

THE EFFECT OF EDUCATION ON IMPROVING PREGNANT WOMEN'S KNOWLEDGE ABOUT INTEGRATED ANC AT SADAR JAYA PUBLIC HEALTH CENTER, SIAK KECIL DISTRICT, BENGKALIS REGENCY

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Abstract

Maternal health services must meet the minimum frequency of pregnancy check-ups. In 2024, the coverage of ANC visits at the Sadar Jaya Community Health Center, Siak Kecil District, Bengkalis Regency, was 87.2% of the target of 90%. One of the contributing factors was the lack of implementation of an integrated ANC program for pregnant women. This study aims to determine the effect of education on increasing pregnant women's knowledge about integrated ANC. This study was a pre-experimental study. The population was all pregnant women in their first trimester in May 2026, totaling 40 people, with a sample size of 37 people. simple random sampling. Data analysis using t-test. The results of the study showed that the knowledge of pregnant women before education about integrated ANC was mostly (54.1%) with sufficient knowledge. The knowledge of pregnant women after education about integrated ANC was mostly (62.2%) with good knowledge. The effect of education on increasing the knowledge of pregnant women about integrated ANC with a p value of $0.000 < 0.05$. Therefore, it is hoped that community health centers will improve knowledge and understanding, especially in providing services to pregnant women about integrated ANC.

Keywords: Education, Knowledge, Pregnant women, Integrated ANC

INTRODUCTION

Pregnancy is a natural process that every woman experiences. The gestation period to term is 280 to 300 days, or 39 to 40 weeks, during which time pregnant women require proper monitoring. Physiological changes during pregnancy, labor, postpartum, and neonatal period can at any time become pathological. This arises from many influencing factors, both the health of the mother/baby themselves and external factors, including support factors for the mother. Any pathological condition during pregnancy, labor, postpartum, and neonatal period, before an emergency occurs, will show danger signs of the problem, which, if recognized early, can save the lives of the mother and baby (Walyani, 2020).

According to the World Health Organization (WHO), a maternal death occurred almost every two minutes in 2020. In the same year, approximately 800 pregnant women died every day from preventable causes. Approximately 287,000 women died during and after pregnancy and childbirth. Ninety-five percent of all maternal deaths occur in low- and lower-middle-income countries, and most of these deaths could have been prevented through antenatal care (ANC) checkups.

MMR and IMR are indicators of a country's health. These figures are often used as a benchmark for assessing indicators not only in the health sector but also in the economic, social, and environmental sectors of a country. Indonesia's MMR ranks second in Southeast Asia after Laos and has the highest IMR, at 4.6 times higher than Malaysia, 1.3 times higher than the Philippines, and 1.8 times higher than Thailand. Based on data from the Maternal Perinatal Death Notification (MPDN) application, the Ministry of Health's maternal and infant mortality recording system, the MMR in Indonesia reached 4,000 in 2022 and increased

to 4,129 in 2023. Several factors contributing to the high mortality rate in Indonesia include delays in diagnosis and delays in referrals to health facilities with adequate facilities and infrastructure. Delays in detecting emergencies in pregnant women are one of the largest contributors to MMR (Ministry of Health, 2023).

ANC service coverage in Indonesia tends to fluctuate, indicating that ANC services have not been optimally implemented. In 2020, K4 coverage was 84.6%, 88.8% in 2021, 86.2% in 2022, and 86.6% in 2023. Similarly, K6 service coverage in 2023 only reached 74.4%, a figure still far from the set target (Ministry of Health, 2023). Data from the 2023 Indonesian Health Profile shows that the percentage of K4 in Riau Province is 88.7%. This coverage is a decrease from the previous year, where K4 coverage was 89.11% in 2022 (Riau Provincial Health Office, 2023). Meanwhile, at the Sadar Jaya Community Health Center in Siak Kecil District, Bengkalis Regency, ANC coverage reached 87.2% of the 90% target in 2024. Several factors contributed to the failure to achieve the target, including encouraging pregnant women to monitor their pregnancies at existing health care facilities and the lack of an integrated ANC program for pregnant women.

