



TOWARD SAFE CHILDBIRTH: EDUCATION ON MATERNAL PREPAREDNESS AND NEWBORN CARE

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ABSTRACT

Preparation for childbirth and newborn care require adequate maternal understanding to support maternal and neonatal safety. This study aimed to determine the increase in pregnant women's understanding of childbirth preparation and newborn care after receiving health education. This study employed a pre-experimental one-group pretest-posttest design. The study was conducted from May 19–26, 2026, in the service area of the Kartasura Community Health Center, Sukoharjo Regency, Central Java. A total of 73 pregnant women were selected using accidental sampling. Data were collected using a five-point Likert-scale questionnaire developed based on literature reviews and maternal and child health guidelines and analysed using univariate analysis and the Wilcoxon Signed-Rank Test. The average understanding score increased from 130.03 before health education to 138.37 after health education, representing an increase of 8.34 points. The proportion of respondents with good understanding increased from 69 respondents (94.5%) before health education to 73 respondents (100%) after health education. The Wilcoxon Signed-Rank Test showed a significant difference in understanding scores before and after health education ($Z = -5.026$, $p = 0.001$). Health education on childbirth preparation and newborn care can improve pregnant women's understanding. Health education can be integrated into antenatal care services to strengthen maternal understanding of childbirth preparation and newborn care.

Keywords: childbirth preparation; health education; newborns care; pregnancy

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INTRODUCTION

Childbirth is a physiological process that requires preparation on the part of the mother, family, and health care providers to ensure it proceeds safely. This preparedness includes understanding the signs of labor, determining the location and birth attendants, transportation, financing, family support, and plans for dealing with complications (Hayati et al., 2022). A lack of information can lead to delays in decision-making and seeking help during emergencies. Therefore, improving pregnant women's understanding is an important part of promotive and preventive maternal health efforts. Newborn care also requires adequate understanding because the neonatal period is a time of vulnerability to infections, hypothermia, feeding difficulties, and various adaptation issues after birth (Dhungana et al., 2023a). Care that mothers need to understand includes early breastfeeding initiation, exclusive breastfeeding, keeping the baby warm, umbilical cord care, hygiene, immunizations and neonatal checkups, as well as recognizing danger signs (Workie et al., 2024). A good understanding helps mothers and families take appropriate initial actions and promptly seek health services when needed.

Maternal and infant health issues remain a concern. In 2023, approximately 260,000 women died from pregnancy and childbirth complications globally, while approximately 2.3 million infants died within their first month of life (WHO, 2025). In Indonesia, the Maternal Mortality Rate in 2022 was recorded at 189 per 100,000 live births, and the Infant Mortality Rate was 20 per 1,000 live births (Ikawati & Ramadhani, 2022). In Central Java, there were 384 maternal deaths and 4,038 infant deaths recorded in 2022. These data highlight the importance of interventions that can strengthen

the capacity of mothers and families to prepare for childbirth and care for newborns. In the service area of the Kartasura Community Health Center, 276 pregnant women received antenatal care in 2025. In addition, inadequate preparation for childbirth and inappropriate newborn care practices were still observed. These conditions indicate a need for targeted education within primary health care services. Education can be delivered through health education sessions, prenatal classes, discussions, and the use of visual media. The use of easily understandable media is expected to help mothers receive, retain, and apply health information (Khan et al., 2024).

Mothers' understanding is influenced not only by the information provided but also by their age, education, pregnancy experience, occupation, access to information, and social environment. These characteristics are important for describing the respondents' circumstances and providing context for the intervention results. Previous research has shown that health education can improve the knowledge or preparedness of pregnant women. Karmila et al., (2024) reported an increase in knowledge following childbirth preparation education, while Wahyuni & Fajrin, (2023) demonstrated that education on newborn care enhances mothers' readiness to care for their infants. Knowledge, information sources, family support, age, education, and parity are also associated with pregnant women's behavior regarding ANC (Antenatal Care).

Therefore, targeted health education that integrates childbirth preparation and newborn care is important. The originality of this study lies in the use of leaflets and the direct measurement of changes in understanding through a pretest-posttest design in a primary health care setting. This study aimed to determine the effect of health education on childbirth preparation and newborn care on the understanding of pregnant women in the service area of the Kartasura Community Health Center, Sukoharjo Regency.

