

Effectiveness of Counseling and Education Using The Maternal and Child Health (MCH) Handbook on Nutritional Knowledge of Pregnant Women With Chronic Energy Deficiency

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ABSTRACT

Background: Chronic Energy Deficiency (CED) in pregnant women remains a significant nutritional issue, posing risks to both maternal and fetal health. One of the contributing factors is the lack of knowledge regarding proper nutritional intake during pregnancy. Counseling and education using the Maternal and Child Health (MCH) Handbook is expected to improve pregnant women's nutritional knowledge.

Objective: To determine the effectiveness of counseling and education using the MCH Handbook in improving knowledge of nutritional needs among pregnant women with CED in the working area of Montasik Public Health Center, Aceh Besar.

Methods: This study employed a quasi-experimental design with a two-group pretest-posttest model. The sample consisted of 30 pregnant women with CED, divided into two groups: one receiving health education and the other receiving counseling. Data were collected using pretest and posttest questionnaires and analyzed using paired t-tests.

Results: The paired t-test showed a significant increase in knowledge in both groups. The education group had a p-value of 0.001 and the counseling group had a p-value of 0.000 ($p < 0.05$), indicating that both methods were effective in enhancing nutritional knowledge among pregnant women with CED. The results of the study also indicated that counseling was more effective, with a p-value of 0.002.

Conclusion: Counseling and education using the Maternal and Child Health (MCH) Handbook have been proven effective in increasing knowledge about fulfilling the nutritional needs of pregnant women with Chronic Energy Deficiency (CED). However, the results of the study indicate that direct counseling is more effective compared to education using the MCH Handbook

Keyword : *health education; counseling; nutritional knowledge; pregnant women; chronic energy deficiency*

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Background. Pregnancy is a crucial period in a woman's life, during which significant physiological changes occur to support fetal growth and development (Munir et al., 2024). During this time, meeting nutritional needs becomes vital to ensure the optimal health of both mother and fetus (Arifah & Mudlikah, 2024). One important aspect to consider is the mother's dietary pattern during pregnancy (Hariyani et al., 2024). Nutritional needs refer to the intake of nutrients required by the body to carry out biological functions, support growth, and maintain optimal health (Pertiwi, 2024).

Dietary patterns are the habits or ways in which an individual regulates the type, quantity,

and timing of food intake each day to meet the body's nutritional needs (Seran et al., 2024). These nutrients are essential for supporting the development of the fetus's organs, bones, and brain (Abu-Baker et al., 2021). A deficiency in certain nutrients may lead to complications such as low birth weight, prematurity, or impaired fetal development (Hariyani et al., 2024).

Moreover, consuming nutritious foods can help prevent pregnancy complications such as preeclampsia, anemia, or gestational diabetes (Nofita & Darmawati, 2016). Pregnant women with good eating habits tend to have sufficient energy to carry out their pregnancies (Demilew et al., 2020), reduce the risk of fatigue, and

better prepare their bodies for childbirth (Nuraeni et al., 2024).

However, many pregnant women still have limited knowledge about the importance of nutrition during pregnancy (Dewi et al., 2024). This may be caused by social or economic factors, or due to limited access to accurate health information (Hesti et al., 2024). As a result, many pregnant women consume nutritionally unbalanced diets, such as excessive intake of processed foods or insufficient protein and essential vitamins (Fety et al., 2023).

According to the World Health Organization (WHO), the global prevalence of Chronic Energy Deficiency (CED) in pregnant women ranges from 35% to 75% (WHO, 2023). Data from the Ministry of Health of the Republic of Indonesia (MoH RI) indicates that the incidence of CED among pregnant women has fluctuated over the years: 17.3% in 2018, 17.9% in 2019, 16.9% in 2020, 16.5% in 2021, 16.2% in 2022, and increased to 17.1% in 2023 (MoH RI, 2023).

According to data from the Aceh Provincial Health Office in 2023, 13.0% of pregnant women were affected by CED (Dinkes Aceh, 2024). Furthermore, data from the Aceh Besar District Health Office in 2023 shows that out of 5,000 pregnant women in the district, 675 were affected by CED, equivalent to 15% of the total (Dinkes Aceh Besar, 2024).

A preliminary survey conducted on March 6, 2024, at Ie Mirah Public Health Center recorded 345 pregnant women, with 82 diagnosed with CED. Interviews with three of these women revealed that they lacked knowledge about appropriate dietary practices during pregnancy and were hesitant to consume various types of food and beverages due to cultural traditions and taboos they had inherited.