Based on a preliminary study conducted on January 6, 2026, at the Sadar Jaya Community Health Center, Siak Kecil District, Bengkalis Regency, a total of 10 pregnant women (100%) had never received education about integrated ANC. Of the 10 mothers who had never received education, all (100%) had not undergone an integrated ANC examination and this was their first visit to the community health center (previously they had had an examination at a nearby clinic).

The main factor influencing pregnant women's ANC visits is knowledge (Citrawati & Laksmi, 2021). Knowledge is an essential domain in changing individual behavior, including pregnant women's ability to undergo quality antenatal care (ANC). Pregnant women can receive quality ANC services when they understand the benefits of ANC during pregnancy. Increasing knowledge through health education makes a strong contribution to the attitudes and decisions made by individuals. The higher the level of pregnant women's knowledge about ANC, the stronger their tendency to develop positive attitudes and behaviors toward undergoing ANC. Health education is a process that bridges the gap between health information and health practices, motivating individuals to obtain information and maintain better health by avoiding harmful habits and developing beneficial health behaviors (Mahmud et al., 2023).

Counseling or Communication, Information, and Education (CIE) is conducted to facilitate community access to information regarding contraceptive methods that may be used. In the implementation of CIE, various media can be utilized, and the appropriateness of the selected media influences the effectiveness of the CIE process. Leaflets are one of the media commonly used in health education, consisting of folded sheets containing extensive health-related information that can support the implementation of health counseling (BKKBN, 2021).

A leaflet is a medium consisting of a sheet of paper containing images and written information, generally with more text, printed on both sides and folded into a small and practical format. An A4-sized sheet is commonly folded into three sections. This medium presents ideas directly to the main point and briefly explains how to perform a particular action. A leaflet is a small sheet of paper containing printed messages intended for public distribution as information about a particular subject or event. According to the Merriam-Webster Dictionary, a leaflet is a printed sheet, usually folded, intended for distribution. Leaflets have generally been used by companies to advertise or disseminate information about their products, thereby attracting public interest in the products offered by the company (Bernadetha, 2020).

The maternal health care program provided must include an integrated Antenatal Care (ANC) examination that covers 10 services. Maternal health services must meet a minimum frequency of six prenatal check-ups and two doctor's examinations. These examinations aim to ensure protection for pregnant women and fetuses through early detection of risk factors, prevention, and early treatment of pregnancy complications. Examination is carried out at least twice in the first trimester (gestational age 0-12 weeks), once in the second trimester (gestational age 12-24 weeks), and three times in the third trimester (gestational age 24 weeks - before delivery) (Ministry of Health of the Republic of Indonesia, 2022).

This aligns with research conducted by Isnaini (2022) on the importance of ANC education as a way to improve maternal health. The average post-test score for participants (82.5) was higher than the pre-test score (60.5). The post-test results from the webinar participants indicated that the material was well-received.

Furthermore, according to research conducted by Mariani (2024), regarding the role of ANC education in improving the health of pregnant women at the Kawatuna Community Health Center, Palu, the results showed that 63.3% of respondents had good knowledge about ANC. Data analysis showed no correlation between pregnant women's knowledge and age ($p = 0.865$), education ($p = 0.265$), occupation ($p = 0.265$), and parity ($p = 0.724$).

Poor ANC services that are not implemented in sufficient quantity and quality will result in low monitoring of the health of pregnant women, so that health problems during pregnancy cannot be detected early, resulting in pregnant women being late in receiving appropriate prenatal care according to the health problems experienced. This will put the life of the mother and even the fetus at risk. Maternal and infant deaths can occur if high-risk pregnancies and complications during pregnancy are not identified early. Based on the description above, the author is interested in conducting research on the effect of education on increasing pregnant women's knowledge about integrated ANC at the Sadar Jaya Community Health Center, Siak Kecil District, Bengkalis Regency.

