

## Effect of an android-based KEKASIH class on breastfeeding knowledge, attitudes, and breastfeeding self-efficacy among pregnant women in Bengkulu City

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### ABSTRACT

**Background:** Exclusive breastfeeding coverage remains suboptimal in many regions in Indonesia, including Bengkulu City. This is related to several factors, such as pre-lacteal feeding practices, limited maternal knowledge, inadequate family support, and cultural influences. Strengthening breastfeeding education during pregnancy is essential to improve maternal preparedness and support successful exclusive breastfeeding.

**Objectives:** This study aimed to examine the effect of an Android-based KEKASIH Class educational program on breastfeeding knowledge, attitudes, and breastfeeding self-efficacy among pregnant women.

**Methods:** A quasi-experimental study with a non-equivalent control group design was conducted among 70 third-trimester pregnant women in Bengkulu City. Participants were selected using purposive sampling and divided into an intervention group and a control group. The intervention group received breastfeeding education through the Android-based KEKASIH Class application, while the control group received conventional education through antenatal classes. Data were analyzed using univariate analysis and non-parametric tests, including the Wilcoxon signed-rank test and the Mann–Whitney U test.

**Results:** The results showed significant improvements in breastfeeding knowledge, attitudes, and breastfeeding self-efficacy in both groups after the intervention ( $p < 0.05$ ). There was no statistically significant difference between the intervention and control groups ( $p > 0.05$ ), indicating that both educational approaches were effective in improving maternal readiness for breastfeeding.

**Conclusions:** The findings demonstrate that both the Android-based KEKASIH Class and conventional antenatal education can effectively improve breastfeeding knowledge, attitudes, and breastfeeding self-efficacy among pregnant women. Digital health education can therefore be considered an alternative strategy to support breastfeeding promotion programs.

**KEYWORD:** breastfeeding; education; KEKASIH

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## INTRODUCTION

The national rate of exclusive breastfeeding is 52.5%, with Bengkulu Province at 57.6% and Bengkulu City at 61.9%. However, several subdistricts in Bengkulu City have low coverage, such as Betungan (30%), Beringin Raya (27.3%), Kandang (27%), and Padang Serai (50.8%). These low figures are influenced by several factors, including the provision of formula to infants before breastfeeding, suboptimal milk production, cultural influences, a lack of family support, and the knowledge, attitudes, and level of involvement of health workers in supporting breastfeeding mothers (1,2).

Recent data show that K1 antenatal visit coverage in Bengkulu City reached 94.5%, while K6 visit coverage reached 88.5%. Nevertheless, challenges in maternal and child health persist, as evidenced by a stunting rate of 6.7% and an infant mortality increase of 11.7% in 2023, equivalent to a 14.9% increase (3.4%). National policies on exclusive breastfeeding and implemented interventions are not yet fully optimal. Therefore, innovations in information access are needed to enhance mothers' knowledge of lactation, the benefits of breastfeeding, and the risks associated with not breastfeeding exclusively (1,3). Innovations in access to information are required to improve knowledge of lactation, its benefits, and its impact (2). In response to these conditions, a new approach has been developed: small

groups of healthcare professionals working with pregnant women, known as "KEKASIH Classes".

The program aims to measure and improve breastfeeding efficacy and practices during the first three days of a baby's life. Initial results show that this intervention affects knowledge and attitudes towards breastfeeding, as well as efficacy and the reduction of pre-lactation feeding. However, it was found that, despite good knowledge, supportive attitudes, and high levels of breastfeeding efficacy, pre-lactation feeding still occurred. This may be caused by several factors, such as cultural beliefs and family traditions that encourage the provision of pre-lactation food; a lack of family support for exclusive breastfeeding; maternal anxiety about producing insufficient milk; fatigue after childbirth or recommendations from other people and healthcare professionals. Previous studies have also shown that even mothers with adequate breastfeeding knowledge may practise pre-lactation feeding due to social and environmental influences during the early postpartum period. This demonstrates that breastfeeding efficacy is dynamic and can fluctuate during the first six months of breastfeeding (5,6).