METHOD

This study employed a quantitative method with a pre-experimental one-group pretest-posttest design. Understanding levels were measured before and after health education. The study was conducted from May 16–26, 2026, in the service area of the Kartasura Community Health Center, Sukoharjo Regency, Central Java. The population consisted of 276 pregnant women receiving antenatal care in 2025, with a minimum sample of 73 respondents calculated using the Slovin formula with a 10% margin of error. Accidental sampling was used to recruit eligible pregnant women.

Inclusion criteria included pregnant women in the first through third trimesters who resided in the service area, carried an MCH Booklet, underwent routine ANC checkups at least four times, and were willing to participate in the pretest, education, and posttest. Exclusion criteria included pregnant women with mental disorders or medical conditions that hindered participation, as well as those unable to read, write, or communicate in Indonesian.

The independent variable was health education on childbirth preparation and newborn care, while the dependent variable was the level of understanding regarding these topics. The instrument was a five-point Likert-scale questionnaire based on literature reviews and maternal and child health guidelines. Understanding scores were categorized as good ($\geq 76\%$), adequate (56–75%), and poor ($\leq 55\%$). Validity was assessed using Pearson's product-moment correlation, and reliability was evaluated using Cronbach's Alpha with a criterion of ≥ 0.70 . The educational leaflet was validated by experts. Data collection consisted of three stages: pretest, face-to-face health education through a 45-minute lecture and interactive discussion using a leaflet, and posttest using the same questionnaire. The data were checked, coded, entered into statistical software, cleaned, and analyzed. Univariate analysis described respondent characteristics and understanding levels, while bivariate analysis tested differences between pretest and posttest scores. Because the Shapiro-Wilk test showed that the data were not normally distributed ($p=0.003$ and $p=0.001$), the Wilcoxon

Signed-Rank Test was used with $\alpha=0.05$. The study adhered to informed consent, anonymity, confidentiality, beneficence, and justice.

RESULT

The study involved 73 pregnant women who met the study criteria and completed the pretest, educational intervention, and posttest. Most respondents were aged 20–35 years, had a high school or vocational school education, were homemakers or unemployed, were multigravida, and were in the third trimester.

Table 1.
Respondent characteristics (n= 73)

Respondent characteristics	f	%
Age		
≤19 years	0	0.0
20–35 years	65	89.0
>36 years	8	11.0
Education		
Elementary/Middle School	5	6.8
High School/Vocational School	44	60.3
Diploma/Bachelor's Degree	24	32.9
Employment		
Housewife/Unemployed	59	80.8
Employed	14	19.2
Parity		
Primigravida	33	45.2
Multigravida	38	52.1
Grande multipara	2	2.7
Gestational Age		
1-3 months (first trimester)	18	24.7
4-6 months (second trimester)	23	31.5
7-9 months (third trimester)	32	43.8

Most respondents were aged 20–35 years, namely 65 respondents (89.0%), followed by 8 respondents (11.0%) aged >36 years. No respondents were aged ≤19 years. Most respondents had a high school or vocational school education (60.3%), while 32.9% had a diploma/bachelor's degree. Most respondents were homemakers or unemployed (80.8%). Multigravida respondents represented the largest parity group (52.1%), while grandemultipara respondents represented the smallest group (2.7%). The largest proportion of respondents was in the third trimester (43.8%).

Table 2.
Distribution and Descriptive Statistics of Understanding Levels

Indicator	Pretest	Posttest	Difference	Notes
Good, f (%)	69 (94.5%)	73 (100.0%)	+4 (5.5%)	Increased
Adequate, f (%)	4 (5.5%)	1 (1.4%)	-3 (4.1%)	Decreasing
Poor, f (%)	0 (0.0%)	0 (0.0%)	0	Stable
Average	130.03	138.37	+8.34	Increased
Standart deviation	13.054	11.603	-1.451	Decreasing
Median	129	143	+14	Increased
Minimum	102	109	+7	Increased
Maximum	150	150	0	Stable

Before the intervention, 69 respondents (94.5%) had good understanding and 4 respondents (5.5%) had adequate understanding. After the intervention, 73 respondents (100%) were categorised as having good understanding. The average score increased from 130.03 to 138.37, with the median increasing from 129 to 143. The minimum score increased from 102 to 109, while the maximum score remained 150. The decrease in standard deviation indicates that the posttest scores tended to be more concentrated.