METHOD

This study was a pre-experimental study. Pre-experimental research is systematic, logical, and thorough in controlling conditions. This study analyzed the effect of education on improving pregnant women's knowledge about integrated ANC at the Sadar Jaya Community Health Center, Siak Kecil District, Bengkalis Regency.

The study began in May 2026 and was conducted at the Sadar Jaya Community Health Center, Siak Kecil District, Bengkalis Regency. The population of this study was all pregnant women in their first trimester at the Sadar Jaya Community Health Center, Siak Kecil District, Bengkalis Regency in May 2026, with a total of 40. The sample size was 37 people, with the sampling technique used: simple random sampling. Independent variable: counseling and dependent variable: knowledge of pregnant women in the first trimester about integrated ANC. The research instruments used questionnaires and leaflets, while data collection used primary data. Statistical testing was carried out using a paired sample T-test with the help of a computer program, at a significance level of 0.05 or a margin of error (5%).

RESULTS AND DISCUSSION

Univariate Analysis

1. Respondent Characteristics Based on Age

Table 1. Frequency distribution of age First trimester pregnant women at Sadar Jaya Health Center, Siak Kecil District, Bengkalis Regency in May 2026

Age	Frequency	Percentage (%)
<20	1	2.7
20-35	22	59.5
>35	14	37.8
Total	37	100

(Source: Primary Research Data, 2026)

Based on table 1, it can be seen that the majority (59.5%) of respondents are in the 20-35 year age group.

2. Respondent Characteristics Based on Education

Table 2. Distribution of frequency education First trimester pregnant women at Sadar Jaya Health Center, Siak Kecil District, Bengkalis Regency in May 2026

Education	Frequency	Percentage (%)
Base	12	32.4
Intermediate	23	62.2
Tall	2	5.4
Total	37	100

(Source: Primary Research Data, 2026)

Based on table 2, it can be seen that the majority (62.2%) of respondents have secondary education.

3. Respondent Characteristics Based on Occupation.

Table 3. Distribution of job frequency First trimester pregnant women at Sadar Jaya Health Center, Siak Kecil District, Bengkalis Regency in May 2026

Work	Frequency	Percentage (%)
Work	17	45.9
Doesn't work	20	54.1
Total	37	100

(Source: Primary Research Data, 2026)

Based on Table 3, it can be seen that the majority (54.1%) of respondents are not working.

4. Respondent Characteristics Based on Parity

Table 4 Frequency distribution parity First trimester pregnant women at Sadar Jaya Health Center, Siak Kecil District, Bengkalis Regency in May 2026

Parity	Frequency	Percentage (%)
Primipara	28	75.7
Multipara	8	21.6
Grandemulti	1	2.7
Total	37	100

(Source: Primary Research Data, 2026)

Based on Table 4, it can be seen that the majority (75.7%) of respondents were primiparous.

5. Respondent characteristics based on knowledge before being given education

Table 5 Frequency distribution of knowledge before education First trimester pregnant women regarding integrated ANC at Sadar Jaya Health Center, Siak Kecil District, Bengkalis Regency in May 2026

Prior Knowledge	Frequency	Percentage (%)
Good	3	8.1
Enough	20	54.1
Not enough	14	37.8
Total	37	100

(Source: Primary Research Data, 2026)

Based on Table 5, it can be seen that the majority (57.2%) of respondents have sufficient knowledge.

6. Respondent characteristics based on knowledge after being given education

Table 6 Frequency distribution knowledge after education First trimester pregnant women regarding integrated ANC at Sadar Jaya Health Center, Siak Kecil District, Bengkalis Regency in May 2026

After Knowledge	Frequency	Percentage (%)
Good	23	62.2
Enough	14	37.8
Not enough	0	0
Total	37	100

(Source: Primary Research Data, 2026)

Based on Table 6, it can be seen that the majority (62.2%) of respondents had good knowledge after being given education.

