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The Effect of Counseling on Discomfort During Pregnancy on Mothers' Knowledge of Changes in Pregnant Women at the Mother Health Center

Nadira Katim[1*], Reny Retnaningsih[2]
[1]Midwifery Undergraduate Program, Faculty of Health Sciences, Institut Sains dan Teknologi Kesehatan Dr. Soepraoen, Malang
[2]Bachelor of Midwifery Program, Faculty of Health Sciences, Institut Sains dan Teknologi Kesehatan Dr. Soepraoen, Malang

*Penulis Korespondensi: renyretna@itsk-soepraoen.ac.id**

Abstract. *Discomfort during pregnancy is a common experience resulting from physical, physiological, and psychological changes, yet it is often not well understood by pregnant women. Limited knowledge about normal bodily changes and pregnancy-related discomfort can reduce maternal comfort and increase anxiety. Counseling serves as an important educational strategy to improve pregnant women's understanding, particularly within antenatal care services at primary health care facilities. This study aimed to examine the effect of counseling on pregnancy discomfort in improving mothers' knowledge about changes during pregnancy. A quasi-experimental design with a one-group pretest–posttest approach was employed. The sample consisted of 50 pregnant women selected using a total sampling technique. Mothers' knowledge levels were assessed before and after the counseling intervention using a structured questionnaire. Data analysis included univariate analysis to describe the distribution of knowledge levels and bivariate analysis using the Wilcoxon Signed Rank Test to evaluate differences before and after the intervention. The findings demonstrated a notable increase in knowledge following counseling, indicated by a shift from predominantly poor and moderate knowledge levels in the pretest to good knowledge in the posttest. Statistical analysis revealed a significant difference between pretest and posttest results ($p < 0.05$). In conclusion, counseling significantly improves pregnant women's knowledge regarding pregnancy-related changes and discomfort.*

Keywords: *Antenatal care; Counseling; Pregnancy counseling; Pregnancy discomfort; Pregnant women's knowledge*

1. INTRODUCTION

Pregnancy is a physiological process accompanied by various physical, physiological, and psychological changes in women. These changes often cause discomfort such as nausea and vomiting, back pain, heartburn, constipation, sleep disturbances, varicose veins, and fatigue, the intensity of which can vary between individuals and between trimesters. Although most of these complaints are normal, discomfort that is not understood and not properly addressed can reduce the quality of life of pregnant women, affect their daily activities, and increase anxiety during pregnancy (Garg et al., 2015; Chang et al., 2016). Population studies show that more than half of pregnant women experience one or more discomforts that have a significant impact on physical and psychological functioning, especially in the second and third trimesters (Skouteris et al., 2018).

Globally, the World Health Organization (WHO) emphasizes the importance of antenatal care that not only focuses on preventing complications but also on achieving *a positive pregnancy experience*, or a " " which is a condition where pregnant women feel safe, informed, supported, and able to adapt to pregnancy changes (WHO, 2016; WHO, 2020).

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Within this framework, education and counseling are essential components of antenatal care (ANC), as they play a role in improving maternal health literacy, strengthening adaptive abilities, and helping mothers distinguish between normal pregnancy changes and danger signs that require medical attention. The WHO explicitly recommends effective communication and ongoing counseling as an integral part of mother-centered ANC services (Tunçalp et al., 2017). In Indonesia, improving the quality of ANC remains a challenge. National data show that although the coverage of early ANC visits is relatively high, the quality and completeness of ANC components, including education and counseling, are not always optimal and uniform (Indonesian Ministry of Health, 2018; Indonesian Ministry of Health, 2023). Several reports indicate that pregnant women often receive limited and general information, resulting in an inadequate understanding of bodily changes and discomforts during pregnancy (Rahayu et al., 2020). This condition can cause mothers to normalize complaints that should be managed or, conversely, feel overly anxious about physiological changes that are actually normal.

From the perspective of health behavior theory, knowledge is an important initial determinant in the formation of health attitudes and behaviors. The *Knowledge–Attitude–Practice* (KAP) model explains that increased knowledge will influence positive attitudes, which in turn encourage more adaptive health practices (Launiala, 2009). In the context of pregnancy, adequate knowledge about bodily changes and discomfort enables mothers to employ appropriate coping strategies, utilize health services optimally, and improve compliance with health professional recommendations (Sharma et al., 2017).

