapy by adding 5



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drops of peppermint aromatherapy mixed with 20 ml of water, which is then evaporated using an electric stove, and respondents inhale the aromatic steam for 15 minutes. This study only intervenes in one group without a comparison, the effectiveness of the treatment is assessed by comparing the pre-test scores with the post-test scores. Quasi-experimental design with a pre and post test design without control.

In this study, the population taken is all primiparous mothers in active phase I of labor at RSIA Paradise Tanah Bumbu District. In this study, the researcher uses several criteria to determine the respondents, as follows:

1. Inclusion Criteria

The inclusion criteria of this study are:

- Mothers in labor who are willing to be respondents
- The mother is giving birth through normal delivery
- Mothers in labor who are not given oxytocin
- The mother in labor is in a closed room

2. Exclusion Criteria

- A mother in active labor whose condition suddenly becomes pathological (breech, placenta previa, uterine abnormalities)
- A mother in labor who is allergic to the smell of peppermint.

This study uses sampling with the saturation sampling technique, which is a sampling method that uses the entire population. This saturated sample is used when the population is less than 30 people, and the anxiety data is collected using the HAR'S questionnaire. The total sample used consists of 11 respondents. The interpretation of the Wilcoxon test is using a significance level ($\alpha = 0.05$). The decision rule for the data analysis is that if the p -value > 0.05 , then H_0 is accepted, meaning there is no effect of peppermint leaf aromatherapy on reducing anxiety levels in first-time laboring mothers during the first stage, and conversely, if the p -value < 0.05 , then H_0 is rejected, meaning there is an effect of peppermint leaf aromatherapy on reducing anxiety levels in first-time laboring mothers during the first stage.

RESULTS

1. Univariate Analysis

- Characteristics of Respondents Based on Age Group of Mothers in Labor at RSIA Paradise South Kalimantan

Tabel 1. Characteristics of Respondents Based on Age Group of Mothers in Labor

No.	Age Group	Frequency	Percentage (%)
1	< 20 Years	5	45,5



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2	20-25 Years	6	54,5
	Total	11	100

According to table A above, it is known that the majority of respondents (54.5%) are in the middle age group (20-35 years old).

- b. Characteristics of Respondents Based on Education of Mothers Giving Birth at Paradise Hospital South Kalimantan

Table 2. Characteristics of Respondents Based on Education of Mothers Giving Birth

No.	Education	Frequency	Percentage (%)
1	Elementary School	5	45,5
2	Junior High School	3	27,3
3	High School	3	27,3
	Total	11	100

Based on the table B above, it is known that almost half of the respondents (45.5%) have elementary school education

- c. Characteristics of Respondents Based on Occupation of Mothers. Delivery Among Mothers in RSIA Paradise, South Kalimantan

Table 3. Characteristics of Respondents Based on Occupation of Mothers

No.	Work	Frequency	Percentage (%)
1	Housewife	6	54,5
2	Private	5	45,5
	Total	11	100

Based on table C above, it is known that the majority of respondents (54.5%) work as housewives.

2. Multivariate Analysis

Distribution of effectiveness of anxiety levels in postpartum mothers after being given peppermint leaf aromatherapy

No.	Level of anxiety	Frequency	Before Presentation (%)	Frequency	After Presentation (%)	Total	p value
1	Not Anxious	0	0	1	9,0	9,0	0,03*
2	Light	2	18	6	54,5	72,5	
3	Currently	6	54	4	36,3	90,3	
4	Heavy	3	27	0	0	27	
	Total	11	100	11	100		

Based on the table 3 above, it is known that before being given peppermint aroma therapy, almost half of the respondents (27%) experienced severe anxiety and the



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majority of respondents (54%) experienced moderate anxiety. After being given peppermint leaf aromatherapy, it was found that most respondents (54.5%) experienced a decrease in anxiety levels among mothers in labor. The test used was the Wilcoxon alternative test which yielded a P value (exact. Sig/2 tailed) of 0.03 (< 0.05), meaning there was a significant difference in the decrease of anxiety levels among mothers in labor before and after receiving the peppermint leaf aromatherapy. Therefore, H_0 is rejected and H_1 is accepted, which means that there is an effect of giving peppermint leaf aromatherapy on the reduction of anxiety levels in postpartum mothers.

DISCUSSION

Based on the research results in table 1, it is known that all respondents experienced anxiety at (100%). Before being given peppermint leaf aromatherapy, the majority of respondents experienced moderate anxiety (54%), and almost half of the respondents experienced severe anxiety (27%). Meanwhile, from the data obtained, the majority of mothers giving birth are between the ages of 20-25 years old (54.5%), which is within the age range that is prepared for reproduction. However, the experience of childbirth for the first time causes mothers to feel pain, leading to excessive anxiety. If this anxiety is not addressed, it can lead to serious issues such as muscle tension, especially in the birth canal area, irregular breathing and a very fast heart rate, and research results indicate that the education level of first-time mothers is almost half with elementary school education.

Low education causes a person to experience stress and anxiety due to a lack of information obtained. The higher a mother's education, the more mature a person's thinking will be in thinking and acting. Viewed from the level of education, primary education (SD) is categorized as basic education, this level of education tends to be slow to act and is more likely to do things with minimal effort. Based on the research results, most primiparous mothers (54.5%) work as housewives. Looking at the mother's employment status, which is not working, she will have more time to gather information from various media such as magazines and television to enhance her knowledge.

Based on table 2, it is known that after being given peppermint aromatherapy, almost half of the respondents experienced moderate anxiety (36.3%) and the majority of respondents experienced mild anxiety (54.5%). The majority of respondents, after being given aromatherapy, felt relaxed and calm, resulting in a decrease in feelings of anxiety. The results of this study indicate a decrease in anxiety levels among mothers in labor.

According to researchers, inhaling aromatherapy can reduce childbirth anxiety because it affects the psychological condition of the mother. A fresh atmosphere around the mother will create comfort during the labor process. Excessive pain increases anxiety, especially since this is the mother's first experience of childbirth. Refreshing aromas can



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enhance the mother's concentration and stabilize her heart rate. The level of anxiety of mothers before being given aromatherapy was mostly in the severe anxiety category, totaling 14 (43.75%), while the level of anxiety of mothers after being given aromatherapy was in the moderate anxiety category, totaling 15 (46.88%). The results of the Wilcoxon Signed Rank Test indicate that there is an effect of aromatherapy on reducing the anxiety levels of postpartum mothers. This concludes that aromatherapy can be used to reduce anxiety in postpartum mothers.

The effectiveness of giving peppermint aromatherapy on the reduction of anxiety levels in laboring mothers was determined by Wilcoxon test analysis. The statistical analysis results showed a P value of 0.03*. From the results of the data analysis, it can be concluded that there is a difference in the decrease in anxiety levels in laboring mothers before and after being given peppermint aromatherapy. The results of the statistical analysis are supported by the findings of the reduction in anxiety levels in mothers during childbirth, which can be seen from the values before and after being given peppermint aromatherapy. Before the treatment, out of 11 respondents, 6 experienced moderate anxiety and 4 experienced severe anxiety. After being given peppermint aromatherapy, the majority, which is 6 respondents, experienced a decrease in anxiety levels in laboring mothers with a percentage of 54.5%.

CONCLUSION

Based on the research results, the conclusion is as follows:

1. Before the peppermint aromatherapy intervention, during the pre-test, there were no respondents who were not anxious; the majority experienced moderate anxiety (54%), nearly half experienced severe anxiety (27%), and a small portion experienced mild anxiety (18%).
2. After being given peppermint aromatherapy intervention at the post-test, the majority of respondents experienced mild anxiety (54.5%), almost half experienced moderate anxiety (36.3%), a small portion of respondents did not experience anxiety (9.0%), and there were no respondents who experienced severe anxiety.
3. There is an influence of peppermint aromatherapy on the decrease of labor anxiety.

Based on the results of the research that has been conducted, the researcher would like to provide recommendations to several related parties:

1. Respondents are expected to cooperate and implement the provision of peppermint aromatherapy as a non-pharmacological therapy to reduce anxiety in primiparous mothers, thereby reducing the frequency of medication use that may cause side effects.
2. It is hoped that it can serve as input for Midwives that the provision of peppermint aromatherapy can be made a standard operating procedure in midwifery care for



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primiparous mothers during the active phase of labor, especially to address anxiety during childbirth.

3. For future researchers, this can be used as a reference and can be developed further from what has been done in this study. Such as increasing the number of respondents, classifying groups based on age in primipara mothers, as well as the effective time when conducting research..

REFERENCES

- Alex, A., Anusree, S., Savithamol, G. m, Veena, & Prashobh. (2022). International Journal of Research Publication and Reviews. *International Journal of Research Publication and Reviews*, 04(01), 1806–1812. <https://doi.org/10.55248/gengpi.2023.4149>
- Alhabardi, N., Alotaibi, R., Almutairi, G., Alrowaitee, N., Alajlan, R., Alhumidan, F., Almutairi, M., Alshikhi, R., Alrabyee, K., & Aljarallah, F. (2025). Non-Pharmacological Approaches for Managing Labor Pain: Systematic Review. *International Journal of Medicine in Developing Countries*, 8(December), 1. <https://doi.org/10.24911/ijmdc.51-1734622886>
- Hanifah, D. (2019). Faktor- Faktor yang Mempengaruhi Kecemasan Antenatal. *Jurnal Kebidanan Malahayati*, 5(1), 16–23. <https://doi.org/10.33024/jkm.v5i1.888>
- Karaahmet, A. Y., & Fatma, S. B. (2023). The effect of aromatherapy on labor pain, duration of labor, anxiety and Apgar score outcome: a systematic review and meta-analysis. *The European Research Journal*, 9(5), 1258–1270. <https://doi.org/10.18621/eurj.1261999>
- Kemenkes. (2022). *Profil Kesehatan Indonesia*. Kementerian Kesehatan Republik Indonesia, Jakarta.
- Pairman, S., Tracy, S. K., Dahlen, H. G., & Dixon, L. (2019). *Midwifery: Preparation for practice* (4th ed., C. Wyard, Ed.). Elsevier Australia.
- Walyani, E. S., & Purwoastuti, T. E. (2020). *Asuhan kebidanan persalinan & bayi baru lahir*. Pustaka Baru Press.
- WHO. (2022). *Launch of the WHO guide for integration of perinatal mental health in maternal and child health services*. <https://www.who.int/news/item/19-09-2022-launch-of-the-who-guide-for-integration-of-perinatal-mental-health>
- Wijayanti, I. T., & Altika, S. (2020). Efektivitas Penggunaan Aplikasi Kontraksi Nyaman Terhadap Intensitas Nyeri Persalinan Kala I. *Coping: Community of Publishing in Nursing*, 8(4), 350. <https://doi.org/10.24843/coping.2020.v08.i04.p02>



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Self-Compassion Level Contributes to Variations in Emotional Responses in Pregnant Women

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ABSTRACT

Background: self-Compassion pada individu dapat memberikan perlakuan yang baik pada dirinya sendiri serta mengakui atas kekurangan yang ia miliki sebagai sesuatu yang wajar karena semua manusia memiliki keterbatasan. Lebih lanjut, self-compassion ini merupakan akar dari kebahagiaan seseorang.

Purpose: this study aimed to examine the effect of self-compassion therapy on the emotional response of pregnant women at the KIA Clinic of Pekkabata Health Center.

Methods: a quasi-experimental design with a one-group pretest-posttest approach was used. The study involved 28 pregnant women who received self-compassion therapy. Emotional responses were measured using the Depression Anxiety Stress Scales (DASS-42) before and after the intervention. Data were analyzed using McNemar's test to determine the significance of changes in emotional responses.

Result : before the intervention, 53.6% of respondents were categorized as having moderate depression. After receiving self-compassion therapy, this percentage decreased, with 42.9% of respondents categorized as having mild depression. Statistical analysis showed a significant difference with a p-value of 0.001 ($p < 0.05$), indicating that self-compassion therapy had a positive impact on the emotional responses of the participants.

Conclusion: self-compassion therapy was effective in reducing the level of depression among pregnant women. This intervention is recommended to support maternal mental health and emotional well-being during pregnancy.

Keywords: *Self-compassion; Emotional Response; Pregnant Women.*



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BACKGROUND

Pregnancy is often described as a period of happiness for women, as it marks the beginning of motherhood. However, during this time, pregnant women may experience emotional fluctuations such as irritability, sadness, anxiety, and mood swings. These emotional changes can be influenced by both hormonal shifts and psychosocial stressors, including lack of familial support particularly from spouses (Oktiningrum, 2019)

Self-compassion, as defined by Neff, is the ability to treat oneself with kindness, to recognize one's own suffering as part of a shared human experience, and to maintain a balanced awareness of one's emotions. It has been associated with reduced levels of depression and increased emotional resilience (Chairunnisa & Fourianalistyawati, 2019). For pregnant women, who may encounter emotional vulnerability and psychological stress, self-compassion can serve as a protective factor, helping them regulate their emotions and reduce the risk of prenatal depression.

Contemporary societal expectations and cultural perceptions often contribute to emotional burdens during pregnancy. In some cases, pregnancy is seen as a familial obligation rather than a personal choice, which may foster feelings of inadequacy or isolation among expectant mothers (Al-Mutawtah et al., 2023). Such conditions are associated with increased vulnerability to depression and anxiety during pregnancy.

A preliminary survey at Pekkabata Health Center revealed that 75% of pregnant women reported low confidence about their pregnancy, and only 25% expressed self-assurance. These findings highlight the need for psychological interventions, such as self-compassion therapy, to support pregnant women's mental well-being.

This study investigates the potential contribution of self-compassion to variations in emotional responses among pregnant women and aims to demonstrate its effectiveness in alleviating depressive symptoms during pregnancy.

OBJECTIVE

This study aims to determine the effect of self-compassion therapy on the emotional responses of pregnant women, specifically in reducing levels of depression during pregnancy.

METHODS

This study employed a quasi-experimental design with a one-group pretest-posttest approach to evaluate the effectiveness of self-compassion therapy on the emotional response of pregnant women. The research was conducted at the Maternal and Child Health (KIA) Clinic, Pekkabata Health Center, Polewali Mandar Regency, in April 2024. A total of 28 pregnant women participated in the study. The inclusion criteria were: currently in the second or third trimester of pregnancy, aged above 18 years, and willing



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to undergo the self-compassion therapy sessions. Participants completed the Depression Anxiety Stress Scales (DASS-42) before and after the intervention.