Methods. This study employed a quasi-experimental design with a two-group pretest-posttest approach to evaluate the effectiveness of counseling and health education using the Maternal and Child Health (MCH) Handbook on

the nutritional knowledge of pregnant women with Chronic Energy Deficiency (CED). The study was conducted at Montasik Public Health Center, Aceh Besar, from December 2024 to March 10, 2025.

A total of 30 pregnant women in their first and second trimesters with CED were purposively selected from a population of 62 women who visited Montasik Public Health Center in 2024. Participants were assigned into two groups of 15 each. The counseling group received individualized counseling sessions using the MCH Handbook, while the education group participated in group-based health education using the same handbook. Inclusion criteria included being in the first or second trimester, having CED, being physically and mentally healthy, and willing to participate. Women who moved or discontinued visits to the health center were excluded.

Both groups received intervention based on the MCH Handbook (Purbowati et al., 2020). The counseling group attended individual interactive sessions, involving discussions and personalized recommendations according to each participant's nutritional status. The education group received group-based sessions, in which participants were guided to understand the contents of the handbook through explanations and discussions.

Nutritional knowledge was assessed using a validated and reliable questionnaire (Cronbach's $\alpha = 0.674$), covering knowledge on balanced nutrition, food types, and their benefits during pregnancy. Pre-tests were conducted before the intervention, and post-tests were administered immediately afterward. Anthropometric measurements, including height, weight, and mid-upper arm circumference (MUAC), were also collected to describe participants' nutritional status.

Ethical approval was obtained from the Head of Montasik Public Health Center, and all participants provided informed consent. Confidentiality was ensured, and participants had the right to withdraw at any time.

Data were analyzed using SPSS version 20.0. The Shapiro-Wilk test was used to assess

normality due to the small sample size, and all data were normally distributed ($p > 0.05$). Changes in nutritional knowledge within each group before and after the intervention were analyzed using paired t-tests, while comparisons of post-test scores between groups were analyzed using independent t-tests. A p -value ≤ 0.05 was considered statistically significant.

Result and Discussion. Before the implementation of health education, an assessment of pregnant women's baseline knowledge was carried out to identify their level of understanding regarding balanced nutrition during pregnancy. This initial measurement is crucial to provide an overview of the respondents' readiness and to highlight which areas of maternal nutrition were least understood. Table 1 presents the distribution of knowledge categories—poor, moderate, and good—among the respondents prior to the intervention.

Table 1. Knowledge of Pregnant Women in the Health Education Group (Pre-Test).

No	Knowledge Level	Frequency	Percentage
1	Good	0	0
2	Moderate	7	46,7
3	Poor	8	53,3
Total		15	100

As presented in Table 1, more than half of the respondents (53.3%) were categorized as having poor knowledge, while 46.7% had moderate knowledge, and none achieved a good knowledge level. These findings show that, before health education, pregnant women still lacked sufficient understanding, particularly related to balanced dietary composition, identifying protein-rich foods, and the importance of adequate micronutrient intake.

Following the delivery of health education, a post-test was conducted to measure whether there was an improvement in the respondents' knowledge compared to the baseline. This stage is crucial to determine the direct effect of the intervention. Table 2 presents the distribution of knowledge categories after the health education session.

Table 2. Knowledge of Pregnant Women in the Health Education Group (Post-Test).

No	Knowledge Level	Frequency	Percentage
1	Good	6	40,0
2	Moderate	8	53,3
3	Poor	1	6,7
Total		15	100

As shown in Table 2, after receiving health education, 40.0% of respondents reached the good knowledge category, while the majority (53.3%) were in the moderate category, and only 6.7% remained in the poor category. Compared to the pre-test results, there was a clear improvement, with a shift from predominantly poor knowledge to higher proportions in the moderate and good categories. This finding indicates that the health education intervention effectively enhanced maternal understanding, particularly in recognizing balanced dietary patterns, the importance of micronutrients, and strategies for meeting nutritional needs during pregnancy.

Before the counseling intervention using the MCH Handbook, an initial pre-test was conducted to assess respondents' baseline knowledge. This evaluation aimed to identify which aspects of nutrition during pregnancy were already understood and which remained less comprehended. Table 3 presents the knowledge distribution among respondents in the counseling group prior to receiving counseling.