Various studies show that educational and counseling interventions are effective in increasing the knowledge of pregnant women. Quasi-experimental studies in several Asian countries report a significant increase in the knowledge of pregnant women after being given structured counseling on pregnancy changes and self-care (Hassan et al., 2019; Nguyen et al., 2021). In Indonesia, classes for pregnant women and education based on print and audiovisual media have been proven to increase mothers' knowledge and readiness in facing pregnancy and childbirth (Sari et al., 2019; Lestari & Wulandari, 2022). Counseling media such as leaflets, lectures, and demonstrations are considered effective because they can be tailored to the educational level and needs of mothers in primary care. However, most previous studies have focused more on education related to pregnancy danger signs, nutrition, or childbirth preparation, while the aspects of pregnancy discomfort and normal changes in pregnant women have not been specifically studied as the main focus of intervention (Dunkel Schetter & Tanner, 2018). In fact, complaints of discomfort are a daily experience for pregnant women that greatly affect their perception of pregnancy and psychological well-being. In addition, there is still

limited research at the community health center level that evaluates the effect of pregnancy discomfort counseling on increasing mothers' knowledge with a measurable pretest-posttest design based on routine service practices. This *research gap* highlights the need for studies that specifically evaluate the effectiveness of counseling on discomfort during pregnancy as part of ANC in primary health care facilities. The puskesmas context is important because it is the frontline of maternal services in Indonesia, where midwives play a central role in providing education, counseling, and pregnancy support (Kemenkes RI, 2020). Understanding the impact of counseling on mothers' knowledge is expected to form the basis for strengthening more systematic, contextual, and sustainable education strategies.

Based on the above, this study has scientific and practical urgency. This study was conducted at the Mother Health Center by evaluating changes in the knowledge of pregnant women before and after receiving counseling on discomfort and changes in pregnant women. The purpose of this study was to analyze the effect of counseling on discomfort during pregnancy on mothers' knowledge about changes in pregnant women at the Mother Health Center. The results of this study are expected to contribute to the development of evidence-based midwifery care and improve the quality of antenatal services at the primary care level.

2. RESEARCH METHOD

Research Design

This study used a quasi-experimental design with a one-group pretest-posttest approach. This design was chosen to assess the effect of counseling on discomfort during pregnancy on changes in the knowledge of pregnant women regarding changes in pregnant women. In this design, knowledge levels were measured twice, before the intervention (pretest) and after the intervention (posttest), without a control group. This approach was considered appropriate for research in primary health care because it allowed for the evaluation of the effectiveness of educational interventions in routine service practice conditions.

Research Location and Time

This study was conducted at the Mother Health Center, which is a primary health care facility that provides antenatal care for pregnant women. The location was chosen based on the availability of pregnant women as respondents and the routine implementation of pregnancy counseling by health workers. The study was conducted from April to June 2025 and included

the preparation stage, pretest data collection, counseling implementation, and posttest measurement.

Research Population and Sample

The population in this study was all pregnant women who visited the Mother Health Center for antenatal care during the study period. The study sample consisted of 50 pregnant women selected using total sampling, meaning that all pregnant women who met the inclusion criteria during the study period were included as respondents. The inclusion criteria are: (1) pregnant women in their first to third trimesters, (2) able to communicate well, (3) willing to participate in counseling and the entire research process, and (4) willing to be respondents by signing an informed consent form. Exclusion criteria included: (1) pregnant women with cognitive impairments or severe medical conditions that hindered the education process, and (2) pregnant women who did not complete the pretest or posttest stages.

Research Variables

This study consists of two main variables. The independent variable is counseling on discomfort during pregnancy, which includes education on physical, physiological, and psychological changes during pregnancy, common types of discomfort in the first to third trimesters, and ways to prevent and manage pregnancy complaints. Counseling is provided by health workers using available educational media. The dependent variable is mothers' knowledge about changes in pregnant women, which includes understanding physical, physiological, and psychological changes, common discomforts, and maternal adaptation during pregnancy. Knowledge levels were measured before and after counseling. In addition, this study also recorded supporting variables such as maternal age, education level, occupation, gestational age (trimester), and parity, which could potentially affect mothers' knowledge levels.