Characteristics of Respondents

Table 1 shows that the majority of respondents were in their third trimester (57.1%).

Table 1. Distribution of Gestational Age

Gestational Age	Frequency	Percentage (%)
Trimester II	12	42,9
Trimester III	16	57,1

Table 2 illustrates that most respondents were between 20 and 35 years old (78.6%), which is considered a healthy reproductive age range.

Table 2. Maternal Age Distribution

Age Group	Frequency	Percentage (%)
< 20	1	3,6
20 - 35	22	78,6
> 36	5	17,9

Regarding educational attainment, Table 3 reveals that 42.9% of respondents had a higher education background.

Table 3. Education Level of Respondents

Age Group	Frequency	Percentage (%)
Primary School (SD)	4	14,3
Junior High School (SMP)	4	14,3
Senior High School (SMA)	8	28,6
Higher Education (PT)	12	42,9



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Table 4 presents the occupational status of respondents, with the majority (46.4%) being housewives.

Table 4. Occupational Status of Respondents

Occupation	Frequency	Percentage (%)
Housewife	13	46,4
Civil Servant	5	17,9
Private Employee	5	17,9
Entrepreneur	5	17,9

Intervention Procedure

Participants underwent structured self-compassion therapy, which included guided self-reflection, mindfulness practices, and self-kindness exercises. Each session was facilitated by trained health practitioners and tailored to address the psychological and emotional needs of pregnant women.

Emotional Response Assessment

Depression levels were measured using DASS-42 before and after therapy. Table 5 displays the pre-intervention depression levels, indicating that 53.6% of participants experienced moderate depression.

Table 5. Depression Level Before Therapy

Depression Level	Frequency	Percentage (%)
Normal	4	14,3
Mild	2	7,1
Moderate	15	53,6
Severe	6	21,4
Very Severe	1	3,6

After the intervention, Table 6 shows a shift toward lower depression severity, with 42.9% classified under mild depression and none in the severe or very severe categories.



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Table 6. Depression Level After Therapy

Depression Level	Frequency	Percentage (%)
Normal	5	17,9
Mild	12	42,9
Moderate	11	39,3
Severe	0	0,0
Very Severe	0	0,0

RESULTS

Maternal Characteristics

The majority of the participants were in their third trimester of pregnancy (57.1%), as shown in Table 1. This stage is commonly associated with heightened emotional changes due to physical and hormonal transitions nearing labor. Additionally, most respondents (78.6%) were within the reproductive health age range of 20–35 years (Table 2). This age group is generally considered more mature both physically and psychologically for childbearing.

Educational attainment (Table 3) indicates that 42.9% of respondents had completed higher education. Higher education is often linked with better health literacy and emotional awareness, which can influence emotional responses during pregnancy. Table 4 shows that 46.4% of the participants were housewives. This group may face increased emotional stress due to domestic responsibilities, often in isolation, and without structured social support.

Emotional Response Before Intervention

Before receiving self-compassion therapy, emotional assessments using the DASS-42 revealed that a substantial portion of respondents (53.6%) exhibited moderate levels of depression (Table 5). Other categories included severe (21.4%), mild (7.1%), and very severe depression (3.6%). Only 14.3% were classified as having normal emotional states. This result suggests that emotional instability during pregnancy is prevalent, particularly among those with limited social support or high self-expectations. Factors such as age, education, and occupation may contribute to this vulnerability.

Emotional Response After Intervention

Following the self-compassion therapy, there was a noticeable reduction in the severity of depression symptoms (Table 6). The proportion of respondents with moderate



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depression decreased to 39.3%, while those with mild depression increased significantly to 42.9%. Additionally, the number of respondents with normal emotional states increased to 17.9%, and no participants reported severe or very severe depression after the intervention. These changes indicate that self-compassion therapy positively impacted emotional regulation and depressive symptoms among pregnant women.

Statistical Analysis

Using McNemar's test, a statistically significant difference was found in the levels of depression before and after the intervention, with a p-value of 0.001 ($p < 0.05$). This finding supports the hypothesis that self-compassion therapy contributes to improved emotional responses during pregnancy

DISCUSSION

The findings of this study indicate that self-compassion therapy effectively reduces depressive symptoms in pregnant women. Prior to the intervention, over half of the participants exhibited moderate to severe levels of depression, a condition commonly associated with hormonal fluctuations, limited psychosocial support, and physical discomfort during pregnancy. After the therapy, a significant shift toward lower depression levels was observed, with no participants remaining in the severe or very severe categories.

These results align with previous research which suggests that self-compassion enhances emotional resilience by fostering acceptance, mindfulness, and self-kindness (Chairunnisa & Fourianalistyawati, 2019). Pregnant women, who often experience self-doubt, fear of childbirth, or societal pressure, may particularly benefit from interventions that strengthen emotional self-regulation.

The therapy's effectiveness may also be explained by its ability to reduce negative rumination, which is a known predictor of perinatal depression. By encouraging pregnant women to accept their emotional fluctuations as part of a shared human experience, self-compassion therapy mitigates feelings of isolation and inadequacy.

This study's findings are supported by Hong & Buntup, (2023), who reported higher rates of prenatal depression in Asian contexts due to cultural and familial pressures. Additionally, evidence by Jelacic et al., (2022) found that maternal distress and elevated cortisol levels during pregnancy are linked to adverse birth outcomes, including low birth weight and preterm delivery. Thus, addressing maternal mental health through preventive interventions like self-compassion therapy is vital for both maternal and fetal well-being.

Moreover, demographic factors such as education level and occupation were shown to influence emotional states. Participants with higher education were more likely to



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benefit from the therapy, possibly due to better cognitive engagement with the intervention. Meanwhile, housewives reported higher initial depression levels, potentially due to reduced social interaction or domestic workload stress. Although this study provides important insights, it is limited by the absence of a control group and the small sample size. Future studies should consider randomized controlled trials and longitudinal designs to assess the long-term effects of self-compassion on maternal mental health.

CONCLUSION

This study concludes that self-compassion therapy significantly reduces depressive symptoms among pregnant women. The intervention shifted emotional responses from moderate and severe depression toward milder or normal levels, demonstrating its therapeutic potential.

Self-compassion practices enable pregnant women to manage emotional fluctuations more effectively by promoting self-acceptance, reducing psychological distress, and enhancing emotional resilience. Given these outcomes, self-compassion therapy is recommended as a supportive psychological intervention to promote mental well-being during pregnancy.

Future research should explore broader applications of self-compassion interventions using randomized controlled trials and examine their long-term effects on maternal and neonatal outcomes.

ACKNOWLEDGMENTS

The authors would like to express their sincere gratitude to:

1. **Prof. Dr. Nilawati Uly, S.Si., Apt., M.Kes., CIPA**, Rector of Universitas Mega Buana Palopo, for her continuous support and for providing the facilities necessary to conduct this research.
2. The Head of Pekkabata Health Center and all staff members for their cooperation and assistance during data collection.
3. All members of the research team for their valuable contributions throughout the study process.
4. The pregnant women who participated in this study for their time, openness, and willingness to take part in the intervention sessions.



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REFERENCES

- Al-Mutawtah, M., Campbell, E., Kubis, H. P., & Erjavec, M. (2023). Women's experiences of social support during pregnancy: a qualitative systematic review. *BMC Pregnancy and Childbirth*, 23(1). <https://doi.org/10.1186/s12884-023-06089-0>
- Chairunnisa, A., & Fourianalistyawati, E. (2019). Peran Self-Compassion Dan Spiritualitas Terhadap Depresi Pada Ibu Hamil. *Jurnal Psikologi Ulayat*, 6, 14–36. <https://doi.org/10.24854/jpu02019-131>
- Hong, S. A., & Buntup, D. (2023). Maternal Depression during Pregnancy and Postpartum Period among the Association of Southeast Asian Nations (ASEAN) Countries: A Scoping Review. *International Journal of Environmental Research and Public Health*, 20(6). <https://doi.org/10.3390/ijerph20065023>
- Jelicic, L., Veselinovic, A., Cirovic, M., Jakovljević, V., Raičević, S., & Subotić, M. (2022). Maternal Distress during Pregnancy and the Postpartum Period: Underlying Mechanisms and Child's Developmental Outcomes—A Narrative Review. *International Journal of Molecular Sciences*, 23(22). <https://doi.org/10.3390/ijms232213932>
- Oktiningrum, M. (2019). Hubungan Dukungan Suami Dengan Respon Emosional Terhadap Kehamilan Ibu Hamil Primigravida Di Rsia Kumala Siwi Pecangaan Jepara. *Jurnal Kesehatan Budi Luhur : Jurnal Ilmu-Ilmu Kesehatan Masyarakat, Keperawatan, Dan Kebidanan*, 12(2), 182–188. <https://doi.org/10.62817/jkbl.v12i2.68>



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The Impact of Murottal Recitation and Guided Imagery Therapy on Anxiety Reduction in Pregnant Women with Preeclampsia

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ABSTRACT

Background: Preeclampsia is one of the leading causes of morbidity and mortality in pregnant women, contributing to increased maternal mortality rates. One factor that exacerbates this condition is anxiety, which triggers the production of stress hormones such as adrenaline and cortisol, weakens the immune system, and increases the risk of various diseases such as hypertension, heart disorders, and gastrointestinal problems.

Objective: This research aims to determine the effect of murottal therapy and guided imagery in reducing anxiety in pregnant women with preeclampsia.

Method: The study design used a quasi-experimental method with a total of 30 participants divided into two groups, each consisting of 15 individuals. Anxiety levels were measured using the Hamilton Anxiety Rating Scale (HARS). The therapy involved guided imagery for 30 minutes, followed by a 20–30-minute rest period, and then Quranic recitation therapy for 30 minutes.

Results: Before receiving murottal therapy, the highest anxiety category was mild anxiety with 10 participants, while in the guided imagery therapy group, the highest category was moderate anxiety with 12 participants. After undergoing murottal and guided imagery therapies, the most prevalent anxiety category changed to no anxiety, with 10 participants in the murottal group and 9 participants in the guided imagery group. The results of the paired t-test on Murottal therapy showed a p-value of $0.000 < 0.05$, the guided imagery treatment had a p-value of $0.000 < 0.05$ and the results of the independent t-test between the murottal treatment group and guided imagery had a p-value of $0.000 < 0.05$.

Conclusion: Statistical analysis using paired t-tests and independent t-tests showed that both methods were effective in reducing anxiety ($p < 0.05$), but guided imagery was more effective, as indicated by a higher average reduction in anxiety (13.67). Therefore, this study recommends guided imagery as the primary intervention and Quran recitation as an alternative for addressing anxiety in pregnant women with preeclampsia.

Keywords: Murottal Guide Imagery; Preeclampsia; Anxiety; Pregnant woman



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BACKGROUND

Although preeclampsia is one of the most common pregnancy complications and significantly contributes to maternal morbidity and mortality, there are still limitations in research that thoroughly examine the relationship between anxiety in pregnant women and the increased risk of preeclampsia. Furthermore, effective non-pharmacological interventions to reduce anxiety in pregnant women with preeclampsia have not been comprehensively studied, especially within the cultural context and midwifery practices in Indonesia. Therefore, research focusing on anxiety management strategies that can help reduce the risk of preeclampsia complications and improve overall maternal health is needed. This research is highly relevant to midwifery practice because midwives play a central role in monitoring and caring for pregnant women, including early detection and management of pregnancy complications such as preeclampsia (Mulyani et al., 2024).

Preeclampsia is a pregnancy complication that can occur during pregnancy, childbirth, and postpartum, characterized by hypertension, edema, and elevated proteinuria. Preeclampsia generally occurs after 20 weeks of gestation and up to 48 hours postpartum. Pregnancies complicated by preeclampsia often cause heightened anxiety in expectant mothers, which may further exacerbate the severity of the condition (Meinawati & Khairoh, 2023).

Anxiety in pregnant women leads to the production of adrenaline and an increase in cortisol levels. High cortisol can impair the immune system, making the body more susceptible to infections and disorders, including cardiovascular issues, hypertension, digestive problems, and pre-eclampsia.

According to Rahmawati et al., (2022) maternal anxiety during pregnancy and childbirth can lead to complications and increase the risk of preeclampsia. Pregnant women experiencing anxiety due to their complications often suffer from sleep disturbances either too little or excessive sleep which can trigger elevated blood pressure. This is due to hemostatic processes that regulate blood pressure balance during pregnancy.

According to the WHO, (2023), approximately 287,000 maternal deaths occur annually worldwide due to complications during pregnancy and childbirth. Preeclampsia, as part of hypertensive disorders in pregnancy, is one of the main risk factors contributing to high maternal mortality rates. In Indonesia, preeclampsia is reported as a significant cause, contributing to approximately 24% of all maternal deaths. In East Java, the incidence of preeclampsia has shown an upward trend, rising from 26.92% in 2019 to 34.88% in 2020.

The Maternal Mortality Rate (MMR) is a key indicator in assessing the health status of a country's population. According to data from the Kementrian Kesehatan, (2020),



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Indonesia's MMR in 2019 was recorded at 305 deaths per 100,000 live births, and increased to 359 deaths per 100,000 live births in 2020. Despite various efforts, this figure remains far from the national target set in the Sustainable Development Goals (SDGs) for 2030, which is 30 deaths per 100,000 live births.

Data from the Family Health Program at the Indonesian Ministry of Health shows that maternal deaths increased to 4,627 cases in 2020, up from 4,221 in 2019 (MoH RI, 2021). The leading causes of maternal death in 2020 in Indonesia were hemorrhage (1,330 cases), hypertension during pregnancy (1,110 cases), and circulatory system disorders (230 cases).

OBJECTIVE

This research aims to determine the effect of murottal therapy and guided imagery in reducing anxiety in pregnant women with preeclampsia. This study has obtained approval from the research ethics committee number: PN.03.10/F.III/3387/2024.

METHODS

The research design used quasi-experimental with a sample of 15 respondents from each group. The instrument used was the Hamilton Anxiety Rating Scale (HARS), with categories of not anxious, mild, moderate, severe and very severe anxiety. with categories of not anxious, mild, moderate, severe and very severe anxiety. The sampling technique used purposive sampling, with inclusion criteria of pregnant women diagnosed with severe preeclampsia accompanied by proteinuria who completed the program. Guided imagery and murottal therapies were administered sequentially, starting with guided imagery for 30 minutes, followed by a 20–30 minute interval, then continued with music therapy for 30 minutes. Bivariate analysis in this study was conducted using the paired t-test.