In 2024, the researchers developed and tested the "KEKASIH class" program using an Android application. However, the effectiveness of this digital intervention has not yet been fully evaluated. Therefore, further research is needed to confirm the

benefits of using mobile health (mHealth) in the socio-economic, geographical, and ethnic context of the coastal community in Bengkulu City, where 25% of the population has not completed primary education, 27% has completed primary education, and only 34% has attained secondary education (4,5). This Android-based intervention provides education on lactation management and breastfeeding care through the Continuity of Care (CoC) approach. The study is important because exclusive breastfeeding has been recommended as the primary source of nutrition for infants aged 0-6 months. Therefore, interventions to prevent the failure of exclusive breastfeeding from pregnancy onwards are essential to maintain the continuity of breastfeeding.

These interventions include early breastfeeding initiation (EBI) and breastfeeding within the first 0-3 days, as well as the prevention and management of lactation problems until the infant is 6 months old (6,8).

Implementing the Android-based 'KEKASIH class' intervention in coastal communities in Bengkulu City is considered feasible given that Bengkulu City's Human Development Index (HDI) has reached 72.3%, indicating the community's readiness to accept new knowledge, including digital information technology (9). The aim of this study is to determine the effect of the Android-based KEKASIH educational programme on the knowledge,

attitudes and breastfeeding self-efficacy of third-trimester pregnant women in Bengkulu City.

## **MATERIALS AND METHODS**

This quasi-experimental study employed a quantitative control-group design to evaluate the effectiveness of the Android-based KEKASIH educational programme among 70 pregnant women from the coastal communities of Betungan, Padang Serai, Anggut Atas, and Beringin Raya in Bengkulu City. The participants were purposively selected and divided into two groups: one that received the KEKASIH class and one that received breastfeeding education in antenatal classes or from local health centers/other health services. Sampling was conducted using purposive sampling, a non-probability technique. The inclusion criteria were: being in the third trimester of pregnancy; owning an Android smartphone; and being willing to participate in the study until its completion. Women with pregnancy complications were excluded.

The educational materials for the control group consisted of leaflets, breast and baby phantoms, demonstrations, and question-and-answer sessions. The intervention group received education through an Android application using question-and-answer sessions and lectures. Question-and-answer sessions were also conducted using Android features. The KEKASIH Class educational material covers

several important topics: transition to parenthood; couple communication; the childbirth process; breastfeeding practices; and newborn care. Each pregnant woman in the intervention group was given small exercises to complete in preparation for each session. Each 2.5-hour educational session was conducted in a structured manner according to the material designed in the application module.

Both the treatment and control groups received education on three occasions: at 26, 30 and 34 weeks of gestation (10,11). This was done in two stages: A pre-test was conducted at 25 weeks of pregnancy before the educational intervention in both the intervention and control groups to determine initial knowledge, attitudes and breastfeeding efficacy levels. A post-test was conducted at 36 weeks of pregnancy. This is because, at 37 weeks and above, mothers have entered the normal delivery period. Therefore, measurements after the 36th week were considered appropriate for optimally assessing the effects of the intervention.

Data collection relied on instruments. The efficacy of breastfeeding was measured using the widely used Breastfeeding Self-Efficacy Scale Short Form (BSES-SF) consists of 14 questions, assessing mothers' confidence in breastfeeding (12). The 40-item questionnaire, designed to assess knowledge and attitudes (was evaluated for content validity by maternal and child health experts, yielding a Content

Validity Index of 0.90. Reliability testing using Cronbach's alpha coefficient produced an  $\alpha$  value of 0.85, demonstrating good internal consistency. The data in this study were analyzed quantitatively in three stages: Univariate analysis was used to describe the characteristics of the respondents and the distribution of values for each research variable (knowledge, attitudes and breastfeeding efficacy) before and after the intervention.

The data were presented in the form of frequency distribution, percentage, mean value and standard deviation. Bivariate analysis was used to determine differences in knowledge, attitude and breastfeeding efficacy scores before and after the intervention in both the intervention and control groups, and to compare changes between the two groups. The Wilcoxon signed-rank test was used to analyze differences between pre- and post-tests within the same group. The Mann–Whitney U test was used to determine differences in intervention effectiveness between the intervention and control groups, as the data were not normally distributed or on an ordinal scale.