Bivariate Analysis

1. The influence of education on increasing pregnant women's knowledge about integrated ANC

Table 7 PinfluenceEducation to increase pregnant women's knowledge about integrated ANC at the Sadar Jaya Community Health Center, Siak Kecil District, Bengkalis Regency in May 2026

Variables	Knowledge after						Total	
	Good		Enoug h		Not eno ugh			
Before	F	%	f	%	f	%	F	%
Good	3	100	0	0	0	0	3	100
Enoug h	20	100	0	0	0	0	20	100

Not			1	1					
enoug	0	0	4	0	14	0	14	100	
h				0					

From table 7 above, it can be seen that the cross tabulation showed that knowledge before being given counseling was good and after being given counseling was good for 3 respondents (100).%). Knowledge before being given counseling was sufficient and after being given counseling was good for 20 respondents (100).%). Knowledge before being given counseling was lacking and after being given counseling was sufficient for 14 respondents (100).%).

2. T-Test

Table 8 T-Test

	Knowledge after	Statistics	df	Significatio n
Prior	Good	.637	23	.000
knowledge	Enough	.418	14	.000

From the results of statistical tests with the help of a computer program, the p value was $0.000 < 0.05$, so there was an influence of education on increasing the knowledge of pregnant women about integrated ANC at the Sadar Jaya Community Health Center, Siak Kecil District, Bengkalis Regency.

Discussion

1. Level of knowledge of pregnant women in the first trimester about integrated ANC before education

Of the 37 respondents surveyed, the majority (54.1%) had sufficient knowledge. This is because the majority (62.2%) of respondents had secondary education. Therefore, educational level will influence pregnant women's understanding of integrated ANC.

According to Notoatmodjo (2018), knowledge can be influenced by many factors, one of which is education level. The higher a person's education, the greater their knowledge, and vice versa.

According to research conducted by Damayanti (2020), it also shows that mothers with high knowledge are more likely to undergo ANC examinations as recommended.

Several factors contribute to the lack of ANC visits, including age, education, parity, income, and distance (Ministry of Health, 2020). If a pregnant woman is more knowledgeable about high-risk pregnancies, she is more likely to consider her attitudes and behaviors to prevent, avoid, or address these risks. Furthermore, she is more aware of the importance of attending ANC visits for pregnancy check-ups, so that any risks during pregnancy can be addressed early and appropriately by healthcare professionals.

From the research results above, it can be concluded that a pregnant woman's educational level influences her knowledge of integrated ANC. Therefore, a good understanding of integrated ANC will influence her attitude toward utilizing available health services. Mothers with sufficient knowledge will be more aware of the importance of scheduled prenatal visits, thus minimizing the risk of pregnancy complications.

2. Level of knowledge of pregnant women in the first trimester regarding integrated ANC after education

Of the 37 respondents surveyed, the majority (62.2%) had good knowledge. This is because the majority (59.5%) of respondents were in the 20-35 age group. Therefore, their relatively young age may mean they have lower emotional intelligence compared to adults, especially regarding their understanding of integrated ANC.

According to Notoatmodjo (2018), mothers in the early adulthood age group (20-35 years old) tend to behave well. This is because this age group is considered mature, with mature thinking, extensive experience, and decision-making skills. The more mature a person is, the more life experience they have

and the easier it is to accept behavioral changes.

From the research results above, it can be concluded that the age of the pregnant woman influences her knowledge of integrated ANC after education. Therefore, the more productive the pregnant woman's age, the easier it is for her to absorb information about integrated ANC. Therefore, even with insufficient knowledge, and in early and late adulthood, education should continue to be provided to increase their knowledge of integrated ANC.