Table 3. Knowledge of Pregnant Women in the Counseling Group (Pre-Test)

No	Knowledge Level	Frequency	Percentage
1	Good	0	0
2	Moderate	5	33,3
3	Poor	10	66,7
Total		15	100

As presented in Table 3, two-thirds of respondents (66.7%) were in the poor knowledge category, while 33.3% were in the moderate category, and none reached the good category. These findings show that, before the intervention, most pregnant women had limited understanding, particularly in areas

such as additional calorie requirements, sources of iron and calcium, and the role of folate in pregnancy.

After receiving counseling with the MCH Handbook, a post-test was conducted to evaluate the improvement in respondents' knowledge compared to their initial baseline. This stage highlights the effectiveness of counseling as an educational approach. Table 4 shows the results of respondents' knowledge levels following the intervention.

Table 4. Knowledge of Pregnant Women in the Counseling Group (Post-Test)

No	Knowledge Level	Frequency	Percentage
1	Good	3	20.0
2	Moderate	5	33,3
3	Poorg	7	46,7
Total		15	100

As shown in Table 4, there was an improvement in knowledge levels after the counseling intervention. Respondents categorized as having good knowledge increased to 20.0%, while those with moderate knowledge remained at 33.3%, and the poor knowledge group decreased to 46.7%. This indicates that counseling using the MCH Handbook had a positive effect, particularly in improving awareness of dietary diversity, micronutrient intake, and safe food choices during pregnancy

To measure the impact of health education, a paired t-test was conducted to compare respondents' average knowledge scores before and after the intervention. Table 5 displays the mean scores, mean difference, and significance level for the health education group.

Table 5. Differences in Knowledge Before and After Health Education

Grup	Knowledge		Mean Difference	Sig
	Pretest Mean	Posttest Mean		
Health Education	13,40	17,20	3,80	0,002

Table 5 shows that the average knowledge score increased from 13.40 before the intervention to 17.20 after, with a mean difference of 3.80. The paired t-test yielded a p-

value of 0.002 ($p < 0.05$), indicating a statistically significant improvement. This confirms that health education was effective in raising pregnant women's nutritional knowledge.

Similarly, to assess the effect of counseling, a paired t-test was performed for the MCH Handbook group. Table 6 presents the results, including the mean scores before and after the intervention.

Table 6. Differences in Knowledge Before and After Counseling

Grup	Knowledge		Mean Difference	Sig
	Pretest Mean	Posttest Mean		
Counseling	13,20	16,00	2,80	0,044

As shown in Table 6, the average score increased from 13.20 before counseling to 16.00 after counseling, with a mean difference of 2.80. The paired t-test yielded a p-value of 0.044 ($p < 0.05$), indicating that counseling using the MCH Handbook also resulted in a statistically significant improvement in knowledge. Finally, a comparative analysis was performed to identify which intervention—health education or counseling with the MCH Handbook—was more effective in improving knowledge. Table 7 presents the mean differences and statistical significance of the comparison.

Table 7. Differences in Knowledge Between Health Education and Counseling Groups

Grup	Knowledge		Mean Difference	Sig
	Health education mean	Counseling mean		
Health education and counseling using handbook	3,80	2,60	1,20	0,002

As shown in Table 7, the mean difference in knowledge improvement was higher in the health education group (3.80) compared to the counseling group (2.60). The difference between the two interventions was 1.20, with a p-value of 0.002, indicating that health education was statistically more effective in

improving pregnant women's knowledge than counseling with the MCH Handbook.

Knowledge of Respondents Before and After Health Education and Counseling Using the KIA Handbook. Based on the research conducted, there appears to be a difference in the effectiveness level between direct health education and education using the KIA Handbook in increasing pregnant women's knowledge regarding nutritional needs during pregnancy,

In the group that received health education, there was a significant improvement in knowledge. Before the education session, none of the respondents had good knowledge. The majority (53.3%) were in the poor category, and the rest (46.7%) were in the moderate category. After the intervention, 40.0% of respondents moved into the good knowledge category, while those in the poor category decreased to just 6.7%. This result shows that direct, face-to-face health education is highly effective in enhancing pregnant women's understanding, due to its interactive delivery and opportunities for discussion and direct questions.

These findings are consistent with a study by Lestari et al. (2020), which stated that direct nutritional education significantly increases knowledge, especially when delivered in a language that is easy to understand and supported by relevant media. Furthermore, Zaki (2021) found that nutritional education is one of the specific nutrition interventions that can contribute up to 30% toward improving community nutritional status, including among pregnant women.