This study received ethical approval from the Health Research Ethics Committee of Polytechnic Health Ministry of Health Bengkulu with No.KEPK.BKL/626/07/2024. All participants were informed about the purpose of the study and provided written informed consent prior to participation

## RESULT AND DISCUSSION

### Univariate Analysis

The analysis examined the frequency distribution of characteristics of pregnant women in their third trimester in Bengkulu City, based on age, parity, interval between pregnancies, education and occupation. As **Table 1** indicates, the proportion of pregnant women of risky age (under 20 or over 35 years old) was lower in the intervention group than in the control group (14.28% vs. 85.71%). Overall, 50% of the respondents were in the risky age category. Based on parity, primiparous respondents (those giving birth for the first time) were found to be more prevalent in the control group than in the intervention group (77.14% vs. 22.86%). Conversely, the number of multiparous women (those who had given birth two to four times) in the intervention group (42.82%) was greater than in the

control group (17.14%). Interestingly, the proportion of grandemultiparas (those who had given birth at least five times) was also higher in the intervention group (34.28%) than in the control group (5.71%). Regarding pregnancy spacing, primigravida respondents (those experiencing their first pregnancy) were more prevalent in the control group (77.14%) than in the intervention group (22.86%). Pregnancy spacing of less than two years was also less common in the intervention group (7%) than in the control group (14%). Similarly, pregnancy spacing of more than five years was lower in the intervention group (5.71%) than in the control group (7.14%). However, ideal pregnancy spacing (2–5 years) was also lower in the intervention group (40%) than in the control group (52%). The results can be seen in **Table 1**.

**Table 1. Frequency distribution of respondent characteristics based on age, parity, inter-pregnancy interval, education, and occupation in Bengkulu City**

Variable	Intervention		Control		Total	
	f	%	f	%	f	%
Age						
At Risk	5	14.28	30	85.71	35	50
Not Risk	31	88.57	4	11.42	35	50
Parity						
Primiparous	8	22.86	27	77.14	35	50
Multiparous	15	42.85	6	17.14	21	30
Grandemultiparous	12	34.28	2	5.71	14	10
Pregnancy Interval						
Primigravida	8	22.86	27	77.14	35	50
< 2 Years	1	7	2	14	3	8.57
2-5 Years	10	40	13	52	23	28.71
>5 Years	4	5.71	5	7.14	9	12.85

Education						
Elementary	2	2.85	1	1.42	3	4.28
Middle	25	35.71	22	31.42	37	52.85
High	8	11.42	3	4.28	11	8.70
Occupation						
Occupied	16	22.85	8	11.42	24	34.28
Not Occupied	20	11.42	26	37.14	46	65.72

### Bivariate Analysis

This analysis examined the effect of Android-based KEKASIH education on the knowledge, attitudes and breastfeeding

efficacy of pregnant women. A Wilcoxon signed-rank test was used. The results can be seen in **Table 2**.

**Table 2. The effect of android-based partner education on knowledge, attitudes, and breastfeeding efficacy among pregnant women in their third trimester in Bengkulu City**

Variable	n	Min	Max	SD	Mean	Mean difference	P value*
Breastfeeding efficacy							
Intervention							
Before	35	15	30	5.61	23.14	11.31	0.00
After	35	25	46	5.84	34.45		
Control							
Before	35	15	30	6.19	24.80	7.34	0.00
After	35	11	36	3.60	32.14		
Knowledge							
Intervention							
Before	35	8	11	1.44	5.48	4.49	0.00
After	35	8	14	1.38	9.97		
Control							
Before	35	7	10	1.33	5.54	3.91	0.00
After	35	8	13	1.54	9.45		
Attitudes							
Intervention							
Before	35	22	57	4.90	38.68	18.74	0.00
After	35	29	67	5.03	57.42		
Control							
Before	35	13	45	2.79	38.05	19.37	0.00
After	35	19	67	5.03	57.42		

\*Wilcoxon test

**Table 2** shows that the average breastfeeding efficacy score in the intervention group was 24.14 (minimum: 15; maximum: 30) before receiving education through the Android-based KEKASIH Class application. Following the intervention, the average score increased to 34.45 (minimum: 25; maximum: 46). Statistical tests show that education significantly affects breastfeeding efficacy, with a p-value of 0.00 and a mean difference of 11.31. This suggests that the KEKASIH Class education program can significantly improve breastfeeding efficacy in pregnant women. In the control group, the average breastfeeding efficacy score increased from 24.80 to 32.14 (minimum: 15; maximum: 41).