RESULTS

Univariate Analysis

a. Pre-Test Anxiety Levels in Mothers Receiving Murottal Therapy

Table 1. Pre-Test Anxiety Levels with Murottal Al-Qur'an Therapy in Pregnant Women with Preeclampsia in the Delivery Room March 2024

Anxiety Level	<i>Pre Test Terapi Murottal</i>	
	N	%
Not Anxious	0	0
Mild Anxiety	10	67



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Anxiety Level	<i>Pre Test Terapi Murottal</i>	
	N	%
Moderately Anxious	4	26
Severe Anxiety	1	7
Very Severe Anxiety	0	0
Total	15	100

Source: Primary Research Data

Based on Table 1 above, the dominant level of anxiety before the administration of Murottal therapy was in the mild anxiety category, with 10 respondents (67%). Additionally, 4 respondents (26%) experienced moderate anxiety, and 1 respondent (7%) experienced severe anxiety

b. Post-test maternal anxiety with Murottal therapy

Tabel 2. Post-Test Anxiety Level with Al-Quran Recitation Therapy in Pregnant Women with Preeclampsia, March 2024

Anxiety Level	<i>Post Test Terapi Murottal</i>	
	N	%
Not Anxious	10	67
Mild Anxiety	5	33
Moderately Anxious	0	0
Severe Anxiety	0	0
Very Severe Anxiety	0	0
Total	15	100

Source: primary research data

In table 2 above, it shows the level of anxiety after Murottal therapy, there was a decrease in anxiety to no anxiety, namely 10 respondents (67%) and the rest were in the mild anxiety category, namely 5 respondents (33%).

a. Pre Test Maternal Anxiety with Guided Imagery

Tabel 3. Pre-Test Anxiety Level with Guided Imagery in Pregnant Women with Preeclampsia in the Delivery Room, March 2024

Anxiety Level	<i>Pre Test Guide Imagery</i>
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	n	%
Not Anxious	0	0
Mild Anxiety	2	13
Moderately Anxious	12	80
Severe Anxiety	1	7
Very Severe Anxiety	0	0
Total	15	100

Source: primary research data

Table 3 above shows that the level of anxiety of respondents before guided imagery was carried out was dominated by the moderate anxiety category with 12 respondents (80%), mild anxiety 2 respondents (13%) and only 1 respondent (7%) in the severe anxiety category.

b. Post Test for Maternal Anxiety with Guided Imagery

Tabel 4. Post-Test Anxiety Level with Guided Imagery in Pregnant Women with

Preeclampsia in the Delivery Room, March 2024		
Anxiety Level	Post-test <i>Guide Imagery</i>	
	n	%
Not Anxious	9	60
Mild Anxiety	5	33
Moderately Anxious	1	7
Severe Anxiety	0	0
Very Severe Anxiety	0	0
Total	15	100

Source: primary research data

In table 4 above, it shows the level of anxiety after being given guided imagery action, there is a decrease in the level of anxiety which is dominated by the non-anxious category, namely 9 respondents (60%) and 5 respondents (33%) in the mild anxiety category and still 1 respondent (7%) experiencing moderate anxiety.

Before the t-test was carried out, a normality test was first carried out using Shapiro Wilk and showed a probability value of the p value of the normality test of more than α 0.05, so it was concluded that the data was normally distributed, so that statistical testing could be continued using the t-test.



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Bivariat Analysis

- a. The Effect of Murrotal Therapy on Anxiety in Pregnant Women with Preeclampsia

Tabel 5. Effects of Al-Quran Recitation Therapy on Anxiety Levels in Pregnant Women with Preeclampsia in the Delivery Room, March 2024

Anxiety Levels of Al-Quran Recitation Therapy					
	Mild n (%)	Moderate n (%)	Severe n (%)	Very Severe n (%)	Total
Posttest	0 (0)	10 (33.3)	4 (13.3)	1 (3.3)	15 (50)
Pretest	10 (33.3)	5 (16.7)	0 (0)	0 (0)	15 (50)
Total	10 (33.3)	15 (50.5)	4 (13.3)	1 (3.3)	30 (100)
					<i>p-value</i>
					0.000 < 0.05

The effect of treatment with Murrotal therapy of the holy verses of the Qur'an, according to table 5 above, shows a significant decrease in the level of anxiety after being given Murottal Alqur'an therapy. Testing on anxiety score data with a paired t-test, obtained a significance value of $0.000 < \alpha 0.050$. Thus, H_0 is rejected and H_1 is accepted, so the conclusion is that there is an effect of Murottal Alqur'an therapy treatment on reducing anxiety.

- b. The Influence of Guide Imagery on Anxiety in Pregnant Women with Preeclampsia

Tabel 6. The Effect of Guide Imagery on Anxiety Levels in Pregnant Women with Preeclampsia in the Delivery Room, March 2024

Anxiety Levels of Guide Imagery					
	Mild n (%)	Moderate n (%)	Severe n (%)	Very Severe n (%)	Total
Posttest	0 (0)	2 (6.7)	12 (40)	1 (3.3)	15 (50)
Pretest	9 (30)	5 (16.7)	1 (3.3)	0 (0)	15 (50)
Total	9 (30)	7 (23.3)	13 (43.3)	1 (3.3)	30 (100)
					<i>p-value</i>
					0.000 < 0.05

Based on table 6 above, it shows a significant decrease in anxiety levels after being given Guide Imagery. Testing the anxiety score data with a paired t-test, obtained a



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significance value of $0.000 < \alpha 0.050$. Thus, H_0 is rejected and H_1 is accepted, so the conclusion is that there is an effect of Guide Imagery treatment on reducing anxiety.

c. Effectiveness of Murottal and Guided Imagery on Anxiety in Pregnant Women with Preeclampsia

Tabel 7. The Effectiveness of Murottal Therapy and Guided Imagery on Anxiety Levels in Pregnant Women with Preeclampsia in the Delivery

Perlakuan	Tendensi Sentral	Pre Test	Post Test	p-value
Murottal Therapy	Mean	26	19	0,000 < α 0,050
	Median	24	18	
	Modus	21	18	
	Std Deviasi	6,5	4,2	
	Minimum	21	14	
	Maximum	43	27	
Guide Imagery	Mean	33	19	0,000 < α 0,050
	Median	33	19	
	Modus	28	15	
	Std Deviasi	5,9	4,4	
	Minimum	24	13	
	Maximum	47	28	

Source: primary research data

Table 7 above shows the mean anxiety scores before and after each intervention. The table indicates that the mean difference in anxiety scores for the Murottal therapy group was 7, while the Guided Imagery group had a mean difference of 14. Other measures of central tendency also show a decrease in anxiety levels following both interventions.

To determine which intervention was more effective between Murottal Al-Qur'an therapy and Guided Imagery, the pre-post test score differences for each group were analyzed. The reduction in anxiety scores was found to be greater in the Guided Imagery group compared to the Murottal group.

Based on the results of the Independent t-test, the significance value was $0.000 < 0.050$, indicating that H_0 is rejected and H_1 is accepted. It can be concluded that Guided Imagery is more effective in reducing anxiety among pregnant women with preeclampsia than Murottal therapy.

DISCUSSION

Anxiety arises as a form of self-anticipation toward potential danger. Research on anxiety in pregnant women with preeclampsia shows that pregnant women experiencing anxiety have a risk of developing preeclampsia up to 7.84 times higher. If anxiety occurs



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in women who already have preeclampsia, it can worsen the condition. Anxiety also affects vascular spasms, which can trigger an increase in blood pressure (Cong et al., 2025).

Guided imagery is a technique that utilizes the power of the mind to direct the body in the process of healing and maintaining health or relaxation. This method involves communication with all the senses, such as vision, touch, guidance, and hearing. Relaxation achieved through guided imagery can make the body feel calmer and more comfortable during sleep. Additionally, by practicing slow deep breathing, the body becomes increasingly relaxed (Saputri & Rahayu, 2020).

Anxiety experienced by pregnant women plays a role in triggering the occurrence of preeclampsia. Research by Saddam et al., (2023) shows that pregnant women who experience anxiety have a 4.6 times higher risk of developing preeclampsia compared to those without anxiety

Murottal Al Qur'an is the recitation of Qur'anic verses that are delivered properly, applying correct tajwid, and accompanied by melody by a Qari (Agustin et al., 2025). This practice can help reduce anxiety levels. Anxiety itself is an emotion or feeling that arises as an initial response to psychological stress and threats to things that are important to the individual. Anxiety is often described as feelings of insecurity, doubt, helplessness, restlessness, worry, and nervousness, which are usually accompanied by physical discomfort (Agustin et al., 2025).

This research is supported by a study conducted by Meinawati & Khairroh, (2023) which showed that pregnant women who regularly listen to murottal experience calmness and feel more relaxed during pregnancy. This helps them accept that pregnancy, whether with or without complications, is a normal condition, thereby contributing to a reduction in anxiety levels. Furthermore, the relaxation gained from listening to murottal also affects anxiety, as reported in the study by Islamiaty et al., (2023) which found a significant difference in anxiety scores before and after listening to murottal.

Sound influences the overall physiological functions of the body through the activation of the sensory cortex, which then triggers further activity in the deeper parts of the neocortex, and continues to the limbic system, hypothalamus, and autonomic nervous system (Xiao et al., 2023)

The study conducted by Aji et al., (2022) found that guided imagery has a significant effect in reducing anxiety levels in the respondents. The combination of therapies applied had a positive impact not only on anxiety but also on blood pressure, making this method an effective independent nursing practice.

Furthermore Suhermi & Karuniawati, (2024) also stated that the use of distraction through guided imagery is effective in reducing anxiety in pregnant women, in line with



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previous research findings.

CONCLUSION

The case study results indicate that the application of music therapy and guided imagery in pregnant women with preeclampsia was able to reduce anxiety levels after three intervention sessions. This was marked by a decrease in anxiety levels from moderate anxiety to mild anxiety.

However, this study has limitations, namely the relatively small sample size. In addition, control over other factors that might influence the intervention outcomes is needed to ensure more accurate findings.

ACKNOWLEDGMENTS:

The researchers would like to express their gratitude to Stikes Hamzar Mamben Lombok Timur.

REFERENCES

- Agustin, I. R., Wahana, A., & Atmadja, A. R. (2025). Klasifikasi Irama Murottal Al-Quran Menggunakan Metode CNN dengan Perbandingan Arsitektur ResNet50 dan VGG16. *Journal of Information System Research*, 6(2), 914–922. <https://doi.org/10.47065/josh.v6i2.6440>
- Aji, P. T., Rizkasari, E., & Pujiyanto, P. (2022). Pengaruh Terapi Guided Imagery terhadap Perubahan Tekanan Darah pada Penderita Hipertensi di Wilayah Puskesmas Jayengan Surakarta. *ASJN (Aisyiyah Surakarta Journal of Nursing)*, 3(2), 69–75. <https://doi.org/10.30787/asjn.v3i2.896>
- Cong, X., Wang, J., Yang, L., Cui, L., Hua, Y., & Gong, P. (2025). Pregnancy stress in women at high risk of preeclampsia with their anxiety, depression, self-management capacity: a cross-sectional study. *Frontiers in Psychology*, 16(May), 1–11. <https://doi.org/10.3389/fpsyg.2025.1537858>
- Islamiaty, A., S, S., & Agus, A. I. (2023). Pengaruh Terapi Murottal terhadap Penurunan Kecemasan Pasien Pre Sectio Caesarea RSIA Sitti Khadijah 1. *Window of Nursing Journal*, 2(2), 192–201.
- Kementrian Kesehatan. (2020). *Angka Kematian Ibu/AKI (Maternal Mortality Rate/MMR) Hasil Long Form SP2020 Menurut Provinsi, 2020 - Tabel Statistik - Badan Pusat Statistik Indonesia*. <https://www.bps.go.id/id/statistics-table/1/MjIxOSMx/angka-kematian-ibu-aki--maternal-mortality-rate-mmr---hasil-long-form-sp2020-menurut-provinsi--2020.html>
- Meinawati, L., & Khairoh, M. (2023). Terapi Murottal Terhadap Penurunan Kecemasan



PROCEEDINGS OF AIPKIND SCIENTIFIC MEETING 2025

Publisher : Asosiasi Pendidikan Kebidanan Indonesia (AIPKIND)

<http://proceeding.journal-aipkind.or.id>

- Pada Ibu Hamil Dengan Preeklampsia. *Journal of Health Educational Science And Technology*, 6(1), 55–64. <https://doi.org/10.25139/htc.v6i1.5324>
- Mulyani, T., Kusumasari, R., Kurniati, F., Riyadi, M., & Hikmawati, A. (2024). Penerapan Terapi Musik Klasik pada Ibu Hamil Trimester III dengan Masalah Keperawatan Ansietas. *Nursing Science Journal (NSJ)*, 5, Nomor2 (Penerapan Terapi Musik Klasik Pada Ibu Hamil Trimester Iii Dengan Masalah Keperawatan Ansietas), 150–157.
- Rahmawati, I., Fernalia, F., & Safitria, A. (2022). Pengaruh Terapi Musik Klasik Terhadap Kecemasan Pada Pasien Pra Operasi Di Rsud Dr. M. Yunus Bengkulu. *Jurnal Kesehatan Medika Udayana*, 6(2), 111–122. <https://doi.org/10.47859/jmu.v6i2.163>
- Saddam, M., Saharuddin, S., Yunus, P., Fitriani, R., & Galib, M. (2023). Analisis Korelasi antara Kecemasan dan Kejadian Preeklamsia pada Ibu Hamil. *UMI Medical Journal*, 8(1), 35–45. <https://doi.org/10.33096/umj.v8i1.166>
- Saputri, R., & Rahayu, D. A. (2020). Penurunan Resiko Bunuh Diri Dengan Terapi Relaksasi Guided Imagery Pada Pasien Depresi Berat. *Ners Muda*, 1(3), 165. <https://doi.org/10.26714/nm.v1i3.6212>
- Suhermi, & Karuniawati, N. (2024). Efektivitas penerapan terapi guide imagery terhadap penurunan kecemasan pasien pre operasi sectio caesarea. *Jurnal Ilmiah Permas: Jurnal Ilmiah STIKES Kendal*, 14(3), 75–82. <https://journal2.stikeskendal.ac.id/index.php/PSKM/article/view/1979/1260>
- WHO. (2023). Kenya News Agency (2023). Kisumu medics front for early diagnosis of preeclampsia to reduce deaths. Kenya News Agency. Retrieved from <https://www.kenyanews.go.ke/kisumu-medics-front-for-early-diagnosis-of-preeclampsia-to-reduce-deaths>. In WHO, Geneva. <https://www.who.int/publications/i/item/9789240068759>
- Xiao, X., Chen, W., & Zhang, X. (2023). *The Effect and Mechanisms of Music Therapy on the Autonomic Nervous System and Brain Networks of Patients of Minimal ConsciousStres: A Randomized Controlled Trial*. *Frontiers in Neuroscience*. <https://doi.org/10.3389/finins.2023.1182181>



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Hypnobreastfeeding Digital Media On Postpartum Depression, Breastfeeding Intention, And Infant Body Weight

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ABSTRACT

Background: The prevalence of stunting is still 21.6% in Indonesia according to data from the Indonesian Nutrition Status Survey, and the specific nutrition intervention to prevent stunting is exclusive breastfeeding. Psychological problems that hinder the breastfeeding process such as maternal depression, low breastfeeding intention are factors that cause the baby's weight gain is not optimal. Hypnobreastfeeding is a non-pharmacological effort, utilizing subconscious energy so that the breastfeeding process runs smoothly in postpartum mothers.