Research Instruments

The research instruments used included a questionnaire on respondent characteristics to obtain demographic and obstetric data on mothers, as well as a questionnaire on knowledge about changes and discomforts during pregnancy. The knowledge questionnaire was designed in the form of multiple-choice or true-false questions, with a score of 1 for correct answers and 0 for incorrect answers. The total knowledge score was obtained from the number of correct answers, then categorized into good, adequate, and poor knowledge based on the percentage

score. The instrument was used in the pretest and posttest stages with the same questions to assess changes in knowledge objectively.

Research Procedure

The research procedure began with obtaining research permission from the Maternal Health Center. Next, the researchers identified potential respondents according to the inclusion criteria. After the respondents agreed to participate in the study, they filled out the knowledge questionnaire as a pretest. The next stage was the implementation of counseling on discomfort during pregnancy, which was provided by health workers through lectures and educational media such as leaflets in accordance with the service conditions. The counseling material covered the types of pregnancy discomfort, causes, prevention methods, and safe management strategies. After the counseling was completed, the respondents were again asked to fill out a knowledge questionnaire as a posttest to assess changes in their knowledge level.

Data Analysis

The collected data were analyzed using statistical software. Univariate analysis was performed to describe the characteristics of the respondents and the distribution of knowledge levels before and after counseling. Furthermore, bivariate analysis was used to test the difference in knowledge levels before and after the counseling intervention. The statistical test used was the Wilcoxon Signed Rank Test, because the knowledge data was ordinal and came from two paired measurements in the same group. The significance level was set at $\alpha = 0.05$, where a p-value < 0.05 indicated that counseling on discomfort during pregnancy had an effect on increasing mothers' knowledge.

3. RESULTS AND DISCUSSION

Results

Respondent Characteristics

The characteristics of pregnant women who were respondents in the study on the effect of counseling on discomfort during pregnancy on mothers' knowledge about changes in pregnant women at the Mother Health Center. Respondent characteristics included maternal age, education level, occupation, gestational age (trimester), and parity, which were presented descriptively in the form of frequency distributions and percentages.

Table 1. Characteristics of Pregnant Women Respondents at the Mother Health Center (n = 50)

Characteristics	Category	n	
Mother's Age	< 20 years	2	4.0
	20–35 years	36	72
	> 35 years	12	24
Education	Elementary	2	4
	Junior High School	6	12
	High School	34	68
	Higher Education	8	16
Employment	Working	14	28
	Not working	36	72
Gestational age	First trimester	6	12
	Second Trimester	22	44
	Third trimester	22	44.0
Parity	Primipara	18	36.0
	Multipara	24	48.0
	Grand multipara	8	16

Source: Primary research data, 2025.

Based on Table 1, most respondents were in the 20–35 age group, namely 36 mothers (72.0%), which is the healthy reproductive age. Respondents aged >35 years s numbered 12 people (24.0%), while those aged <20 years numbered only 2 people (4.0%). In terms of education, the majority of pregnant women had a high school education, namely 34 respondents (68.0%), followed by 8 respondents (16.0%) with a college education, 6 respondents (12.0%) with a junior high school education, and 2 respondents (4.0%) with an elementary school education. Based on employment status, most respondents were unemployed, namely 36 mothers (72.0%), while 14 respondents (28.0%) were employed. In terms of gestational age, most respondents were in the second and third trimesters, with 22 mothers (44.0%) in each trimester, while 6 respondents (12.0%) were in the first trimester. Based on parity, almost half of the respondents were multiparous, namely 24 mothers (48.0%), followed by 18 primiparous mothers (36.0%) and 8 grandemultiparous mothers (16.0%). This distribution of characteristics shows that the majority of respondents were healthy reproductive-age mothers with a secondary education level, in the late stages of pregnancy, and with previous pregnancy experience, which is an important context in assessing changes in mothers' knowledge after receiving counseling on discomfort during pregnancy.