The statistical test results also showed a p-value of 0.00 and a mean difference of 7.34. However, substantively, this increase was lower than that of the intervention group, suggesting that conventional education methods are not optimal for increasing breastfeeding efficacy. Before the intervention, the average breastfeeding knowledge score in the intervention group was 5.48 (minimum: 3; maximum: 8). After receiving education through the Android application, this increased to an average of 9.97 (minimum: 8; maximum: 14). The statistical test results showed a significant effect, with  $p = 0.00$  and a mean difference of 4.49. This indicates that the KEKASIH Class education program can increase pregnant women's knowledge about

breastfeeding. The control group also experienced an increase in knowledge mean scores, rising from 5.54 to 9.45 (Before treatment, the minimum and maximum scores were 7 and 10, respectively. After treatment, these increased to 8 and 13, respectively), and the mean difference was 3.91, with  $p = 0.00$ . However, this increase was less effective than that observed in the intervention group. Regarding attitude towards breastfeeding, the results showed an average attitude score of 38.68 (minimum 22, maximum 57) in the intervention group before education, which increased to 57.42 (minimum 29, maximum 67) after attending the KEKASIH Class.

Statistical tests showed  $p = 0.00$  and a mean difference of 18.74, indicating that the application-based intervention had a significant positive impact on attitudes towards exclusive breastfeeding. In the control group, the mean attitude score increased from 38.05 to 57.42 (minimum: 19; maximum: 67), with a p-value of 0.00 and a mean difference of 19.37. These results suggest that application-based interventions and conventional education can both increase positive attitudes towards exclusive breastfeeding among pregnant women.

**Table 3** shows the results of a Mann-Whitney U test, comparing the effect of the KEKASIH Class education program on knowledge, attitudes and breastfeeding self-efficacy.

**Table 3. Effect of android-based KEKASIH education on knowledge, attitudes, and breastfeeding efficacy among pregnant women in their third trimester in Bengkulu City in 2025**

Variable	Z Score	Nilai p*
Breastfeeding efficacy	1.37	0.16
Knowledge	1.432	0.15
Attitudes	0.00	1.00

\*mann whitney test

Statistical analysis showed no significant differences between the intervention group, which received education via the KEKASIH application, and the control group, which received conventional education, across the three measured variables: breastfeeding self-efficacy, knowledge, and attitudes among pregnant women ( $p > 0.05$ ). These results indicate that both education methods are equally effective in improving knowledge, attitudes, and breastfeeding efficacy in pregnant women in their third trimester.

This study provides an overview of the characteristics of pregnant women, categorized by age, parity, birth spacing, and educational level (**Table 1**). These factors are believed to influence exclusive breastfeeding. The findings can therefore serve as a basis for policymakers and healthcare providers to determine appropriate targeted interventions. The results of this study suggest that some pregnant women are of an age that places them at risk. These findings are consistent with previous studies, which reported an average age at childbirth of 17.8 years, with

the largest proportion (37.8%) occurring at age 19 (13). Other studies have shown that 80% of pregnancies occur at the age of 18. Pregnancy at a young age negatively impacts birth outcomes and the health of mothers and babies due to physical and psychological unpreparedness affecting the ability to adapt during pregnancy and childbirth. This increases the risk of complications such as sexually transmitted infections resulting from unsafe sexual behavior, premature birth due to suboptimal fetal development, miscarriage and physical violence resulting from social or economic pressures. Furthermore, young pregnancy can lead to psychological disorders such as stress and depression, which in turn impact the health of mothers and children (14).

The results of this study also show that most pregnant women are primiparous (**Table 1**). Parity is an important factor in the health of pregnant and breastfeeding mothers. Previous studies have indicated a significant relationship between parity and the intention to breastfeed, as well as the initiation of breastfeeding in the early stages after childbirth. Primiparous mothers require special attention due to their lack of experience in pregnancy and newborn care (15). Similar findings show that exclusive breastfeeding rates tend to decline with increasing maternal age and the number of children born. This may be due to various factors, including decreased motivation and confidence in breastfeeding among mothers who have given birth more than once,

increased household responsibilities, and changes in lifestyle and social patterns that affect the time mothers can devote to breastfeeding. Furthermore, mothers with more children may encounter greater logistical and physical challenges in providing exclusive breastfeeding consistently. These factors emphasize the importance of ongoing support and targeted education for mothers at different parity levels to help them maintain exclusive breastfeeding (16).