Purpose: of this study was to analyze the effect of hypnobreastfeeding on postpartum depression, breastfeeding intention, and baby weight.

Method: Preexperimental research design with pretest-posttest with control group. The research respondents were 34 postpartum mothers who were divided into two groups, the group treated with hypnobreastfeeding digital media and the control group, which were taken using purposive sampling technique. The research was conducted in July-September 2023 in the Cipendeuy Health Center Working Area. Hypnobreastfeeding was given with audiovisual digital media with a duration of 20 minutes, postpartum depression was measured using the Edinburg Depression Postpartum Scale (EPDS), breastfeeding intentions with the Infant Feeding Intentions Scale, and baby weight was measured with an observation sheet, then the data were analyzed with t-dependent and independent sample t-test.

Results: showed that there was an effect of digital hypnobreastfeeding media on reducing postpartum depression (P value=0.003), increasing breastfeeding intention (P value=0.004), and increasing baby weight (P value=0.000).

Conclusion: It is recommended to use digital hypnobreastfeeding media as nonpharmacological therapy in increasing breastfeeding intention, preventing postpartum depression and stunting.

Keywords: *Weight; Depression; Intention; Digital Media; Hypnobreastfeeding*



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BACKGROUND

Weight gain is an indicator in assessing the nutritional status of infants from 0-6 months of age. Infant growth and development during the first 1000 days of life is rapid and critical, requiring optimal nutrition. Balanced nutritional intake and maximum fulfillment of nutritional needs support optimal growth and development of infants (Lubis & Setiarini, 2022). In contrast, short-term malnutrition will result in disruption of brain development, intelligence, impaired physical growth and metabolic disorders in the body, while the long-term impact is decreased cognitive ability and learning achievement, decreased immunity, and the risk of developing diabetes, obesity, heart disease, blood vessels, cancer, stroke, and disability in old age (Pratiwi et al., 2021). Current conditions in Indonesia, data from the Indonesian Nutrition Status Survey (SSGI) in 2022 show that the incidence of stunting in infants is still 21.6% despite a decrease in the previous year, and this situation is still our homework together. The condition in West Java Province itself is not much different at 20.2%. One of the 11 specific interventions to prevent stunting is exclusive breastfeeding (Liza, 2023).

Breastfeeding is often taken for granted, even though breastfeeding is a process that has a fundamental role in the welfare of mothers and babies. Breast milk is a natural food for infants with the most appropriate level of nutrients provided for optimal growth. The nutritional content of breast milk protects the baby's immune system, allowing the baby to grow and develop properly. Breast milk contains colostrum which is rich in antibodies to increase immunity and kill bacteria in large quantities so that breastfeeding can reduce the risk of death in infants (Misiewicz, 2023).

Physical and psychological problems in the breastfeeding process are certainly common and cause the failure of exclusive breastfeeding. Mental health issues that are of concern today are part of psychological problems, one of which is postpartum depression. The global prevalence of postpartum depression is around 13% and the proportion is higher in developing countries at 20%. The incidence of postpartum depression is high in Asian countries and varies from 26-85% while in Indonesia it ranges from 50-70% (Amandya et al., 2021).

Psychological disorders will affect breastfeeding intention. breastfeeding intention is the mother's action in formulating a plan to provide breast milk to her baby in order to help the baby's growth and development. Strong maternal intention/desire/motivation to breastfeed is an important factor in determining the mother's quality of life, which in turn improves the growth and development of her baby. Breastfeeding intention is one of the determinants of adherent breastfeeding behavior (Castro et al., 2025). A high level of intention of breastfeeding mothers can help achieve the government program, namely exclusive breastfeeding for 6 months to 2 years or more (Asih & Nyimas, 2020).



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Hypnobreastfeeding is a non-pharmacological effort, utilizing subconscious energy so that the breastfeeding process runs smoothly in postpartum women (Septianingrum, 2022). Hypnobreastfeeding is done by diverting attention from stress and anxiety so that the situation during breastfeeding becomes relaxed, calm, and comfortable (Laily & Rahman, 2023). The state of anxiety and stress is reduced, allowing mothers to focus their minds on positive things, increasing self-confidence (Sofiyanti et al., 2019). The above is caused by the hormone cortisol which affects stress is inhibited by the active parasympathetic nerves so that what is released is the hormone oxytocin and endorphin which makes the mother feel calm, comfortable, and happy (Takayanagi & Onaka, 2022). The psychological state of a happy postpartum mother will increase breastfeeding intention and milk production which directly affects the baby's weight gain (Hutabarat & Sihombing, 2021).

The current era of digitalization requires health workers, especially midwives, to be adaptive to all existing conditions. The use of technology, especially in the world of health, has been widely developed so as to help make the provision of health services easier, cheaper, and more efficient. One of them is the use of audiovisual digital media in providing hypnobreastfeeding therapy so that in addition to providing new knowledge to postpartum women, postpartum women can independently carry out this hypnobreastfeeding therapy. The results of the Preliminary Study at the Cipeundeuy Health Center, West Bandung Regency, found that 262 babies were stunted, 108 babies were malnourished, and exclusive breastfeeding coverage was only 50%. The results of interviews with three postpartum mothers found that all mothers did not breastfeed exclusively and did not know about hypnobreastfeeding.

Research on hypnobreastfeeding has existed before, but not in the aspect of utilizing health technology, it is hoped that this research will be the beginning of the development of digital hypnobreastfeeding. Hypnobreastfeeding research is important to do as an alternative solution to prevent stunting, where the Hypnobreastfeeding Method through audio-visual digital media can overcome postpartum depression, increase breastfeeding intention, and increase baby growth.

OBJECTIVE

The objective of the research was to analyze the effect of hypnobreastfeeding on postpartum depression, breastfeeding intention, and baby weight.

METHODS

The research method is preexperimental design with pretest-posttest with control group on 34 postpartum mothers who have babies divided into two groups, namely the group treated with digital hypnobreastfeeding media and the control group, which was



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taken using purposive sampling technique. The research was conducted in July-September 2023 in the Cipendeuy Health Center Working Area. Digital audiovisual hypnobreastfeeding was given to postpartum mothers 1 day by viewing videos for 2x per day (morning and night) with a duration of 20 minutes for 14 days. Postpartum depression was measured using the Edinburg Depression Postpartum Scale (EPDS), breastfeeding intentions with the Infant Feeding Intentions Scale, and baby weight using an observation sheet measured before and after treatment on day 15, then the data were analyzed by t-dependent and independent sample t-test.

RESULTS

Table 1. Mean Postpartum Depression, Breastfeeding Intention, and Infant Weight Gain Before and After Intervention in Treatment and Control Groups

Variable	N	Treatment Groups				Control Groups			
		Mean		SD		Mean		SD	
		Before	After	Before	After	Before	After	Before	After
Postpartum Depression	17	13	7.88	3.937	3.498	11.06	11.09	3.960	3.280
Breastfeeding Intention	17	16	18	1.458	1.061	14.94	16.12	1.919	2.176
Weight Gain	17	3458.82	3888.24	166.053	211.785	3429.41	3441.18	164.942	127.764

Based on Table 1. obtained the results of the analysis of the average postpartum depression in the treatment group before the intervention was 13 with a standard deviation of 3,937 and after the intervention was 7.88 with a standard deviation of 3,498, while in the control group obtained before the intervention was 11.06 with a standard deviation of 3,960 and after the intervention was 11.09 with a standard deviation of 3,280.

The results of the analysis of the average intention to breastfeed in the treatment group before the intervention was 16 with a standard deviation of 1,458 and after the intervention was 18 with a standard deviation of 1,061, while in the control group obtained before the intervention was 14.94 with a standard deviation of 1,919 and after the intervention was 16.12 with a standard deviation of 2,176.

The results of the analysis of the average body weight of infants in the treatment group before the intervention was 3458.82 with a standard deviation of 166,053 and after the intervention was 3888.24 with a standard deviation of 211,785, while in the control group obtained before the intervention was 3429.41 with a standard deviation of 164,942 and after the intervention was 3441.18 with a standard deviation of 127,764.



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Table 2. Differences in Postpartum Depression, Breastfeeding Intention, and Infant Weight Before and After Intervention in Treatment and Control Groups

Variable	N	Treatment Groups				<i>P</i> <i>value</i>	Control Groups				<i>P</i> <i>value</i>
		Mean		SD			Mean		SD		
		Before	After	Before	After		Before	After	Before	After	
Postpartum Depression	17	13	7.88	3.937	3.498	0,000	11.06	11.09	3.960	3.280	0,414
Breastfeeding Intention	17	16	18	1.458	1.061	0,000	14.94	16.12	1.919	2.176	0,030
Weight Gain	17	3458.82	3888.24	166.053	211.785	0,000	3429.41	3441.18	164.942	127.764	0,651

Based on table 2, the results of the analysis of the average postpartum depression in the treatment group before the intervention was 13 and after the intervention was 7.88. The statistical test results of the dependent t-test obtained P value = 0.000 ($\alpha \leq 0.05$). It can be concluded that there is a significant difference in the average postpartum depression before and after the intervention of hypnobreastfeeding gital media. the results of the analysis of the average postpartum depression in the control group before the intervention was 11.06 and after the intervention was 11.09. The statistical test results of the dependent t-test obtained P value = 0.414 ($\alpha \leq 0.05$). It can be concluded that there is no significant difference in the average postpartum depression before and after the intervention of hypnobreastfeeding gital media.

The results of the analysis of the average intention to breastfeed in the treatment group before the intervention was 16 and after the intervention was 18. The statistical test results of the t-dependent test obtained P value = 0.000 ($\alpha \leq 0.05$). The results of the analysis of the average intention to breastfeed in the control group before the intervention was 14.94 and after the intervention was 16.12. The statistical test results of the dependent t-test obtained P value = 0.030 ($\alpha \leq 0.05$). It can be concluded that there is a significant difference in the average intention to breastfeed before and after the intervention of providing hypnobreastfeeding gital media in the treatment and control groups.

The results of the analysis of the average baby weight in the treatment group before the intervention was 3458.82 and after the intervention was 3888.24. The statistical test results of the dependent t-test obtained P value = 0.000 ($\alpha \leq 0.05$). It can be concluded that there is a significant difference in the average body weight of infants before and after the intervention of providing hypnobreastfeeding gital media. the results of the analysis of the average body weight of infants in the control group before the intervention were 3429.41 and after the intervention were 3441.18. The statistical test results of the dependent t-test obtained P value = 0.651 ($\alpha \leq 0.05$). It can be concluded that there is no



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significant difference in the average body weight of infants before and after the intervention of hypnobreastfeeding gital media.

Table 3 Effect of Postpartum Depression, Breastfeeding Intention, and Infant Weight in Treatment and Control Groups

Variable	N	Treatment Groups		Control Groups		P value
		Mean	SD	Mean	SD	
Postpartum Depression	17	7.88	3.498	11.59	3.280	0,003
Breastfeeding Intention	17	18	1.061	16.12	2.176	0,004
Weight Gain	17	3888.24	211.785	3441.18	127.764	0,000

Based on table 3, the results of the analysis of the average postpartum depression after intervention in the treatment group were 7.88 and in the control group 11.59. Statistical test results from the independent sample t-Test test obtained P value = 0.003 ($\alpha \leq 0.05$). There is a significant difference between the treatment group and the control group which means H_0 is rejected and H_a is accepted. It can be concluded that there is an effect of digital hypnobreastfeeding media on reducing postpartum depression.

The results of the analysis of the average intention to breastfeed after intervention in the treatment group were 18 and in the control group 16.12. The statistical test results of the independent sample t-Test test obtained P value = 0.004 ($\alpha \leq 0.05$). There is a significant difference between the treatment group and the control group which means H_0 is rejected and H_a is accepted. It can be concluded that there is an effect of digital hypnobreastfeeding media on increasing breastfeeding intention.

The results of the analysis of the average baby weight after intervention in the treatment group were 3888.24 and in the control group 3441.18. Statistical test results from the independent sample t-Test test obtained P value = 0.004 ($\alpha \leq 0.05$). There is a significant difference between the treatment group and the control group, which means H_0 is rejected and H_a is accepted. It can be concluded that there is an effect of digital hypnobreastfeeding media on infant weight gain.

DISCUSSION

The effect of Digital Hypnobreastfeeding Media on Postpartum Depression

The results showed the average postpartum depression score in the treatment group before the intervention was 13 and after the intervention was 7.88, while in the control group obtained before the intervention was 11.06 and after the intervention was 11.09. Depression screening in postpartum mothers using the Edinburgh Postnatal Depression



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Scale, which consists of 10 questions with a score measurement >13 indicated depression. Based on statistical tests there was a decrease in depression scores in the treatment group. Physical and psychological changes occur during the postpartum period. Psychological conditions of postpartum women experience psychological changes due to the transition of roles, from not having a child, the presence of a baby, then there is a transition period of the role of being a parent, including the role of breastfeeding and the role of nurturing and caring for the baby. Becoming a parent is a crisis in itself and mothers must be able to get through the transition. Midwives as midwifery care providers have a role to facilitate postpartum mothers to face psychological changes, although in general these changes are normal, but mothers must be facilitated, supported, and assisted to go through this phase of change well (Shivairová et al., 2024).