Table 3.
Differences in Understanding Scores Before and After Health Education

Measurement	Average	Z	p
Pretest	130.03	-5.026	0.001
Posttest	138.37		

The Wilcoxon Signed-Rank Test showed $Z = -5.026$ and $p = 0.001$ ($p < 0.05$), indicating a significant difference between pregnant women's understanding before and after health education. A total of 51 respondents experienced increased scores, 11 respondents experienced decreased scores, and 11 respondents showed no change.

DISCUSSION

The characteristics of respondents provide important context for interpreting the intervention results. Most respondents were aged 20–35 years (89.0%), had a high school or vocational school education (60.3%), were homemakers or unemployed (80.8%), were multigravida (52.1%), and were in the third trimester (43.8%). Age may be associated with cognitive maturity, experience, and the ability to process health information, while education can influence the ability to receive and process health information (Ayuningtyas, 2020; Dadipoor et al., 2017). However, previous pregnancy experience does not always guarantee accurate understanding of current health information, and gestational age does not necessarily directly determine readiness for childbirth (Adeyemi, 2021; Ohenhen et al., 2023; Rahimli Ocakoglu et al., 2024). Therefore, health education remains important for both primigravida and multigravida mothers and should be provided throughout pregnancy according to maternal needs.

The results showed an improvement in pregnant women's understanding after the health education intervention. The average score increased from 130.03 to 138.37, representing an increase of 8.34 points, while the proportion of respondents with good understanding increased from 94.5% to 100%. This improvement may be related to the structured delivery of education through lectures, interactive discussions, and leaflets. Leaflets provided respondents with information that could be reviewed after the education session, while discussions and question-and-answer sessions allowed respondents to clarify information they did not yet understand. These findings are consistent with previous studies showing that leaflet-based health education and childbirth preparation education can improve pregnant women's knowledge (Baity & Rahayuningsih, 2023; Karmila et al., 2024). The educational material also integrated childbirth preparation and newborn care, including signs of labour, physical and mental readiness, place of delivery, transportation, financing, family support, exclusive breastfeeding, maintaining body temperature, umbilical cord care, immunisation, neonatal visits, and danger signs. Integrating these topics provides comprehensive information because preparation before delivery is directly related to newborn care after birth (Dhungana et al., 2023b; Singh et al., 2024; Workie et al., 2024).

The Wilcoxon Signed-Rank Test showed $Z = -5.026$ with $p = 0.001$ ($p < 0.05$), indicating a significant difference in pregnant women's understanding before and after health education. A total of 51 respondents experienced increased scores, 11 experienced decreased scores, and 11 showed no change, indicating that the majority benefited from the intervention, although individual responses varied. The findings are consistent with previous research demonstrating that antenatal education can improve pregnant women's knowledge and support their preparation for childbirth and newborn care (El-shrqawy et al., 2024; Halasa et al., 2025). Structured health education can therefore be integrated into prenatal classes and antenatal care services at primary health care facilities. Family involvement should also be considered because family support can assist mothers in preparing for childbirth, making decisions when danger signs occur, and providing newborn care after birth (Nyirenda et al., 2025). Thus, health education integrating childbirth preparation and newborn care can be an important strategy to strengthen maternal preparedness and support appropriate newborn care.

CONCLUSION

Health education on childbirth preparation and newborn care can improve pregnant women's understanding in the service area of the Kartasura Community Health Center. The average understanding score increased from 130.03 before education to 138.37 after education, representing an increase of 8.34 points. The proportion of respondents with good understanding increased from 69 respondents (94.5%) to 73 respondents (100%). The Wilcoxon Signed-Rank Test showed $Z = -5.026$ and $p = 0.001$ ($p < 0.05$), indicating a significant difference in understanding before and after health education.