Meanwhile, the group that received education using the KIA Handbook also showed improvement, but not as substantial as the health education group. Before the intervention, 66.7% of respondents were in the poor knowledge category and 33.3% in the moderate category. Afterward, those with good knowledge increased to 20.0%, while those in the poor category remained relatively high at 46.7%. This indicates that while the KIA

Handbook as an independent learning medium positively influences knowledge, its effectiveness is limited. These limitations may be due to differences in literacy levels, reading motivation, and individuals' ability to comprehend the content.

These findings are supported by research from Ridwan et al. (2021), which showed that media-based nutrition education, such as the KIA Handbook, can gradually improve maternal knowledge. However, this improvement strongly depends on the intensity of use and the mother's ability to understand the content (Latifah et al., 2024). Additionally, research by Andriani & Fitriani (2019) also suggested that the effectiveness of the KIA Handbook increases when accompanied by direct explanations from healthcare providers.

Thus, it can be concluded that health education is more effective in increasing the knowledge of pregnant women than the independent use of the KIA Handbook. However, a combination of direct health education and the use of the KIA Handbook as a supporting medium may serve as a more optimal educational strategy to enhance maternal awareness and understanding of the importance of nutritional fulfillment. This strategy is also in line with the government's efforts to reduce stunting starting from pregnancy.

Differences in Knowledge Before and After Health Education. Based on the data analysis conducted, it was found that the average knowledge score of pregnant women before receiving health education was 13.40 and increased to 17.20 after the intervention. The mean difference between pre-test and post-test scores was 3.80 points. The results of the paired t-test showed a p-value of 0.002, indicating a statistically significant difference in knowledge before and after health education.

The researcher assumes that this increase in knowledge is due to the health education session, which allowed for the clear and direct delivery of information to pregnant women. This process enabled two-way communication

between healthcare providers and mothers, making the information easier to understand, accept, and remember. During the session, pregnant women also had the opportunity to ask questions relevant to their own conditions, leading to improved individual understanding (Lestari & Wijaya, 2020).

A study by Purwaningrum (2017) confirmed that direct health education plays an important role in improving pregnant women's knowledge about nutrition during pregnancy. Similarly, Retnaningtyas et al. (2022) demonstrated that interactive health education significantly enhances maternal understanding of necessary nutritional intake for the health of both mother and baby.

This is also supported by a study from Fitrianingtyas et al. (2018), which found that health education has a positive relationship with knowledge improvement, where more frequent exposure to education results in higher knowledge levels. Wulandari et al. (2020) also supported this by stating that participatory education methods involving active engagement of participants are proven to be effective in enhancing understanding of maternal health issues.

In conclusion, health education is an effective educational method for improving pregnant women's knowledge about nutritional fulfillment. This intervention should be implemented regularly and continuously as part of maternal health services to support healthy pregnancies and optimal preparation for childbirth and child development.

Differences in Knowledge Before and After Education Using the KIA Handbook. Based on the results of the study, a significant increase in knowledge was found among pregnant women after being given education using the KIA Handbook. The average knowledge score increased from 13.20 before the intervention to 16.00 afterward, with a mean difference of 2.80 points. The paired t-test yielded a p-value of 0.044, indicating a statistically significant improvement in knowledge following the educational

intervention. The researcher assumes that the increase in knowledge was influenced by the educational approach used (Pranoto, 2024).

Education using the KIA Handbook can enhance attention and understanding of the information delivered. The KIA Handbook not only functions as a health recording tool, but also serves as an accessible and comprehensible source of information for pregnant women, especially concerning nutritional needs during pregnancy (Sudargo et al., 2018).

These findings are in line with research conducted by Ayu (2019), which showed that delivering education through the KIA Handbook significantly improved pregnant women's knowledge about nutrition during pregnancy. Additionally, Ainiyah (2017) found that the KIA Handbook is effective as an educational medium due to its attractive design and easily understandable content.

Ayu (2019) also emphasized that print-based education, such as that provided through the KIA Handbook, can encourage improved maternal understanding of important pregnancy-related issues, including nutrition.

From these results, it can be concluded that health education using the KIA Handbook is an effective educational strategy for increasing pregnant women's knowledge regarding nutritional fulfillment during pregnancy. This approach should continue to be developed and integrated into maternal health service programs, as it has proven to support healthy and safe pregnancies through improved maternal awareness of adequate nutritional intake.

Differences in Knowledge Between the Health Education Group and the Counseling Group Using the KIA Handbook. Based on the data analysis, it was found that there was a difference in knowledge levels between the two groups of pregnant women. The mean pre-test and post-test difference in the health education group was 3.80, while in the counseling group using the KIA Handbook, it was 2.60, with a difference of

1.20 points and a p-value of 0.002. This indicates that a single session of health education was more effective in increasing pregnant women's knowledge than counseling using the KIA Handbook.