Postpartum blues is a common condition of mild depression and is considered normal for postpartum mothers. Two-thirds of mothers who have given birth to their babies will experience several symptoms of depression such as emotional imbalance, irritability, irritability, sadness, signs of a known cause, and crying easily. The results of the study show that the causes of baby blues include postpartum hormonal changes that occur suddenly, the psychological condition of the mother who is not ready to face the birth of her baby or the uncertainty of assuming the role of mother (Bidan dan Dosen Kebidanan Indonesia, 2019).

Baby blues will recover spontaneously without special treatment, but if the symptoms persist or even get worse, it is necessary to be aware of more severe depression or postpartum psychosis. The results showed that 5% of postpartum mothers with baby blues progressed to postpartum depression or postpartum depression. Postpartum depression is a serious disorder that can occur after a mother gives birth to her baby with no known cause. In some cases, postpartum mothers who experience depression tend to have more extreme thoughts of harming themselves or their babies (Bidan dan Dosen Kebidanan Indonesia, 2019).

Factors that influence the occurrence of postpartum depression include prenatal anxiety, prenatal depression, self-esteem, stress on children, stress on life, lack of social support, less harmonious husband and wife relationships, previous history of depression, confusion with the baby's temperament, marital status, social economic status, labor blues, and unwanted or unplanned pregnancy (Bidan dan Dosen Kebidanan Indonesia, 2019).

Signs and symptoms of postpartum depression include the onset of sadness, changes in eating and sleeping patterns, mothers feel always tired, decreased libido, feel anxious, irritable, feel lonely, unstable emotions, cry continuously without definite cause and have extreme thoughts of harming themselves and or their children (Bidan dan Dosen Kebidanan Indonesia, 2019).



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Handling postpartum depression can be done in two ways, namely pharmacology and non-pharmacology. Research proves that pharmacological treatment of postpartum depression is more effective in overcoming postpartum depression, but pharmacological treatment (antidepressant drugs) is less desirable for postpartum women because it has an impact on breast milk production and output. Non-pharmacological treatments for postpartum depression include continuous and comprehensive support from husband, family, neighbors and other support groups, adequate rest, exercise and healthy food consumption (Bidan dan Dosen Kebidanan Indonesia, 2019).

Nonpharmacological treatments such as Hypnobreastfeeding are proven to prevent postpartum depression, reinforced by several research results, including Virgian and Witari's research, confirming that Hypnobreastfeeding effectively reduces postpartum maternal anxiety (Virgian & Setiawati, 2021) (Witari et al., 2022).

The Effect of Digital Hypnobreastfeeding Media on Breastfeeding Intention

Intention is the power of individuals to plan behavior and efforts to realize behavior. In general, if the higher the individual's intention, the higher the likelihood of the individual to realize the behavior. Intention is a person's action in formulating a plan so that it can show specific or not specific conscious future achievements. Intention is formed by the strength of commitment in indicating whether to do the behavior or not, giving rise to the hope that the behavior will be realized even though it does not yet have a commitment or plan. Intention is the main determinant of behavior obtained from the results of the underlying cognitive process, namely the commitment to take certain actions at certain times and places and the identification of definitive strategies to generate, carry out and strengthen behavior, so from intention can predict how much exclusive breastfeeding is achieved (Kusumaningtiar & Nurwahidah, 2023). Breastfeeding intention is the mother's action in formulating a plan to provide breast milk to her baby in order to help the baby's growth and development.

The provision of audiovisual hypnobreastfeeding in this study was proven to increase mothers' intention to breastfeed. The average score of breastfeeding intention in the treatment group increased from 16 to 18. It can be concluded that there is a significant difference in the average intention to breastfeed before and after the intervention of providing hypnobreastfeeding digital media (P value = 0.030). Giving positive affirmations helps the mother's confidence in the breastfeeding process so that it increases the mother's motivation which has an impact on milk production (Virgian, 2022).

The Effect of Digital Hypnobreastfeeding Media on Infant Weight

Body weight is the most important anthropometric measurement in infancy and toddlerhood. Body weight is the result of the addition or subtraction of all tissues in the



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body. Body weight can be interpreted as the best indicator in knowing the composition of nutrients that play a role in the process of child growth and development. In addition, body weight is an objective measurement, can provide the best results in measurement because it is sensitive to small changes and can be repeated to reconfirm the results of measurements that have been made. Nutritional composition is a state resulting from the balance between consumption and absorption of nutrients and nutrients contained or physiological state as a result of the availability of nutrients in the cells of the body. Weight change is a very precise measurement in determining the success of a child's nutritional status against the fulfillment of nutrients aimed at the child's weight (Wickramasinghe et al., 2024).

Under normal conditions, after giving birth on the first and second days of the postpartum period, breast milk produced is around 50-10 ml a day. The amount will increase to 500 ml in the second week, and will continue to increase in the 10-14 days after delivery. On the 14th day (2 weeks) after delivery, the size of the uterus will gradually shrink to 350 grams, and will return to normal as usual on the 60th day or in the 8th week. At that time the influence of estrogen and progesterone has disappeared, and is completely replaced by the hormone prolactin which will stimulate milk production, besides the influence of oxytocin causing the myoepithelium of the mammary glands to contract so that breast milk comes out, in the second week and onwards milk production will increase (Castro et al., 2025).

Inadequate milk production makes mothers experience difficulties in the breastfeeding process, especially in the early postpartum period. This is often experienced by most mothers (60%) on the first to third day after giving birth. As many as 56.4% of mothers complained of no breast milk on the first day of the postpartum period, 16.6% of mothers complained of low milk production, and 27% of mothers complained of poor milk production. This condition causes mothers to stop breastfeeding and even prefer to give formula milk to their babies (Kementerian Kesehatan RI, 2020). A decrease in breastmilk production on the first day after childbirth can be caused by a lack of stimulation of prolactin and oxytocin hormones that play a role in the smooth production of breastmilk. Lack of milk production can be caused by discomfort, tension, anxiety, and pain.

The baby's suckling is very influential in stimulating further milk production, therefore scheduled breastfeeding is not good. If the baby gets other foods including water, it can cause the baby to get sick and reduce milk production because the mother produces milk depending on how much milk the baby sucks (Sofiyanti et al., 2019).

Hypnobreastfeeding is a natural effort to use subconscious energy so that the breastfeeding process runs smoothly. Hypnobreastfeeding is done by distracting the mother from stress and anxiety, especially in primiparous mothers so that the situation



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becomes very relaxed in the breastfeeding process. Hypnobreastfeeding can be done by the practitioner or the subject's own behavior .

The mechanism of hypnobreastfeeding is to reduce anxiety and stress in mothers so as to increase milk production, eliminate anxiety and fear so that they can focus their minds on positive things and increase maternal self-confidence so as to make mothers feel better and believe in their role as a mother. This is caused by the hormone cortisol which affects stress is inhibited by the active production of sympathetic nerves so that what comes out is the hormone oxytocin and endorphins so that the mother feels calm, comfortable, and happy (Sofiyanti et al., 2019).

Video as one of the audio-visual media is one of the learning media that can be used in the teaching and learning process. The images and sounds that appear on the video showing the scenery of mountains, rice fields and rivers with a fairly long duration are expected to be able to make respondents not get bored quickly while stimulating the mother's interest in listening to it in a relaxed manner. This type of media has better capabilities because it involves the two largest senses in the absorption of information, namely the senses of sight and hearing.

The advantage of media with natural content is a very accessible tool that involves the five senses. Nature provides great restorative effects on health, such as lowering blood pressure, contributing to a positive emotional state, lowering stress hormone levels and increasing energy. The human senses include hearing, sight, touch, and smell and taste, each of these five senses plays an important role in the healing process. In the sense of hearing, pleasant and soothing sounds can reduce blood pressure and heart rate, thus creating an atmosphere that then affects the nervous system. For example, the sound of music is used to reduce depression, calm and relax; the sound of fountains, can awaken spiritual energy and evoke a feeling of closeness to nature of mountains and waterfalls; sounds in nature, such as the sound of rain, wind, bird calls, etc. can provide a calm atmosphere and create a sense of well-being.

Hypnobreastfeeding is a non-pharmacological effort, utilizing the energy of the subconscious so that the breastfeeding process runs smoothly in postpartum women (Septianingrum, 2022). Hypnobreastfeeding is done by diverting attention from stress and anxiety so that the situation during breastfeeding becomes relaxed, calm, and comfortable (Laily & Rahman, 2023). The state of anxiety and stress is reduced, allowing mothers to focus their minds on positive things, increasing self-confidence (Sofiyanti et al., 2019). The above is caused by the hormone cortisol which affects stress is inhibited by the active parasympathetic nerves so that what is released is the hormone oxytocin and endorphin which makes the mother feel calm, comfortable, and happy (Takayanagi & Onaka, 2022). The psychological state of happy postpartum mothers will increase breastfeeding



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intention and milk production which directly affects the baby's weight gain (Hutabarat & Sihombing, 2021).

CONCLUSION

Hypnobreastfeeding digital media has an effect on reducing postpartum depression, increasing breastfeeding intention, and increasing baby weight. It is recommended to use digital hypnobreastfeeding media as a non-pharmacological therapy in increasing breastfeeding intention, preventing postpartum depression and stunting.

REFERENCES

- Amandya, A. K. P., Mustofa, A., Hapsari, A. N., Nabiila, A., Nurissyita, A. M., & Prasetya, E. C. (2021). *Faktor Risiko Depresi Pasca Persalinan di Negara-negara Asia Tenggara. Medica Arteriana (Med-Art)*, 3(2), Article 2. <https://doi.org/10.26714/medart.3.2.2021.1-6>
- Asih, Y., & Nyimas, A. (2020). *Hypnobreastfeeding to Increase Motivation and Breast Milk Production: A Study. International Journal of Innovation*.
- Bidan dan Dosen Kebidanan Indonesia. (2019). *Kebidanan: Teori dan asuhan (Vol. 2)*. EGC.
- Castro, A., Ehlert, U., Glover, V., & O'Connor, T. G. (2025). Psychological factors affecting breastfeeding during the perinatal period in the UK: an observational longitudinal study. *BMC Public Health*, 25(1). <https://doi.org/10.1186/s12889-025-22020-y>
- Hutabarat, J., & Sihombing, K. P. (2021). *The Effect of Hypnobreastfeeding on Increased Milk Production in Breastfeeding Mothers of Perlis Village, Tangkahan Durian District, of North Sumatera, Indonesia. Global Journal of Health Science*, 13(3), 112. <https://doi.org/10.5539/gjhs.v13n3p112>
- Kementerian Kesehatan RI. (2020). *Profil Kesehatan Indonesia tahun 2019*. Kementerian Kesehatan RI.
- Kusumaningtiar, D. A., & Nurwahidah. (2023). Behavior of Exclusive Breastfeeding and Associated Factor Among Mothers in the Formal Sector, Indonesia. *Indonesian Journal of Public Health*, 18(2), 206–218. <https://doi.org/10.20473/Ijph.v18i2.2023.206-218>
- Laily, N., & Rahman, F. (2023). *Implementation of Hypnobreastfeeding Therapy as an Effort to Reduce the Incidence of Underweight on Children Aged 0–6 Months. Macedonian Journal of Medical Sciences*. <https://oamjms.eu/index.php/mjms/article/view/5686>
- Liza, M, S. (2023). *Hasil Survei Status Gizi Indonesia 2022*. Kementerian Kesehatan



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<http://proceeding.journal-aipkind.or.id>

- Republik Indonesia.
- Lubis, I. A. P., & Setiawati, A. (2022). *Hubungan ASI Eksklusif, Lama Menyusui dan Frekuensi Menyusui dengan Status Gizi Bayi 0-6 Bulan: Media Publikasi Promosi Kesehatan Indonesia (MPPKI)*, 5(7), Article 7. <https://doi.org/10.56338/mppki.v5i7.2409>
- Misiewicz, J. (2023). The Benefits and Challenges of Interdisciplinarity. *Interdisciplinary Studies: A Connected Learning Approach*, 6(2), 1–7. <https://press.rebus.community/idsconnect/chapter/the-benefits-and-challenges-of-interdisciplinarity/>
- Pratiwi, R., Setia Sari, R., & Ratnasari, F. (2021). *Dampak Status Gizi Pendek (Stunting) Terhadap Prestasi Belajar. Jurnal Ilmiah Ilmu Keperawatan*. <https://stikes-nhm.e-journal.id/NU/article/view/317>
- Septianingrum, Y. (2022). *The Effectiveness of Hypnobreast feeding Massage on Anxiety and Breast Milk Production in Postpartum Mothers*. *Gaceta Médica de Caracas*, 130(Supl. 1). <https://doi.org/10.47307/GMC.2022.130.s1.48>
- Shivairová, O., Belešová, R., Machová, A., Mágrová, M., & Filausová, D. (2024). Relationship between postnatal depression measured by the Edinburgh Postnatal Depression Scale and other factors influencing mental health of women in the prenatal and postnatal period. *Central European Journal of Nursing and Midwifery*, 15(4), 2053–2059. <https://doi.org/10.15452/cejnm.2024.15.0024>
- Sofiyanti, I., Astuti, F. P., & Windayanti, H. (2019). *Penerapan Hypnobreastfeeding pada Ibu Menyusui*. *Indonesian Journal of Midwifery (IJM)*, 2(2), Article 2. <https://doi.org/10.35473/ijm.v2i2.267>
- Takayanagi, Y., & Onaka, T. (2022). Roles of Oxytocin in Stress Responses, Allostasis and Resilience. *International Journal of Molecular Sciences*, 23(1). <https://doi.org/10.3390/ijms23010150>
- Virgian, K. (2022). *Literature Review: Happy Breastfeeding With Hypno Breastfeeding*. *International Journal Scientific and Professional (IJ-ChiProf)*, 1(2), Article 2. <https://doi.org/10.56988/chiprof.v1i2.16>
- Virgian, K., & Setiawati, D. (2021). *Effects of Hypnobreastfeeding Audio on Postpartum Mothers Anxiety in Palembang Midwife Independent Practice*. *Proceeding International Conference On Health, Social Sciences And Technology*, 1(1), Article 1.
- Wickramasinghe, V. P., Ariff, S., Norris, S. A., Santos, I. S., Kuriyan, R., Nyati, L. H., Varghese, J. S., Murphy-Alford, A. J., Lucas, N., Costa, C., Ahuja, K. D. K., Jayasinghe, S., Kurpad, A. V., Hills, A. P., Yameen, A., Valle, N. C. J., Street, S. J., Soofi, S., Slater, C., ... Wickramasinghe, V. P. (2024). Anthropometric prediction models of body composition in 3 to 24month old infants: a multicenter international



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study. *European Journal of Clinical Nutrition*, 78(11), 943–951.
<https://doi.org/10.1038/s41430-024-01501-0>

Witari, N. N. D., Arini, K. N., & Widiastuti, N. M. (2022). *Hypnobreastfeeding Reduces Anxiety Of Breastfeeding Mothers During The Covid-19 Pandemic*. *Placenum: Jurnal Ilmiah Kesehatan Dan Aplikasinya*, 10(1), Article 1.
<https://doi.org/10.20961/placenum.v10i1.57917>



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Trends in Vocational Midwifery Competency Test Pass Rates as an Exit Exam in Indonesia: A Retrospective Study 2016 - 2023

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ABSTRACT

Background:

The large number of midwifery schools, coupled with the suboptimal quality of midwifery education accreditation in Indonesia, underscores the need to implement midwife competency tests. This study aims to analyze the distribution of first takers and retakers in the National Midwifery Competency Examination based on the type of higher education institution before and after the implementation of the exit exam in 2020



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Methods:

Data were obtained from diploma 3 KOM participants during the 2016-2023 period, covering *akademi, institute, politeknik, poltekkes, sikes, and universitas*.