This study found that the majority of pregnant women were primigravida; this is a risk factor for failure to exclusively breastfeed (see **Table 1**). This finding is consistent with previous studies which state that failure to exclusively breastfeed is more prevalent among primigravida women due to their lack of experience with breastfeeding (17). Furthermore, other studies support the idea that the time interval between pregnancies significantly affects the success of exclusive breastfeeding (18).

The results of this study show that most respondents had a basic level of education (see **Table 1**). Similar findings have been reported, indicating that only 10% of pregnant women have a basic education (19). A higher level of education was found to be associated with exclusive breastfeeding: 87.2% of mothers with a secondary education successfully breastfed exclusively. Education plays an important role in one's ability to absorb knowledge and

be exposed to information related to exclusive breastfeeding (20). This study found that the "Kekasih" classroom education program, which runs on Android devices, has an impact on pregnant women's knowledge of exclusive breastfeeding (**Table 2**). These findings are consistent with those of various previous studies, which have shown that Android-based interventions are effective in improving pregnant women's knowledge of childbirth preparation. This study also adds to the body of evidence showing that digital technology, particularly mobile applications, can be used to deliver maternal health education in an innovative and efficient way (15).

The KEKASIH educational program, which was developed for this study, was shown to improve pregnant women's knowledge of exclusive breastfeeding. This aligns with previous research findings which reported a significant improvement in the breastfeeding literacy of pregnant women in the intervention group following digital education (20). The increase in knowledge is likely attributable to the advantages of app-based interventions, including accessibility, time flexibility, and the ability to present material interactively and repeatedly. Several previous studies have also reported that web-based digital media, accessible via personal computers and smartphones, allow materials to be personalized according to user needs, thereby enhancing engagement and

information retention. Analytically, the increase in knowledge within the intervention group in this study is likely influenced by a combination of ease of access to information and the characteristics of self-directed learning (21).

This study found that the KEKASIH classroom education program, which runs on Android, significantly increased pregnant women's positive attitudes towards exclusive breastfeeding (**Tabel 2**). This is because mobile apps are designed for use on mobile devices, such as smartphones and tablets. Using them as a health education tool enables dynamic behavioral change interventions to be implemented through personalization and adjustments based on user data and environmental conditions in real time. This improves health outcomes by expanding knowledge and fostering positive attitudes towards breastfeeding among pregnant women (21,22).

This study also found that Android-based prenatal education classes improve breastfeeding efficacy among pregnant women (**Table 2**). These findings are consistent with previous studies that have reported an increase in the average breastfeeding efficacy score following breastfeeding education. Education provided during pregnancy and the postpartum period has been shown to increase knowledge, attitude and breastfeeding efficacy, thereby contributing to the success of exclusive breastfeeding

(19). This Android-based educational program was developed as part of the KEKASIH research project. It offers interactive features that provide information on caring for and treating common issues experienced by breastfeeding mothers, such as sore nipples, mastitis and problems with breast milk production. It also allows mothers to access step-by-step guides, schedule online consultations with healthcare professionals and submit questions via the app's Q&A service. This approach is designed to enhance mothers' understanding of, and involvement in, independent, sustainable lactation management, as well as boost their self-efficacy. It is also intended to increase mothers' understanding of, and involvement in, independent, sustainable lactation management, as well as their self-efficacy.