REFERENCES

- Adeyemi, O. C. (2021). Preparation Is Key to Safe Delivery: A Review of The Factors Contributing to Birth Preparedness and Complication Readiness in Nigeria.
- Ayuningtyas, D. W. (2020). Behavioral Factors of Pregnant Women in Antenatal Care. *Higeia Journal of Public Health Research and Development*, 4(3), 84–94. <https://journal.unnes.ac.id/sju/index.php/higeia/article/view/34730>
- Baity, F. N., & Rahayuningsih, F. B. (2023). The Effect of Maternity Care Health Education Through Leaflet Media on The Level of Knowledge of Pregnant Women. *Jurnal EduHealth*, 14(04), 392–397.
- Dadipoor, S., Ramezankhani, A., Alavi, A., Aghamolaei, T., Safari-moradabadi, A. (2017). Pregnant Women ' s Health Literacy in the South of Iran. 11(4), 211–218.
- Dhungana, R., Chalise, M., & Clark, R. B. (2023a). An assessment of immediate newborn care readiness and availability in Nepal. *Global Health Action*, 16(1), 2289735.
- Dhungana, R., Chalise, M., & Clark, R. B. (2023b). An assessment of immediate newborn care readiness and availability in Nepal Abstract. *Global Health Action*, 16(1). <https://doi.org/10.1080/16549716.2023.2289735>
- El-shrqawy, E. H., Elnemer, A., & Mohamed Elsayed, H. (2024). Effect of antenatal education on pregnant women's knowledge, attitude and preferences of delivery mode. *BMC Pregnancy and Childbirth*, 24(1). <https://doi.org/10.1186/s12884-024-06922-0>
- Halasa, S., Arulappan, J., Razeq, N. M. A., Ai-Hussami, M., Al-Maharma, D., Nassar, O., Nabolsi, M., Saleh, S., & Faouri, I. Al. (2025). Effectiveness of a nurse-led infant health promotion education program on knowledge among first-time pregnant women in a Middle Eastern country. *SAGE Open Nursing*, 11, 23779608251378560.
- Hayati, S., Gustina, R., & Irawan, E. (2022). Relationship Between Pregnant Women's Knowledge in the Third Trimester About Childbirth and Readiness to Face Labor in Gumuruh Public Health Center. *KnE Medicine*, 308–317.
- Ikawati, B., & Ramadhani, T. (2022). Pencapaian target angka kematian neonatus dan bayi dalam program Kesehatan Ibu dan Anak (KIA) dan langkah strategis selanjutnya. *Jurnal Kebijakan Kesehatan Indonesia*, 11(1), 68–78.
- Karmila, H. N., Susantri, M., Sari, N. D. K., Mardiyanti, I., & Yuli, A. A. S. (2024). Education for pregnant women in increasing knowledge about childbirth preparation. *Abdimas: Jurnal Pengabdian Masyarakat Universitas Merdeka Malang*, 9(1), 114–122.
- Khan, M., Dave, A., Benton, M., Moss, N., & Kaler, M. K. (2024). Health literacy interventions for pregnant women with limited language proficiency in the country they live in: a systematic review. *BMC Public Health*, 24(1). <https://doi.org/10.1186/s12889-024-20747-8>
- Nyirenda, M., Jacobs, C., Makasa, M., & Hazemba, A. N. (2025). Knowledge and practices of birth preparedness and complication readiness among pregnant women in Eastern Province, Zambia: A qualitative study. *PLOS Global Public Health*, 5(7 July), 1–14. <https://doi.org/10.1371/journal.pgph.0004975>
- Ohenhen, V., Oshomoh, S. A., Akpojar, E., Enobakhare, E., Ovenseri, C., & Eboreime, E. (2023). Birth preparedness and complication readiness: Evaluating the “know-do” gap among women receiving antenatal care in Benin City, Nigeria. *Journal of Biosocial Science*, 55(6), 1086–1100.

- Rahimli Ocakoglu, S., Atak, Z., Uyaniklar, O. O., & Ocakoglu, G. (2024). A prospective evaluation of health literacy levels of pregnant women in antenatal classes: impact on delivery outcomes in nulliparous and multiparous women. *Diagnostics*, 14(22), 2580.
- Singh, T., Tripathy, B., Pandey, A. K., Gautam, D., & Mishra, S. S. (2024). Examining birth preparedness and complication readiness: a systematic review and meta-analysis of pregnant and recently delivered women in India. *BMC Women's Health*, 24(1), 1–12. <https://doi.org/10.1186/s12905-024-02932-4>
- Wahyuni, W., & Fajrin, I. (2023). Newborn Care Education on Mother's Readiness to Care for Babies Independently. *Jurnal Ilmiah Kesehatan (JIKA)*, 5(1), 130–138.
- Workie, H. M., Esey, H. T., Shiferaw, B. M., & Asress, F. W. (2024). Assessing Maternal Adherence to WHO 's Essential Newborn Care Practices in Libo Kemekem District: A Community-Based Study. <https://doi.org/10.1177/2333794X241279193>
- World Health Organization. (2025). World health statistics 2025: Monitoring health for the SDGs, Sustainable Development Goals. Geneva: World Health Organization.