Maternal Knowledge Level Before Counseling (Pretest)

Knowledge assessment was conducted using a structured questionnaire at the pretest stage, then categorized into good, adequate, and poor knowledge. This presentation aims to describe the initial knowledge condition of respondents before the counseling intervention was implemented.

Table 2. Distribution of Pregnant Women's Knowledge Levels Before Counseling at the Mother Health Center (n = 50)

Knowledge Level	Frequency (n)	Percentage
Good	10	20
Fair	22	44.0
Insufficient	18	36.0
Total	50	100

Source: Primary research data, 2025.

Based on Table 2, the level of knowledge of pregnant women before counseling was mostly in the adequate category, namely 22 respondents (44.0%). Respondents with a low level of knowledge numbered 18 (36.0%), while pregnant women with a good level of knowledge numbered only 10 (20.0%). This distribution shows that before the counseling intervention, most pregnant women did not have an optimal understanding of the changes and discomforts during pregnancy. This initial knowledge level, which was still dominated by the adequate and poor categories, became an important basis for evaluating the effectiveness of counseling on discomforts during pregnancy in increasing the knowledge of mothers at the posttest stage.

Mothers' Knowledge Level After Counseling (Posttest)

The assessment was conducted using the same questionnaire as in the pretest stage to ensure comparability of results. This presentation aims to describe the respondents' knowledge status after the counseling intervention.

Table 3. Distribution of Knowledge Levels of Pregnant Women After Counseling at the Mother Health Center (n = 50)

Knowledge Level	Frequency (n)	Percentage
Good	34	68
Fair	12	24.0
Insufficient	4	8.0
Total	50	100

Source: Primary research data, 2025.

Based on Table 3, after receiving counseling on discomfort during pregnancy, most respondents had a good level of knowledge, namely 34 mothers (68.0%). Respondents with a sufficient level of knowledge ( ) numbered 12 (24.0%), while the insufficient category was only found in 4 respondents (8.0%). This distribution shows a clear shift toward increased knowledge after the counseling intervention, marked by an increase in the proportion of good knowledge and a decrease in the proportion of poor knowledge. These results provide a descriptive picture that counseling on discomfort during pregnancy has the potential to increase mothers' understanding of the changes that occur during pregnancy.

Analysis of the Effect of Counseling on Discomfort During Pregnancy on Mothers' Knowledge

The analysis was conducted by comparing mothers' knowledge scores before (pretest) and after (posttest) counseling. Given that the knowledge data was ordinal and came from two paired measurements in the same group, the statistical test used was the Wilcoxon Signed Rank Test.

Table 4. Results of the Analysis of the Effect of Counseling on Pregnant Women's Knowledge

Variable	Median Pretest	Posttest Median	Z	p-value
Maternal knowledge	60	85	-5.214	0.000

Source: Primary research data, 2025.

Based on the results of the Wilcoxon Signed Rank Test in Table 4, there was a significant difference between the mothers' knowledge levels before and after receiving counseling on discomfort during pregnancy. The median knowledge score increased from 60 in the pretest to 85 in the posttest, indicating an increase in knowledge levels after the intervention. The statistical test results show a Z value of -5.214 with a p-value of 0.000 ($p < 0.05$), so it can be concluded that counseling on discomfort during pregnancy has a significant effect on increasing mothers' knowledge about changes in pregnant women at the Mother Health Center.

Discussion

The results of this study indicate that counseling on discomfort during pregnancy has a significant effect on increasing mothers' knowledge about changes in pregnant women. The increase in the median knowledge score after the counseling intervention, which was confirmed by the results of the Wilcoxon Signed Rank Test, indicates that counseling is an effective educational strategy for improving the understanding of pregnant women at the primary health care level. These findings confirm the important role of structured education as an integral part of antenatal care that focuses on the needs of mothers. Theoretically, the increase in knowledge after counseling is in line with the concept *of adult learning* theory, in which individuals learn optimally when the material presented is relevant to their actual experiences and needs (Knowles et al., 2015). Pregnancy discomfort is a direct experience of pregnant women, so counseling that discusses this topic has a strong and easily understood context. In addition, the *Health Belief Model* explains that increased knowledge can influence perceptions of benefits

and barriers, which ultimately encourage more adaptive health behaviors during pregnancy (Glanz et al., 2018).