These findings are consistent with previous meta-analyses indicating that web- and app-based breastfeeding education is a viable and effective method for improving breastfeeding success, and that mHealth interventions can be implemented across diverse economic, geographic, and racial/ethnic contexts. Therefore, it is crucial to integrate lactation management and the specialized care required by breastfeeding mothers into digital technology programs (23). The results of this study also suggest that prenatal education has an impact on the knowledge, attitudes and self-efficacy of the control group with regard to exclusive breastfeeding (see **Table 2**). This aligns with

previous findings, indicating that providing education during pregnancy can increase breastfeeding self-efficacy. Breastfeeding self-efficacy influences breastfeeding decisions. It can be enhanced through appropriate training programs and should be considered when seeking to increase breastfeeding duration. Model-based counselling interventions, beginning with educational sessions and simulation exercises in mothers' groups, have been shown to enhance breastfeeding self-efficacy. Therefore, healthcare providers need to develop structured, comprehensive programs that provide ongoing education and model-based counselling from pregnancy through the breastfeeding period in order to support exclusive breastfeeding (24).

Based on the research findings in **Table 3**, no significant differences were found between the intervention group, who received KEKASIH app-based education, and the control group, who received conventional education, in the three studied variables: breastfeeding effectiveness, knowledge and attitudes of pregnant women ( $p > 0.05$ ). These results suggest that both educational approaches are equally effective in improving breastfeeding knowledge, attitudes and effectiveness among pregnant women in their third trimester.

Although the descriptive analysis in **Table 3** indicates a trend towards higher scores in the intervention group, this

difference did not reach statistical significance. Therefore, one method cannot be definitively declared superior to the other. Consequently, technology-based (mHealth) educational approaches via an Android app, as well as conventional methods through antenatal classes, can be considered effective strategies for enhancing the preparedness of expectant mothers for exclusive breastfeeding. This finding emphasizes the importance of flexibility when selecting educational methods, taking into account the context, needs and accessibility of the target group.

This finding corroborates previous research indicating that various model-based counselling interventions, beginning with educational and simulation methods in antenatal classes, are effective in enhancing breastfeeding self-efficacy. Therefore, health workers need to develop a structured, comprehensive program that includes model-based education and counselling, provided continuously from pregnancy to the breastfeeding period, to support exclusive breastfeeding (24).

The efficacy of breastfeeding is influenced by various factors, including motivation, experience, subjective norms that support breastfeeding, the number of children and previous experience of exclusive breastfeeding (25). Health education and breastfeeding promotion provided by professional healthcare workers has been proven to increase the success of breastfeeding programs. Furthermore,

continuous support from healthcare providers and lactation counsellors throughout the seven stages of breastfeeding, from pregnancy through the postpartum period, is essential to ensure that mothers receive adequate and accurate information (7).

Education provided in small groups of eight to twelve people at the same gestational age enables service providers and expectant mothers to share knowledge and experiences, and empowers women to take responsibility for their health during pregnancy. Pregnancy classes equip pregnant women with the knowledge and decision-making skills necessary for healthy pregnancy care, childbirth and newborn care (26).

#### **CONCLUSION AND RECOMMENDATION**

The Android-based KEKASIH Class had an impact on knowledge, attitude and breastfeeding efficacy, with p-values of 0.00 for each. Similarly, conventional pregnancy classes had an effect on knowledge, attitude and breastfeeding efficacy, with p-values of 0.00 for each. There was no difference in effectiveness. Despite the findings, this study has some limitations. First, it measured breastfeeding efficacy in women who were not postpartum, which does not reflect the readiness of mothers to breastfeed their babies. The study also did not include external factors influencing knowledge, attitudes and breastfeeding efficacy. Based on these results, it is

recommended that health service providers and policymakers use a combination of conventional and digital media to reach all target groups.

#### **REFERENCES**

1. Badan Pusat Statistik Provinsi Bengkulu. Katalog :Profil Kesehatan Ibu Dan Anak Provinsi Bengkulu 2022 [Internet]. Bengkulu; 2022. <https://bit.ly/BSPProvinsiBengkulu>
2. Rapingah S, Muhani N, Besral, Yuniar P. Determinants of exclusive breastfeeding practices of female healthcare workers in Jakarta, Indonesia. *Jurnal Kesehatan Masyarakat Nasional*. 2021; 16(1): 59–65. <https://doi.org/10.21109/kesmas.v16i1.2715>
3. Hadi H, Fatimatasari F, Irwanti W, Kusuma C, Alfiana RD, Asshiddiqi MIN, et al. Exclusive Breastfeeding Protects Young Children from Stunting in a Low-Income Population : A Study from Eastern Indonesia. *Nutrients* [Internet]. 2021;13(4264.):1–14. <https://www.mdpi.com/2072-6643/13/12/4264>. <https://doi.org/10.3390/nu13124264>
4. Nida K, Margawati A, Lathifah A. Perilaku Kesehatan Masyarakat Pesisir Desa Morodemak Kecamatan Bonang Kabupaten Demak. *Endogami Jurnal Ilmiah Kajian Antropologi* [Internet]. 2022;5(2):1–11. <https://doi.org/10.14710/endogami.5.2.1-11>
5. Lestari H. Identifikasi Masalah