The researcher assumes that the greater increase in knowledge among the health education group is due to the direct and interactive nature of the method. Health education allows for two-way communication between healthcare providers and pregnant women, making the information easier to understand, remember, and apply. It also provides opportunities for mothers to ask questions about issues they do not fully understand, resulting in a more personalized and in-depth understanding (Sudargo et al., 2018).

Meanwhile, although education using the KIA Handbook is also effective, this approach tends to be more passive, relying on the mother's initiative to read and understand the material independently. The knowledge gained may be limited if the mother has low health literacy or lacks interest in reading.

The adult learning theory (andragogy) developed by Malcolm Knowles states that adults, including pregnant women, learn more effectively when they are actively involved in the learning process and when the material presented is relevant to their personal needs and experiences. Health education, as a participatory learning method, aligns well with this principle because it involves direct discussion and contextual information delivery.

This finding is supported by Purwaningrum (2017), who showed that direct health education plays an important role in improving pregnant women's knowledge about nutrition during pregnancy. Additionally, research by Retnaningtyas et al. (2022) confirms that interactive education significantly enhances maternal understanding of nutritional information.

Although education through printed media is also effective, studies by Ayu (2019) and Ainiyah (2017) indicate that the effectiveness of the KIA Handbook is strongly influenced by the

active engagement of pregnant women in reading and comprehending its content. While the KIA Handbook is an informative and practical medium, its use requires strong motivation and adequate reading ability.

Based on the research findings, both health education and counseling using the KIA Handbook are effective in increasing pregnant women's knowledge about pregnancy nutrition. However, health education is superior in terms of effectiveness. This is evident from the smaller p-value (0.002) and is supported by theories and previous studies that show interactive education produces more optimal outcomes in knowledge improvement. Therefore, health education should be the primary method used in maternal nutrition education programs at healthcare facilities, while the KIA Handbook can continue to serve as a complementary tool for self-learning.

Conclusion and Suggestions. This study aimed to determine the effectiveness of health education and counseling using the KIA Handbook in improving pregnant women's knowledge regarding the fulfillment of nutritional needs. The results showed a significant increase in knowledge after the intervention, with the group that received health education demonstrating a greater improvement compared to the group that received counseling. These findings provide scientific justification that structured health education is more effective in delivering information and enhancing pregnant women's understanding, particularly regarding the importance of nutrition during pregnancy. The KIA Handbook has proven to be a valuable educational tool that can be optimally utilized to support the learning process of pregnant women. Therefore, in midwifery practice, it is strongly recommended that healthcare providers actively use the KIA Handbook as an educational medium and consider implementing ongoing interactive health education approaches to improve maternal health literacy. This practice may also serve as

a model for developing future maternal health promotion programs.