Results:

The results show that *akademi* have the highest proportion (30%) of UKOM graduates, both as first takers and retakers. The implementation of the exit exam in 2020 caused a spike in the number of first takers in 2020, followed by a decline in 2022 and 2023. There was a drastic 91% decrease in the number of first takers from 19.748 participants in 2019 to 1.762 participants in 2020, due to the adjustment period and COVID-19 disruptions. In contrast, the number surged to 28.349 in 2021, indicating institutional adaptation and improved readiness.

Conclusion:

The implementation of the exit exam has a significant effect on the number of first takers and retakers of the National Midwifery Competency Test in Indonesia. After the implementation of the exit exam policy in 2020, there was an increase in the number of first takers and a decrease in the number of retakers, indicating that better preparation from educational institutions has improved the pass rate. In addition to the exit exam policy, the decrease in retakers was also influenced by the introduction of the composite scoring policy, which mandates that graduation is determined by a combination of Grade Point Average (GPA) and competency test scores.

Keywords: *National Competency Examination, Exit-Exam, Vocational Midwife, Midwife Student Indonesia.*



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BACKGROUND

The quality of midwives plays an important role in improving maternal and child health outcomes in Indonesia. In an effort to improve national health standards, it is crucial to analyze various factors that influence the quality of midwives, including the type of educational institution they attend. These institutions, ranging from *universitas* and *akademi* to *politeknik*, each offer different varied curricula and facilities that influence the quality of education and student outcomes.

Skilled healthcare professionals are one of the requirements for addressing maternal and child health issues optimally. However, there are still obstacles related to midwifery education graduates. The quality of midwifery education graduates currently still does not meet expectations; it is known that most healthcare workers in health facilities are unable to assist in childbirth, and compliance with midwifery service standards is still lacking. The proliferation of midwifery colleges in Indonesia has become one of the causes of the declining quality of midwives in Indonesia, compounded by insufficient supervision, making it impossible to guarantee that graduates meet expectations.

The government's efforts to ensure and assess the quality of prospective midwife graduates are through the Midwife Competency Test for Diploma 3 and Professional Midwifery Programme. This competency test, initiated by the government and professional organizations, addresses various challenges in higher health education both nationally and globally. Domestically, the main challenge faced is providing high-quality healthcare services and prioritizing patient safety. Globally, the challenge is aligning with the priorities of the ASEAN Economic Community (AEC), which requires healthcare graduates to be competitive in collaborating with healthcare professionals from other countries (BPPSDMK, 2014; Anderson et al., 2014).

The numerous midwifery schools, coupled with the suboptimal quality of midwifery education accreditation in Indonesia, underscore the need for the implementation of midwifery competency tests. These competency tests are designed to uphold and enhance the quality standards of healthcare services in the midwifery sector (HPEQ, 2015; LAMPTKes, 2018). According to the Circular Letter of the Director General of Higher Education Number 704 of 2013, the midwife competency test is carried out as an exit exam, which is carried out at the final stage of education or after completing all stages of education (Kemenristekdikti, 2013). However, in its current implementation, the National Midwifery Competency Test has not been fully implemented as an exit exam as in the Medical Competency Test and Nurse Competency Test (Kemenristekdikti, 2018). The midwife competency test in Indonesia has only started since 2013, with an average of 30% of participants not passing, while the passing score is 40.14% (Dikti, 2015). The number of midwife competency test participants has decreased from 2017 to 2018,



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namely 33,792 participants in period IX/2017, 19,957 participants in period X/2018, and 13,146 participants in period XI/2018. The average pass rate is still low, at 55%. (Ristedikti, 2018), and a very low pass rate seen in participants who retaker the exam, which was 22.89% in period VIII/2017 and 27.95% in period X/2018 (Kemenristekdikti, 2018).

Regulations regarding the exit exam are regulated in the Ministry of Education and Culture Regulation Number 2 of 2020 concerning Procedures for Student Competency Tests in the Health Sector. This policy revokes the Ministry of Research Technology Higher Education Regulation No. 12 of 2016 concerning Procedures for Implementing Student Competency Tests in the Health Sector. The proportion of vocational programs according to Ministry of Education and Culture Regulation Number 2 of 2020, Article 3, is 60 percent Grade Point Average and 40 percent Competency Test. This is a requirement for student graduation, so as long as students have not passed the competency test, it is still the duty of universities to equip these students. Based on these data and phenomena, competency tests have an important role in the quality of midwives, so preparation for the implementation of competency tests needs to be reviewed.

OBJECTIVE

This study aims to provide a comprehensive overview of the number of midwife competency test graduates from various institutions, as well as trends in the number of participants over the past eight years.

METHODS

a. Data

The data for this study came from midwifery student graduates at the vocational level (D3) collected from the official website of the Ministry of Education, Culture, Research and Technology through the Secretariat of the Midwife Competency Test Committee. This study utilizes data from midwife competency test participants, both those who took the exam for the first time (first taker) and those who took the exam again (retaker) from various types of higher education institutions in Indonesia.

The data used covers a one-year record, from 2016 to 2023, with at least two exam periods each year. Data collection includes information from various types of higher education institutions, such as academies, institutes, polytechnics, polytechnics, high schools, and universities, spread across all provinces of Indonesia. This information provides a comprehensive picture of the number of midwife competency exam graduates from different institutions, as well as trends in the number of participants over the past eight years.



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b. Methods

This study is a retrospective descriptive study that uses data on midwife competency test results for the last eight years. In this study, the institutional model was divided into academies, institutes, polytechnics, polytechnics, high schools, and universities in accordance with the naming of each institution in the data of the Secretariat of the Midwife Competency Test Committee. We distinguished polytechnics and polytechnics based on affiliation with the Ministry of Health; polytechnics are institutions that are not directly affiliated with the Ministry of Health but provide midwifery majors, while polytechnics are polytechnics that are directly affiliated with the Ministry of Health and the institution is directly connected to polytechnics in other cities or districts.

This data was analyzed univariately to show trends in midwifery graduates each year, providing a comprehensive picture of the number and distribution of midwife competency exam participants from 2016 to 2023. This analysis aims to identify patterns and changes in the number of midwifery graduates, thus providing greater insight into the development of midwifery education in Indonesia both before and after the implementation of the Exit Exam.

RESULTS

The results of this study are presented in the form of pie charts to illustrate the proportion and distribution of midwife Competency Test (UKOM) graduates from 2016 to 2023. This pie chart provides a clear visualization of the percentage of graduates from various types of higher education institutions including academies, institutes, polytechnics, polytechnics, high schools, and universities (Figure 1, Figure 2). In addition, a distribution table was added to show the number of graduates from each type of institution per year. This table helps in understanding the trends and changes that occurred in the number of midwifery graduates during the study period (Table 1, Table 2).



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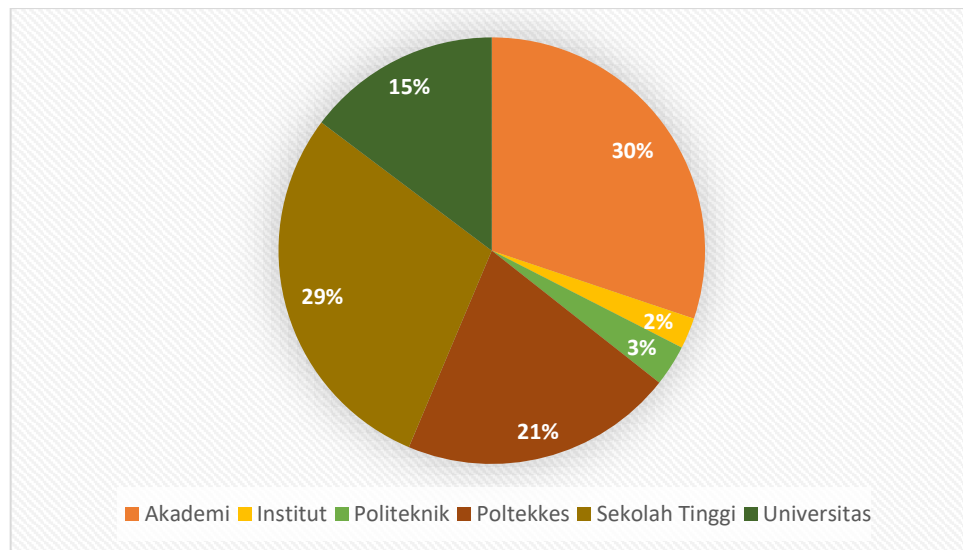


Figure 1. Distribution of UKOM passers by type of institution (2016-2023)

The diagram above shows the proportion of midwife Competency Test (UKOM) graduates from different types of higher education institutions over the period 2016 to 2023. Academies account for the largest proportion of overall graduates, followed by polytechnics and high schools. Meanwhile, polytechnics and universities also contributed significantly although in smaller proportions. Institutes have the least contribution compared to other types of institutions.

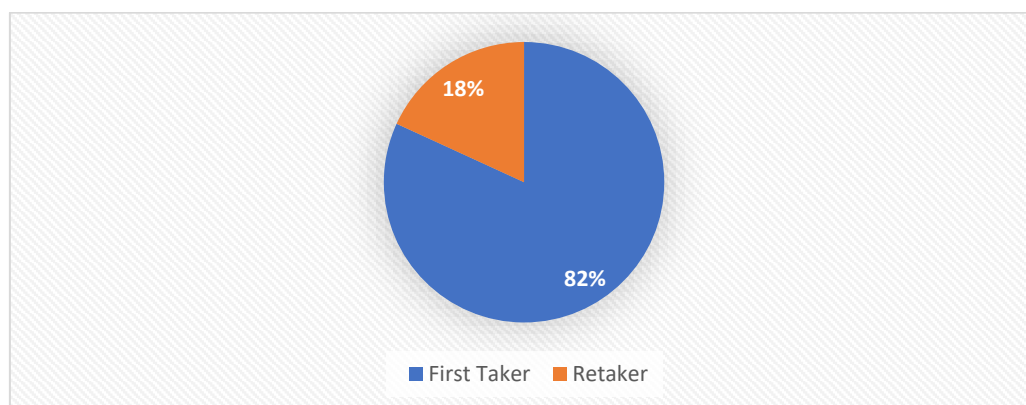


Figure 2 . Proportion of UKOM graduate types (2016-2023)



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Over the period 2016 - 2023 results show the proportion between first takers and retakers in the Competency Test (UKOM) for midwives from different types of higher education institutions. First takers, who are participants taking the test for the first time, account for more than all test takers. This proportion illustrates the dominance of first takers in the midwife competency test in the past decade. Furthermore, the data in Table 1 and Table 2 show the distribution of the number of first takers and retakers of UKOM Midwifery by type of higher education institution from 2016 to 2023.

Table 1 shows the number of first takers or participants who took UKOM for the first time from various types of higher education institutions each year during the period 2016 to 2023. This data shows that academies and colleges consistently have the largest number of first takers compared to other types of institutions. Polytechnics also have significant numbers, while polytechnics, universities and institutes have lower numbers. This trend shows that Competency Test participants are mostly dominated by academies and permanent high schools that take the UKOM.

Table 2 shows the number of retakers or participants who repeated UKOM from various types of higher education institutions each year during the period 2016 to 2023. This data shows that participants from academies and colleges also dominate the number of retakers, with significant numbers especially in certain years such as 2019 and 2021. Midwifery students from institutes and polytechnics have a much lower number of retakers compared to other institutions. This trend shows the challenges faced by retakers from different higher education institutions in achieving UKOM graduation.

Table 1 . Distribution of the number of first takers of the Midwifery Competency Test (UKOM) based on the institution model each year

Year	Type of Institution						Total
	<i>Akademi</i>	<i>Institut</i>	<i>Politeknik</i>	<i>Politeknik kesehatan</i>	<i>Sekolah Tinggi</i>	<i>Universitas</i>	
2016	12977	29	502	3944	9368	3381	30135
2017	6567	4	329	3242	4501	1768	16411
2018	4357	80	322	2671	5311	2203	14944
2019	5015	283	574	3673	4969	2258	16772
2020	594	20	8	81	660	399	1762



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2021	6013	1336	1235	6765	7890	5110	28349
2022	2003	699	557	3242	2506	2162	11169
2023	1830	606	534	3435	2515	1940	10860
Total	39356	3057	4061	27053	37720	19221	130468

Table 2 Distribution of the number of National Midwifery Competency Test (UKOM) retakers based on the institution model each year

<i>Year</i>	Type of Institution						Total
	<i>Akademi</i>	<i>Institut</i>	<i>Politeknik</i>	<i>Politeknik Kesehatan</i>	<i>Sekolah Tinggi</i>	<i>Universitas</i>	
2016	3106	0	61	363	1769	494	5793
2017	590	0	50	80	341	86	1147
2018	1333	12	45	216	970	278	2854
2019	4056	21	137	1033	3229	1012	9488
2020	764	0	16	172	376	104	1432
2021	1798	87	110	832	1767	585	5179
2022	446	147	119	385	609	291	1997
2023	235	67	41	171	352	177	1043
Total	12328	334	579	3252	9413	3027	28933

DISCUSSION

a. Distribution of successful UKOM candidates type of institution

The dominant proportion of academies and polytechnics reflects the important role these institutions play in midwifery education in Indonesia. This difference in distribution may reflect variations in the number of institutions, their enrollment capacity, as well as the focus of educational programs in each type of institution. The overall distribution



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provides a clear picture of the role of each type of institution in producing midwifery graduates over the past eight years, which is useful for evaluation and planning for future midwifery education development.