- Kesehatan Berbasis Lingkungan pada Masyarakat Pesisir Wilayah Kerja Puskesmas Mata. *Miracle Journal of Ppublic Health*. 2022;5(2):127–35.. <https://doi.org/10.36566/mjph.v5i2.295>
6. Dagla M, Mrvoljak-Theodoropoulou I, Vogiatzoglou M, Giamalidou A, Tsolaridou E, Mavrou M, et al. Association between Breastfeeding Duration and Long-Term Midwifery-Led Support and Psychosocial Support: Outcomes from a Greek Non-Randomized Controlled Perinatal Health Intervention. *International Journal of Environment Research Public Health* [Internet]. 2021 Feb 18;18(4):1988.<https://doi.org/10.3390/ijerph18041988>
  7. Şimsek-çetinkaya Ş, Çaliş GG, Kibris Ş. Effect of Breastfeeding Education Program and Nurse-led Breastfeeding Online Counseling System ( BMUM ) for Mothers : A Randomized Controlled Study. *Journal of Human Lactation* [Internet]. 2024;40(1):101–12. <https://journals.sagepub.com/doi/epub/10.1177/08903344231210813>
  8. Nurfatimah N, Ramadhan K, Entoh C, Longgupa LW, Hafid F. Continuity of Midwifery Care Implementation to Reduce Stunting. *Open Access Macedonia J Journal of Medical Sciences* [Internet]. 2021 Dec 1;9(E):1512–6.<https://doi.org/10.3889/oamjms.2021.7062>
  9. Dinkes 2023. Profil kesehatan kota Bengkulu 2023. 2023;19(5):1–162. <chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://dinkes.bengkulokota.go.id/wp-content/uploads/2024/12/PROFIL-DINAS-KESEHATAN-2023-2.pdf>
  10. Yorita E, Yanniarti S, Istiarika I. Oxytocin Massage Can Increase Breastfeeding Production in Postpartum Mothers. *Contagion Scientific Periodic Journal of Public Health Coastal Health*. 2023;5(2):673. <http://dx.doi.org/10.30829/contagion.v5i2.15428>
  11. Yorita E, Yanniarti S, Yulinda Y, Pasaribu SS, Rina R. Small group classes with pregnancy cadres (kekasih) can improve knowledge and attitudes about exclusive breastfeeding among third-trimester pregnant women on the remote Island of Enggano, Bengkulu Province. *JNKI (Jurnal Ners dan Kebidanan Indones* [Internet]. 2024 Mar 29;12(1):83. [http://dx.org/10.21927/jnki.12\(1\).83-95](http://dx.org/10.21927/jnki.12(1).83-95)
  12. Yuliani DR, Aini FN, Winarso SP, Amalia R. The Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF) Versi Indonesia: Studi Pendahuluan Uji Validitas Dan Reliabilitas Pada Ibu Hamil. *Journal of Midwifery Science: Basic and Applied Research Res* [Internet]. 2023;5(2):38–42. <https://doi.org/10.31983/jomisbar.v5i2.10422>
  13. Putri GN, Winarni S, Dharmawan Y. Gambaran Umur Wus Muda Dan