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References

- Ainiyah, N. H. (2017). *Hubungan pemanfaatan buku kesehatan ibu dan anak (KIA) dengan tingkat pengetahuan dan perilaku kesehatan ibu hamil trimester III di Puskesmas Jagir Surabaya Universitas Aisyiyah Yogyakarta*.
- Abu-Baker, N. N., Abusbaitan, H.A., Al-Ashram, S. A., & Alshraifeen, A. (2021). The effect of health education on dietary knowledge and practices of pregnant women in Jordan: A Quasi-experimental study. *International journal of women's health*, 13(101531698), 433–443. 10.2147/IJWH.S303568
- Arifah, D. F., & Mudlikah, S. (2024). Paritas Dan Usia Ibu Dengan Anemia Kehamilan Di Puskesmas Nelayan Kabupaten Gresik. *Jurnal Kebidanan*, 45-55.
- Ayu, M. S. (2019). Efektivitas Pemanfaatan Buku Kesehatan Ibu Dan Anak Sebagai Media Komunikasi, Edukasi Dan Informasi. *Jurnal Kedokteran Ibnu Nafis*, 8(2), 9-17.
- Dewi, R., Dewi, M. K., & Mardiyah, M. S. (2024). Hubungan Dukungan Keluarga, Pola Makan dan Budaya dengan Kejadian Anemia pada Ibu Hamil. *Jurnal Penelitian Perawat Profesional*, 6(5), 2197-2206.
- Demilew, Y. M., Alene, G. D., & Belachew, T. (2020). Effect of guided counseling on dietary practices of pregnant women in West Gojjam Zone, Ethiopia. *PLoS One*, 15(5), e0233429. 10.1371/journal.pone.0233429
- Fety, Y., Mulyani, S., Lisnawati, L., & Aprianti, R. (2023). Pengetahuan Ibu Post Partum dengan Pantang Makanan Selama Masa Nifas. *Journal of Telenursing (JOTING)*, 5(2), 2244-2250.
- Fitrianiingtyas, I., Pertiwi, F. D., & Rachmania, W. (2018). Faktor-Faktor yang berhubungan dengan kejadian kurang energi kronis (KEK) pada ibu hamil di Puskesmas Warung Jambu Kota Bogor. *Hearty*, 6(2).
- Hariyani, S. D. F., Hermayanti, Y., Yamin, A., Lukman, M., & Solehati, T. (2024). Gambaran Kebiasaan Pola Makan pada Ibu Hamil dengan Kekurangan Energi Kronis (KEK). *Journal of Telenursing (JOTING)*, 6(1), 534-542.
- Hesti, N., Syofiah, P. N., Muthia, G., & Sunesni, S. (2024). Peningkatan Pengetahuan Ibu Nifas melalui Edukasi Kebutuhan Gizi pada Masa Nifas. *Jurnal Pustaka Mitra (Pusat Akses Kajian Mengabdikan Terhadap Masyarakat)*, 4(1), 13-17.
- Latifah, N., Yanti, S. I., Rahmansyah, N., & Sulistiyani, D. (2024). Sosialisasi Pencegahan Stunting Dengan Media Edukasi Pada Anak Sekolah Dasar Di Kelurahan Sukarasa. *PROFICIO*, 5(1), 229-236.
- Lestari, W. A. P., & Wijaya, S. (2020). Literature Riview: Status Gizi Dan Kepatuhan Dalam Mengonsumsi Tablet Tambah Darah Dengan Kejadian Anemia Pada Ibu Hamil. *Prosiding National Conference For Ummah*,
- Munir, R., Zahra, N. A., Rahmawati, A., Luthfiyah, N. A., Nurania, S., & Mulyadi, Y. (2024). Edukasi Pola Makan Ibu Hamil Untuk Mencegah Hipertensi Dalam Kehamilan Di Rw 06 Desa Sirnagalih. *Nusantara Jurnal Pengabdian Kepada Masyarakat*, 4(2), 35-41.
- Nuraeni, I., Novryanthi, D., & Mustopa, S. (2024). Hubungan Pola Makan Dengan Kejadian Anemia Pada Ibu Hamil Di Wilayah Kerja Puskesmas Nanggaleng Kota Sukabumi. *Jurnal Ilmu Kedokteran*

- dan Kesehatan Indonesia*, 4(1), 130-148.
- Pertiwi, S. L. (2024). Kebutuhan nutrisi. *Teknologi Pengolahan Pakan Ternak: Teori dan Praktek*, 11.
- Pranoto, H. H. (2024). Upaya Peningkatan Kesadaran Gizi Ibu Nifas Melalui Pendidikan Kesehatan pada Ibu Post Partum. *Indonesian Journal Of Community Empowerment (IJCE)*, 6(1), 58-63.
- Purwaningrum, Y. (2017). Pengetahuan Ibu Hamil Tentang Gizi Dengan Kejadian Anemia Selama Kehamilan. *Jurnal Kesehatan*, 5(2), 88-93.
- Purbowati, N., Sari, D.N., Masitoh, N. (2020). Effectiveness of Counseling Using MCH Handbook 2017^{ed} to The Knowledge and Attitudes of Mothers About Monitoring Toddler Growth. *Jurnal Ilmu Dan Teknologi Kesehatan*, 7(20), 163-171. <https://doi.org/10.32668/jitek.v7i2.319>
- Retnaningtyas, E., Kartikawati, E., & Nilawati, D. (2022). Upaya peningkatan pengetahuan ibu hamil melalui edukasi mengenai kebutuhan nutrisi ibu hamil. *ADI Pengabdian Kepada Masyarakat*, 2(2), 19-24.
- Seran, A. A., Huru, M. M., Angraeningsih, N. L. M. D. P., & Al-Tadom, N. (2024). Tradisi Empat Puluh Hari Masa Nifas: Praktik Budaya Pasca melahirkan di Pulau Timor, Nusa Tenggara Timur. *Optimal Midwife Journal*, 46-58.
- Sudargo, T., Freitag, H., Kusmayanti, N. A., & Rosiyani, F. (2018). *Pola makan dan obesitas*. UGM press.