The phenomenon where academies and polytechnics have a dominant proportion of midwife Competency Test (UKOM) graduates compared to other types of higher education institutions such as high schools, polytechnics and universities may be due to several factors. First, variations in the number of institutions and student enrollment capacity in each type of higher education institution may affect the distribution of graduates. Institutions such as academies and polytechnics may have more institutions and greater admission capacity compared to other institutions, resulting in a higher proportion of graduates (McNeill et al., 2012).

In addition, the focus of education programs in each type of institution may also play an important role in the distribution of graduates. Institutions such as academies and polytechnics may have educational programs that are more directly related to midwifery, thus attracting more prospective midwives and producing more graduates in that field. While polytechnics and universities, while making a significant contribution, may have a more diverse program focus, which may affect the number of midwifery graduates produced (McNeill et al., 2012).

Thus, the distribution of midwife Competency Test (UKOM) graduates from different types of higher education institutions over the period 2016 to 2023 reflects the important role of academies and polytechnics in midwifery education in Indonesia, which is driven by differences in the number of institutions, enrollment capacity, and focus of educational programs in each type of institution (McNeill et al., 2012).

b. Distribution of Number of First Takers and Retakers in UKOM (2016-2023)

Competency test is a test held nationally to assess competency achievement based on Competency Standards. The Midwife Competency Test is considered effective for screening midwife graduates who meet the established national competency standards (Fitria et al., 2019). First Taker is a test taker who is taking the test for the first time, while retaker is a participant who returns to repeat the competency test because he/she has not passed it (Fitria & Ningsih, 2024).

The number of first takers and retakers is related to the types of midwifery institutions in Indonesia. Based on the results of data on first takers and retakers of competency exams from 2016-2023, the highest retaker participant rate was found in academies with 31%, followed by high schools with 24%, and universities with 15%. One of the factors affecting midwives' graduation in each type of institution is accreditation. Previous research states that A-accredited institutions provide better exam performance compared to graduates from B-accredited institutions. According to Kusumastuti et al (2015) that,



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The results showed that the graduation rate of A-accredited midwifery education institutions was higher at 81.3%, while B accreditation was 59.4%, and C accreditation was 42.4% (Kusumastuti et al., 2015).

The competence of midwives that is not achieved optimally is caused by several obstacles that exist in D3 Midwifery education institutions, including the implementation of a curriculum that has not been implemented optimally, high Grade Point Averag (GPA) demands, quantity and quality of lecturers, and inadequate facilities and infrastructure (Werni et al., 2019). The results of the 2017 Risdiknakes study also showed a discrepancy between GPA and the results of the midwife competency test for D3 midwifery graduates. This incident is also inseparable from educational institution factors. Lecturers who do not meet the qualifications, as well as the unbalanced ratio of lecturers to students, cause midwifery DIII graduates to not meet the competencies as expected (Weni et al., 2019).

c. Trend analysis of first taker and retaker pass rates associated with Exit - Exam regulations

Based on data analysis of the number of first takers and retakers of the Midwifery Competency Test (UKOM) from 2016 to 2023, there was a significant change after the implementation of the exit exam in 2020. Before the implementation of the exit exam, the number of first takers showed a downward trend every year, with a drastic decline in 2020. However, after the exit exam was implemented, there was a spike in the number of first takers in 2021, followed by a decline again in 2022 and 2023. In contrast, the number of retakers fluctuated before the exit exam, with a significant increase in 2019, but then decreased gradually after the exit exam was implemented. The increase in the number of first takers in 2021 suggests that the exit exam policy may have encouraged educational institutions to better prepare their students before taking the competency exam.

Exit exam itself is a test in assessing the competence of a midwife. Research Melliasany dan Perceka (2021) highlighted changes in the procedure for implementing the midwife competency test, which was originally held as an exit exam into a national competency test with various types of tests, such as knowledge-based tests and Objective Structured Clinical Examination (OSCE) (Malik et al., 2023).

In addition, factors such as self-regulation and internal motivation can be important strategies for success in exit exams (Lee, 2023). The importance of exit exams is also reflected in research highlighting that teacher education programs need to maintain high standards through the implementation of a required exit exam for all classroom teachers (Zani, 2017). Research has also found that students who fail high school exit exams tend to have an understanding that focuses on their cognitive weaknesses, without paying attention to their cognitive strengths. In this context, exit exams play a crucial role in evaluating midwives' competencies and it is important to pay attention to factors such as



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self-regulation, motivation, and effective preparation for such exams.

The decrease in the number of first takers after 2021 and the decrease in the number of retakers after the implementation of the exit exam in the context of UKOM midwifery in Indonesia may reflect the efforts of educational institutions in improving the quality of education and ensuring students are ready for the competency exam. The implementation of the exit exam may have encouraged educational institutions to better prepare their students before taking the competency exam, which in turn may increase the pass rate on the first attempt.

Research finding from Samidah (2021) showed that midwifery students in Bengkulu, Indonesia, supported the implementation of the national competency exam as one of the graduation requirements. This shows that students realize the importance of the exit exam in assessing their competence (Samidah, 2021). In addition, research by Shin et al. (2017) highlighted that the introduction of a clinical performance exam as part of the national nursing licensure exam in Korea may improve the evaluation of students' clinical and communication skills (Shin et al., 2017).

Non-academic factors such as anxiety, stress, and motivation can also affect midwifery student success (Moore et al., 2021). Additionally, research by Marsidi (2021) shows that the level of stress, anxiety, and depression of students in preparation for the exit exam competency test needs to be considered to provide early intervention (Marsidi, 2021). Thus, the decrease in the number of first takers and retakers after the implementation of the exit exam may reflect the efforts of educational institutions in improving the quality of education, preparing students better, and ultimately increasing the first-time pass rate.

CONCLUSION

The implementation of the exit exam has a significant effect on the number of first takers and retakers of the Midwifery Competency Test in Indonesia. After the implementation of the exit exam in 2020, there was an increase in the number of first takers and a decrease in the number of retakers, indicating that better preparation from educational institutions has improved the pass rate.

As a follow-up, educational institutions need to improve the quality of curriculum and teaching methods, as well as provide adequate facilities for exam preparation. The government should strengthen supervision and accreditation to ensure consistent midwifery higher education standards. In addition, continuous training for lecturers and improved psychological support for students are needed to reduce exam-related stress and anxiety. Finally, collaboration with healthcare institutions for better clinical practice is highly recommended.



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LIMITATION

The possibility of one higher education institution identity being written in two or more names is due to the transfer of the type of institution, such as an academy to a high school or university, and so on. However, researchers have minimized this by updating the data.

REFERENCES

- Anderson I, Meliala A, Marzoeqi P, Pambudi E. The Production. (2014). Distribution and Performance of Physicians, Nurses and Midwives in Indonesia: an update. Washington: World Bank Group. 2014; 1- 2
- Badan Pengembangan dan Pemberdayaan Sumber Daya Manusia Kesehatan (BPPSDMK). (2014). Peran Institusi Pendidikan dalam Meningkatkan Kualitas Lulusan yang Kompeten melalui Uji Kompetensi. Pusat Standarisasi, Sertifikasi dan Pendidikan Berkelanjutan SDM Kesehatan. 2014; 5-6
- Fitria, R., & Ningsih, D. A. (2024). Faktor-faktor yang Berhubungan dengan Kelulusan Uji Kompetensi Nasional pada Mahasiswa DIII Kebidanan dan DIII Keperawatan. *Jurnal Ners*, 8(1): 279-285.
- Fitria, R., Serudji, J., & Evareny, L. (2019). Persiapan Uji Kompetensi Bidan sebagai Exit Exam. *Jurnal Ilmiah Universitas Batanghari Jambi*, 19(1): 195-203.
- Health Professional Education Quality Project (HPEQ). (2015). Implementation Completion and Results Report on a Loan to the Republic of Indonesia for a Health Professional Education Quality Project (HPEQ). East Asia and Pacific Region: HPEQ; 2015
- Kementerian Riset Teknologi dan Pendidikan Tinggi (Kemenristedikti). (2016). Implementasi Uji Kompetensi Nasional bidang Kesehatan sebagai Langkah Konkrit Penjaminan Mutu Pendidikan Tinggi Kesehatan. 2016 (diunduh Juni 2024). Tersedia dari: <https://ristekdikti.go.id/implementasi-ujikompetensi-nasional-bidang-kesehatansebagai-langkah-konkrit-penjaminanmutu-pendidikan-tinggi-kesehatan/>
- Kementerian Riset Teknologi dan Pendidikan Tinggi (Kemenristedikti). (2013). SE Dirjen Dikti No. 704 tentang Uji Kompetensi Bagi Calon Lulusan Pendidikan Tinggi Bidang Kebidanan dan Keperawatan. 2013. Dikti. Grafik Jumlah Program Studi. 2015 (diunduh Juni 2024). Tersedia dari: <http://forlap.dikti.go.id/>
- Kementerian Riset Teknologi dan Pendidikan Tinggi (Kemenristedikti). (2018). Data Statistis Tingkat Kelulusan Uji Kompetensi Bidan. 2018 (diunduh Juni 2024).



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Tersedia dari: http://ukbidan.ristekdikti.go.id/pages/statistik_lulus Republik Indonesia.

Kementerian Riset Teknologi dan Pendidikan Tinggi. (2016). Lampiran Peraturan Menteri Riset, Teknologi dan Pendidikan Tinggi Republik Indonesia Nomor 12 Tahun 2016 tentang Tata Cara Pelaksanaan Uji Kompetensi Mahasiswa Bidang Kesehatan: Panduan Pelaksanaan Uji Kompetensi bagi Mahasiswa Bidang Kesehatan.

Kementerian Riset Teknologi dan Pendidikan Tinggi. (2020). Lampiran Peraturan Menteri Riset, Teknologi dan Pendidikan Tinggi Republik Indonesia Nomor 2 tahun 2020 tentang Tata cara uji kompetensi mahasiswa bidang kesehatan: Kebijakan dan implementasi.

Kusumastuti, A., Achmad, T. H., Judstiani, T. D., Anwar, A. D. et al. (2015) . Hubungan Peringkat Akreditasi Institusi Pendidikan Diploma III Kebidanan dengan Hasil Uji Coba Uji Kompetensi Bidan Periode Juli 2013. *IJEMC*, 2(2): 42-50.

Lee, N. (2023). Pre-service education : preparing teachers for english language learners in the classroom.. <https://doi.org/10.32920/ryerson.14657346>

Lembaga Akreditasi Mandiri Pendidikan Tinggi Kesehatan (LAMPTKes). (2018). Akreditasi Institusi Pendidikan Kebidanan di Indonesia. 2018 (diunduh Juni 2024). Tersedia dari: <http://lamptkes.org/akreditasi/pencarian/all>

Malik, L., Khalid, T., & Ashar, A. (2023). Causal attributions of failure among post graduate medical residents in exit fellowship examination in pakistan: a qualitative study. *Pakistan Journal of Medical Sciences*, 39(4). <https://doi.org/10.12669/pjms.39.4.7693>

Marsidi, S. (2021). Identification of stress, anxiety, and depression levels of students in preparation for the exit exam competency test. *Journal of Vocational Health Studies*, 5(2), 87. <https://doi.org/10.20473/jvhs.v5.i2.2021.87-93>

McNeill, J., Doran, J., Lynn, F., Anderson, G., & Alderdice, F. (2012). Public health education for midwives and midwifery students: a mixed methods study. *BMC Pregnancy and Childbirth*, 12(1). <https://doi.org/10.1186/1471-2393-12-142>

Moore, L., Goldsberry, J., Fowler, C., & Handwerker, S. (2021). Academic and nonacademic predictors of bsn student success on the hesi exit exam. *Cin*



PROCEEDINGS OF AIPKIND SCIENTIFIC MEETING 2025

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Computers Informatics Nursing, 39(10), 570-577.
<https://doi.org/10.1097/cin.0000000000000741>

Samidah, I. (2021). Knowledge, perception, motivation and expectations of nursing and midwifery students on exit exam in bengkelu city, indonesia. *Indian Journal of Forensic Medicine & Toxicology*, 15(3), 3502-3509.
<https://doi.org/10.37506/ijfmt.v15i3.15843>

Shin, S., Kim, Y., Suh, S., Jung, D., Kim, Y., & Yim, M. (2017). Perception survey on the introduction of clinical performance examination as part of the national nursing licensing examination in korea. *Journal of Educational Evaluation for Health Professions*, 14, 26. <https://doi.org/10.3352/jeehp.2017.14.26>

Undang- Undang No. 12 Tahun 2012 tentang Pendidikan Tinggi. (2012). Lembaran Negara Republik Indonesia Tahun 2012 Nomor 158. Sekretariat Negara. Jakarta. 2012.

Werni, S., Rosita., Prihartini, N., & Despitassari, M. (2019) . Identifikasi Kompetensi Bidan: Data Riset Pendidikan Tenaga Kesehatan Tahun 2017. *Jurnal Penelitian dan Pengembangan Pelayanan Kesehatan*, 3(3): 142-151.

Zani, A. (2017). The status of junior pediatric surgeons in europe: old challenges, new opportunities. *European Journal of Pediatric Surgery*, 27(03), 214-217.
<https://doi.org/10.1055/s-0037-1603085>



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Factors Affecting The Incidence of Anemia in Adolescents in Junior High School 7 Cimahi City

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ABSTRACT

Anemia is a big problem for people's health all around the world, but mainly in underdeveloped nations. Iron deficiency is to blame for 50% to 80% of cases. The goal of this study is to find out what causes anaemia in teenage girls. This study used a mixed approach with a continuous embedded research design. It took place in August 2024 at SMPN 7 Cimahi City, and the sample was all 146 7th grade teenage girls who were recorded by teachers. Univariate (proportion), bivariate (chi square test) and multivariate (logistic regression) analysis, while qualitative with transcription and data reduction. The results of the research stated that there was a relationship between knowledge factors ($p=0.020$), attitudes ($p=0.000$) and eating habits ($p=0.002$) which were significantly related bivariately to the incidence of anemia. In the multifarious study, it was found that attitudes and patterns of eating habits can influence the incidence of anemia in adolescent girls 3-4 times. Qualitative research indicates that adolescents are prone to anaemia due to non-adherence to the administration of iron supplements provided at school and a prevalent consumption of fast food during school hours. everyday existence. This research concludes that a substantial correlation exists between knowledge, attitudes, and eating habits and the prevalence of anaemia in young women.