3. The influence of education on increasing pregnant women's knowledge about integrated ANC

That from 37 respondents in the cross tabulation, it was found that knowledge before being given counseling was good and after being given counseling was good for 3 respondents (100.%). Knowledge before being given counseling was sufficient and after being given counseling was good for 20 respondents (100.%). Knowledge before being given counseling was lacking and after being given counseling was sufficient for 14 respondents (100.%).

From the results of statistical tests with the help of a computer program, the p value was $0.000 < 0.05$, so there was an influence of education on increasing the knowledge of pregnant women about integrated ANC at the Sadar Jaya Community Health Center, Siak Kecil District, Bengkalis Regency.

This aligns with research conducted by Isnaini (2022) on the importance of ANC education as a way to improve maternal health. The average post-test score for participants (82.5) was higher than the pre-test score (60.5). The post-test results from the webinar participants indicated that the material was well-received.

Furthermore, according to research conducted by Mariani (2024), regarding the role of ANC education in improving the health of pregnant women at the Kawatuna Community Health Center, Palu, the results showed that 63.3% of respondents had good knowledge about ANC. Data analysis showed no correlation between pregnant women's knowledge and age ($p = 0.865$), education ($p = 0.265$), occupation ($p = 0.265$), and parity ($p = 0.724$).

Poor ANC services that are not provided in sufficient quantity and quality will result in poor monitoring of pregnant women's health, leading to early detection of health problems during pregnancy. This delays the mother's access to appropriate prenatal care, which can endanger the life of both the mother and the fetus.

This is in accordance with Notoatmodjo's (2018) opinion, the counseling method carried out by health center officers is adjusted to the target behavioral elements to be changed, whether elements of knowledge, attitudes, or actions. The most common counseling methods used by health center officers to increase knowledge are lectures and question and answer methods. Media is very necessary in the implementation of health promotion because media can facilitate the delivery of information and can avoid misperceptions. The use of leaflets, posters, films and PowerPoint are examples of media that are commonly used and are expected to attract the public and are able to foster healthy living behaviors. Leaflets are a form of conveying information or health messages through folded sheets, the content of the information can be in the form of sentences or images, or a combination of both. Leaflet media has the advantage of being able to adapt to the community's independent learning, the community can view the content more relaxed, and information can be shared with family and neighbors (Notoatmodjo, 2018).

Counseling is an educational activity carried out by disseminating messages and instilling confidence, so that the community is not only aware, knowledgeable, and understands, but also willing and able to carry out health-related recommendations, whether carried out individually, in groups, or as a whole. Similarly, increasing knowledge about integrated ANC can be achieved by distributing leaflets as a means of conveying information.

CONCLUSION

Based on the results of research and data analysis on the influence of education on increasing knowledge of pregnant women about integrated ANC at the Sadar Jaya Community Health Center, Siak Kecil District, Bengkalis Regency, the following conclusions are drawn:

1. The knowledge of pregnant women in the first trimester before education about integrated ANC at the Sadar Jaya Community Health Center, Siak Kecil District, Bengkalis Regency, the majority (54.1%) had sufficient knowledge.
2. Knowledge of pregnant women in the first trimester after education about integrated ANC at the Sadar Jaya Community Health Center, Siak Kecil District, Bengkalis Regency, the majority (62.2%) had good knowledge.
3. The effect of education on increasing pregnant women's knowledge about integrated ANC at the Sadar Jaya Community Health Center, Siak Kecil District, Bengkalis Regency, with a p value of $0.000 < 0.05$.

Suggestion

1. For Respondents

It is hoped that this will increase the understanding of pregnant women in the first trimester regarding integrated ANC, so that they can prevent complications during pregnancy and childbirth.

2. For Institutions

It is hoped that it can improve students' understanding by adding topics to the course that are appropriate for integrated ANC in pregnant women in the first trimester so that it can improve students' knowledge about integrated ANC.

3. For Community Health Centers

It is hoped that this will increase knowledge and understanding, especially in providing integrated ANC services to pregnant women in the first trimester at the Sadar Jaya Community Health Center, Siak Kecil District, Bengkalis Regency.

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