- Faktor Risiko Kehamilan Terhadap Komplikasi Persalinan Atau Nifas Di Kecamatan Bandungan Kabupaten Semarang [Internet]. *Jurnal Kesehatan Masyarakat* Vol. 5. 2017. <https://doi.org/10.14710/jkm.v5i1.15259>
14. Putri EN, Warnaini C. Age and Parity as Risk Factors for Childbirth Complications : A Systematic Review. *Jurnal Biologi Tropis* [Internet]. 2023;23(1):324–32.<https://doi.org/10.29303/jbt.v23i1.5979>
  15. Gebretsadik GG, Berhe K. Determinants of early initiation of breast feeding during COVID-pandemic among urban-dwelling mothers from Tigray , Northern Ethiopia : a community-based cross-sectional study. *BMJ Open* [Internet]. 2023;13(e070518):1–7.<https://doi.org/10.1136/bmjopen-2022-070518>
  16. Bilal Safdar M, Naveed M, Razzaq M, Ejaz M, Tahir A, Waheed Rathore A. Impact of Maternal age and Parity on Exclusive Breast Feeding Practices. *Pakistan Journal Medical Health Sciences*. 2021;15(10):2527–9. <https://doi.org/10.53350/pjmhs2115102527>
  17. Nisa ZH. Faktor-Faktor Yang Berhubungan Dengan Ketidakberhasilan Dalam Pemberian Asi Eksklusif Pada Ibu Yang Memiliki Bayi Usia 0-6 Bulan Di Klinik Pratama SPN Polda Metro Jaya Periode 06 Juni 06 – 06 Juli 2022. *Jurnal Ilmiah Kesehatan BPI*. 2023;7(1):50–9. <https://doi.org/10.58813/stikesbpi.v7i1.123>
  18. Fatiah MS, Tambing Y, Caturseptani R. Pengaruh Pemberian ASI Eksklusif terhadap Amenorrhea Laktasi di Indonesia. *Jurnal Bidan Cerdas*. 2022;4(3):141–51.<https://doi.org/10.33860/jbc.v4i3.803>
  19. Prastyoningsih A, Rohmantika D, Pratiwi EN, Maharani A, Rohmah AN. The Effect of Education Breastfeeding to Breastfeeding Self Efficacy in Central Java Indonesia. *PLACENTUM Jurnal Ilmiah Kesehatan dan Aplikasinya*. 2021;9(3):1.<https://doi.org/10.20961/placentum.v9i3.54967>
  20. Gebremariam KT, Mulugeta A, Gallegos D. Theory - based mHealth targeting fathers and mothers to improve exclusive breastfeeding : a quasi - experimental study. *International Breastfeeding Journal*. 2023;1–11. <https://doi.org/10.1186/s13006-022-00537-x>
  21. Abuidhail J, Mrayan L, Jaradat D. Evaluating effects of prenatal web-based breastfeeding education for pregnant mothers in their third trimester of pregnancy : Prospective randomized control trial. *Midwifery Journal* [Internet]. 2019;69:143–9. <https://doi.org/10.1016/j.midw.2018.11.015>
  22. Maleki A, Faghihzadeh E, Youseflu S. The Effect of Educational Intervention on Improvement of Breastfeeding Self-

- Efficacy: A Systematic Review and Meta-Analysis. *Obstetric Gynecology International* . vol.1 5522229, 2021 <https://doi.org/10.1155/2021/5522229>
23. Wen X, Wang S, Lewkowitz AK, Ward KE, Brousseau EC, Meador KJ. Maternal Complications and Prescription Opioid Exposure During Pregnancy: Using Marginal Structural Models. *Drug Saf.* 2021 Dec; 44(12): 1297-1309. <https://doi.org/10.1007/s40264-021-01115-6>.
  24. Koruk F, Kahraman S. The Effects of Interventions During Pregnancy to Improve Breastfeeding Self-Efficacy : Systematic Review and. 2025; *Journal Midwifery Womens Health*. 2025 Jul-Aug;70(4):610-623. <https://doi.org/10.1111/jmwh.13742>
  25. Jaya VO, Pratiwi CS. Faktor-Faktor yang Mempengaruhi Efikasi Diri Menyusui Ibu Hamil Trimester 3. *Journal of Midwifery and Reproductive*. 2022;5(2):94–103. <https://doi.org/10.35747/jmr.v6i1>
  26. Ratzon R, Cohen A, Hadar A, Froimovici M, Bilenko N. Impact of Group vs. Individual Prenatal Care Provision on Women’s Knowledge of Pregnancy-Related Topics: An Open, Controlled, Semi-Randomized Community Trial. *Journal of Clinical Medicine*. 2022;11(17). <https://doi.org/10.3390/jcm11175015>