Keywords : *Anemia, Knowledge, Attitude, Diet.*



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BACKGROUND

Anemia is a major problem in global public health, especially in developing countries. The handling of anemia cases in Indonesia has not been resolved until now, with around 50-80% of anemia caused by iron deficiency (Ministry of Health of the Republic of Indonesia, 2022). The global prevalence rate according to the Ministry of Health in 2022 occurs in adolescents and reproductive age at around 17-18% (Kilmer, 2024). Adolescents play an important role in the development and generation of national development, as a bright future investment, especially for adolescent girls who are more vulnerable to anemia (Aliyah & Krianto, 2023).

The symptoms that often appear in anemia among adolescents include fatigue, tiredness, lethargy, and impact on long-term productivity, such as pregnancy, childbirth, and breastfeeding. As a result of these impacts, adolescent girls may be at greater risk of experiencing low birth weight (LBW) and stunting (Sartika et al., 2021). Therefore, the handling and prevention of anemia in adolescent girls has become one of the focuses of the government. The WHO targets to reduce the incidence of anemia in adolescents by 50% by 2025 (World Health Organization, 2022).

The government has implemented various programs, namely the addition of iron supplements that have been running for the last 3 decades, then iron fortification that has been carried out since 2000, and lastly, food diversification PUGS (Kaur, Agarwal, & Sabharwal, 2022). Several main factors of anemia include low iron intake, low levels of knowledge, irregular eating habits, poor absorption processes from body metabolism, chronic disease infections such as malaria, HIV, cancer, and tuberculosis (Wiciński et al., 2020) (Piskin et al., 2022).

Based on the above, it is necessary for adolescent girls to be responsive in facing problems arising from anemia; it is certainly not enough to only obtain information from outside without getting textbooks or related journals. This will impact knowledge and better attitude changes, so that the incidence of anemia in adolescents can decrease (Kusuma & Kartini, 2021).

Another aspect is eating habits, where the arrangement of food types and nutritional amounts must meet balanced nutrition. Good nutrition can protect oneself from diseases that arise. In addition to dietary mistakes, overeating can also lead to an unbalanced body pattern, which can ultimately cause anemia in a person (Paramastri et al., 2021).

Several research articles mention that there is a relationship or influence of dietary patterns on the incidence of anemia in adolescents, this is proven by Hartati Deri Manila with a significance value of 0.028 p value <0.05 (Manila, 2021). Preliminary studies conducted by the author at SMPN 7 Cimahi, have been randomly data collected and interviews with teachers there, based on the preliminary data this junior high school has



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not been exposed to hemoglobin examinations to detect whether the female students are anemic or not. The female students also do not receive more information about the symptoms of anemia. They do not know whether they are affected by this disease or not. There are many accesses that researchers can take to explore from various aspects including teachers, female students, and the surrounding environmental conditions.

From the problems above, the author is interested in conducting research on the factors of anemia that influence the incidence of anemia in female adolescents at SMPN 7 Cimahi City. The researcher hopes that after this research is completed, the school can continue the program that has been established, so that in the future the female students at SMPN 7 Cimahi City can be prevented from anemia which can have fatal consequences in the long term. Thus, the next generation of this nation can build the dreams and aspirations of the nation's children to compete intellectually on an international level.

OBJECTIVE

To Find Out Factors That Influence the Incidence of Anemia in Adolescents at SMPN 7, Cimahi City.

METHODS

This research design uses a mixed method with a concurrent embedded approach, where quantitative with case control while qualitative uses a phenomenological approach. The research related to anemia was conducted in the period July to August 2024. The population in this study is junior high school female students in grade 7. The sampling technique used is total sampling with a total of 73 cases and 73 control individuals. The inclusion criteria were adolescents girls aged 12-15 years old, and present the research. Exclusion criteria were adolescents who were ill at the time of the study and had a history of chronic illness. Quantitative data collection is divided into 2, namely primary data (using questionnaire instruments and Hb examinations), secondary data obtained from the school regarding the identity of female adolescents. Qualitative data is collected through interviews with selected adolescent participants using purposive sampling. Data analysis for validity and reliability uses Pearson product moment, Cronbach alpha. Bivariate analysis uses chi-square test or Fisher exact test. Multivariate regression. This research has gone through ethical testing and received approval with Number: 197/KEPK/FITKes-Unjani/VII/2024.

RESULTS

In this section, calculations and statistical analyses will be performed based on the research objectives and the data obtained during the research period. The analysis used in this study consists of univariate, bivariate, and multivariate analyses to determine the factors that influence the incidence of anemia in female adolescents with a total sample of the case group (anemia) and



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the control group (non-anemia) each consisting of 73 individuals. The results of the validity and reliability tests indicate validity with a score of 0.3 and >0.7.

1. Quantitative results

Table 1 Characteristics Subject Study

Characteristics	Total (n=146)	Percentage
Age		
12 years old	9	6%
13 years old	73	50%
14 years	60	41%
15 years	4	3%
Ethnic group		
Sunda	134	92%
Java	11	8%
Others (Aceh)	1	1%
Parent Education		
SD	3	2%
JUNIOR HIGH SCHOOL	63	43%
SENIOR HIGH SCHOOL	70	48%
S1	9	6%
S2	1	1%
Work		
Doesn't work	2	1%
Laborer	44	30%
Teacher	5	3%
Employee Private	20	14%
Self-employed	30	21%
Other	45	31%
Experience Anemia		
Once	33	23%
Never	113	77%
Health Counseling		
Once	97	66%
Never	49	34%
Place Counseling		



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Characteristics	Total (n=146)	Percentage
Social media	7	5%
School	88	60%
Never	49	34%

Based on results recapitulation in Table 1, age majority teenager daughter in research This is 13 years old with percentage of 50% and comes from ethnic group Sundanese . Parents ' last education most identified is high school/ equivalent as many as 70 people (48%) and have work as workers . As many as 113 female students (77%) have not Once experience anemia and 66% have get counseling health held in schools .

Table 2. Analysis Bivariate Knowledge , Attitudes and Eating Habits with Anemia Occurrence

Variables	Incident Anemia		Total	p Value
	Anemia (n=73)	No Anemia (n=73)		
Knowledge				
Good	15 (20.5)	18 (24.7)	33 (22.6)	0.020
Enough	15 (20.5)	28 (38.4)	43 (29.5)	
Not enough	43 (58.9)	27 (37.0)	70 (47.9)	
Attitude				
Good	19 (26.0)	31 (42.5)	50 (34.2)	0.000
Enough	36 (49.3)	40 (54.8)	76 (52.1)	
Not enough	18 (24.7)	2 (2.7)	20 (13.7)	
Eating Habits Pattern				
Good	22 (30.1)	36 (49.3)	58 (39.7)	0.002
Enough	10 (13.7)	17 (23.3)	27 (18.5)	
Not enough	41 (56.2)	20 (27.4)	61 (41.8)	

Knowledge, attitude and pattern factors habit Eat relate significant in a way bivariate with incident anemia. The most dominant factor is factor attitude, because own mark almost probability 0

Table 3 Analysis Multivariate Factors That Influence
Incidence in Adolescent Girls

Factor	B	SE	Wald	p-Value	OR (95%CI)
Knowledge	-0.386	0.230	2,816	0.093	0.68 (0.43 - 1.06)
Attitude	-0.922	0.297	9,660	0.002	0.40 (0.22 - 0.71)
Eating Habits Pattern	-0.642	0.204	9,873	0.002	0.53 (0.35 - 0.76)
Constant	3.803	0.889	18,295	0.000	



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The factors that influence the incidence of anemia in a multivariate manner are attitudes and patterns. habit Eat .

2. Qualitative Results

Qualitative results obtained data from 4 informants, among them those who experienced anemia. Some informants actually know about anemia and the symptoms it causes are clearly understood. This is implied from one of the informant's statements, "I know the definition of anemia is a lack of blood, with the characteristics of anemia often feeling dizzy, pale skin, and seeing flashes of light."

Then followed by questions regarding attitudes towards consuming iron tablets provided at school, among them "I never took the iron tablet, I forgot because I don't know its benefits." Lastly, about eating habits, "I have a habit of eating fast food, especially instant noodles, I can eat 2 packs of noodles in one meal because the easiest thing to eat in the boarding school is instant noodles."

DISCUSSION

Based on the analysis results, it shows that there is a relationship between knowledge, attitudes, and eating habits with the incidence of anemia in adolescent girls in SMPN 7 Cimahi City with a significant average value of $p > 0.05$. This is in line with research by Yanis et al. that a person's quality is influenced by good health and mindset (Ramadhani & Ulfia, 2022). Knowledge can develop if someone can apply the learning obtained in school or through other sources of information. If the source of knowledge obtained is lacking, then the resulting attitude will be less optimal in the process of preventing anemia (Verma & Baniya, 2022). The higher a person's level of knowledge, the better their health will be.

From several statements of respondents, it is strongly supported by the answers that the average junior high school students 7 Cimahi City know about anemia, the results show that out of 4 respondents, they understand anemia well, but do not yet understand what actions should be taken so that the application can be useful until adulthood. If so, it is also hoped that the attitudes of adolescents in the prevention or treatment of anemia can succeed with a change in positive attitudes (Sa'adah, Pratami, & Jeniawaty, 2022). This is in stark contrast to the statements from informants, that the average provision of iron tablets that should be taken regularly every morning at school is not consumed for various reasons such as forgetting, intentionally not taken, and thrown away, even though the quantitative data results indicate a good and sufficient attitude (Putri & Fauziyah, 2023). This can answer why the incidence of anemia in adolescents has not decreased until now. Some studies only mention that one of these variables tends to have a relationship or not, but do not explore qualitatively. This is fundamental that the researcher has differences from previous studies. Not only knowledge and attitudes but also discusses eating habits.



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Not only knowledge and attitudes, but also discuss about pattern habit Eat obtained significant results. We know that good nutrition for anemia sufferers, namely protein, substances iron and vitamin C. besides That need be noticed factor menstruation moment occurs in adolescents daughter said. Intake malnutrition will to give impact direct to hemoglobin levels in the body adolescents, so that it can cause anemia to occur (Oktafiana , Dwihestie , & Puspitasari , 2023). In the results quantitative mentioned that pattern bad habits good for anemia sufferers, this This supported with statement informant that on average because they No stay with parents, so that they more Lots For No breakfast morning at home. Teenagers This only Eat ready made food serving or fast food, instant noodles and snacks others (Andiarna, 2018). This is what makes intake nutrition that is not Good more and more to aggravate anemia condition in adolescents the

CONCLUSION

There is connection between factor knowledge, attitudes and patterns habit Eat to the incidence of anemia in adolescents, this This reinforced with habit teenagers who don't Be obedient in taking FE tablets as well pattern food that is not nutritious with Good.

ACKNOWLEDGMENTS (if any):

The author would like to express sincere gratitude to the headmaster, teachers, and staff of SMPN 7 Cimahi City for their support and permission to conduct this research. Special thanks are also extended to the adolescent female students who willingly participated and provided valuable insights. Their contribution made this study possible.

REFERENCES

- Aliyah, N., & Krianto, T. (2023). Pengetahuan Dalam Perilaku Konsumsi Tablet Tambah Darah Pada Remaja Putri Di Kecamatan Cimanggis Kota Depok Tahun 2023. *Journal of Nursing and Public Health*, 11(2), 426–435. <https://doi.org/10.37676/jnph.v11i2.5173>
- Andiarna, F. (2018). Analysis of Breakfast Habits on The Incidence of Anemia. *International Conference on Sustainable Health Promotion 2018*, 25–29. <https://www.researchgate.net/publication/340789879>
- Kaur, N., Agarwal, A., & Sabharwal, M. (2022). Food fortification strategies to deliver nutrients for the management of iron deficiency anaemia. *Current Research in Food Science*, 5(October), 2094–2107. <https://doi.org/10.1016/j.crfs.2022.10.020>
- Kilmer, P. D. (2024). Review Article: Review Article. *Universa Medicina*, 43(1), 114–127. <https://doi.org/10.1177/1461444810365020>
- Kusuma, N. I., & Kartini, F. (2021). Changes in Knowledge and Attitudes in Preventing Anemia in Female Adolescents: A Comparative Study. *Women, Midwives and Midwifery*, 1(2), 46–54. <https://doi.org/10.36749/wmm.1.2.46-54.2021>
- Manila, H. D. (2021). Hubungan Pola Makan Dengan Kejadian Anemia Pada Remaja Putri Kelas



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Publisher : Asosiasi Pendidikan Kebidanan Indonesia (AIPKIND)

<http://proceeding.journal-aipkind.or.id>

- X Sma Murni Padang. *Jurnal Kesehatan Saintika Meditory*, 4(1), 77.
<https://doi.org/10.30633/jsm.v4i1.1033>
- Oktafiana, D., Dwihestie, L. K., & Puspitasari, E. (2023). The Relationship Between Eating and The Incidence of Anemia in Adolescent Women At SMA Muhammadiyah 7 Yogyakarta Hubungan Pola Makan dengan Kejadian Anemia pada Remaja Putri di SMA Muhammadiyah 7 Yogyakarta. *Menara Journal of Health Science*, 2(3), 380–391.
- Paramastri, R., Hsu, C. Y., Lee, H. A., Lin, L. Y., Kurniawan, A. L., & Chao, J. C. J. (2021). Association between dietary pattern, lifestyle, anthropometric status, and anemia-related biomarkers among adults: A population-based study from 2001 to 2015. *International Journal of Environmental Research and Public Health*, 18(7), 1–15.
<https://doi.org/10.3390/ijerph18073438>
- Piskin, E., Cianciosi, D., Gulec, S., Tomas, M., & Capanoglu, E. (2022). Iron Absorption: Factors, Limitations, and Improvement Methods. *ACS Omega*, 7(24), 20441–20456.
<https://doi.org/10.1021/acsomega.2c01833>
- Putri, H. P., & Fauziyah, A. (2023). Knowledge about Anemia and Physical Activity with the Incidence of Anemia Among Adolescent Girls. *Jurnal Ilmiah Kesehatan (JIKA)*, 5(2), 260–266. <https://doi.org/10.36590/jika.v5i2.520>
- Ramadhani, A., & Ulfia, F. (2022). Berpikir Positif dan Kepercayaan Diri terhadap Kualitas Hidup. *Jurnal Basicedu*, 6(3), 5447–5455.