The results of this study are in line with the findings of Hassan et al. (2019), who reported a significant increase in the knowledge of pregnant women after being given structured counseling on the physiological changes of pregnancy. A similar study by Nguyen et al. (2021) also showed that pregnancy education based on individual or group counseling effectively increased mothers' understanding of common complaints during pregnancy. In Indonesia, studies by Lestari et al. (2020) and Sari et al. (2019) show that health education interventions at community health centers, either through classes for pregnant women or direct counseling, can increase mothers' knowledge and readiness in facing pregnancy and childbirth. The shift in the distribution of knowledge levels from the adequate and inadequate categories in the pretest to the dominance of the good category in the posttest shows that counseling not only statistically improves knowledge scores but also has practical significance. The decrease in the proportion of insufficient knowledge after counseling- s indicates that this intervention is effective in reaching mothers with limited initial understanding. This finding is consistent with a study by Brixval et al. (2016), which emphasizes that antenatal education has the greatest impact on groups of mothers with low to moderate levels of health literacy.

Although this study shows significant results, it should be noted that the increase in knowledge did not occur evenly across all respondents. There are still a small number of mothers with suboptimal knowledge levels after counseling. This may be influenced by individual factors such as education level, age, previous pregnancy experience, and different learning styles (Sørensen et al., 2015; McCarthy et al., 2018). In addition, the duration and method of counseling used also have the potential to affect information retention. Previous studies have shown that a combination of educational methods, such as lectures accompanied by visual media and interactive discussions, provides better results than a single method (García-Blanco et al., 2017). From a clinical midwifery perspective, counseling on discomfort during pregnancy has broad implications. Adequate knowledge enables pregnant women to safely manage pregnancy complaints non-pharmacologically, such as adjusting body position to reduce back pain, modifying diet to overcome nausea, and relaxation techniques to improve sleep quality (Katon et al., 2015; Davenport et al., 2018). Thus, counseling not only enhances cognitive aspects but also has the potential to improve the comfort and quality of life of pregnant women.

Another practical implication is the strengthening of the midwife's role as the primary educator in antenatal care. The results of this study support the recommendation that counseling

on pregnancy discomfort needs to be provided systematically and repeatedly during ANC visits, especially in the second and third trimesters when physical complaints are more common. This approach is in line with the principle of *continuity* of *care*, which emphasizes the therapeutic relationship and effective communication between midwives and pregnant women (Sandall et al., 2016). The limitations of this study include a one-group pretest–posttest design without a control group, so that the increase in knowledge cannot be fully attributed to counseling alone without considering other external influences. In addition, this study only measured knowledge and did not evaluate changes in the attitudes and behaviors of pregnant women after counseling. Therefore, further research using an experimental design with a control group is recommended to examine the impact of counseling on health behaviors and pregnancy outcomes.

Overall, this study shows that counseling on discomfort during pregnancy is an effective educational intervention to increase the knowledge of pregnant women. These findings reinforce the importance of integrating structured counseling into antenatal services at community health centers as an effort to improve the quality of midwifery care and support a healthier and more comfortable pregnancy experience.

4. CONCLUSION

This study aimed to analyze the effect of counseling on discomfort during pregnancy on mothers' knowledge about changes in pregnant women at the Puskesmas Ibu. The results showed that counseling had a significant effect on increasing pregnant women's knowledge about physical, physiological, and psychological changes during pregnancy. These findings confirm that counseling is an effective educational intervention in improving mothers' understanding, especially regarding aspects of pregnancy discomfort that are often experienced but frequently misunderstood. Scientifically, the results of this study support health education and adult learning theories that emphasize the importance of relevance of material and direct experience in the learning process. Counseling that discusses pregnancy discomfort has been proven to bridge the knowledge gap among mothers, especially in groups with limited initial understanding. Thus, this study contributes to strengthening the scientific evidence regarding the effectiveness of counseling as an integral part of antenatal care at the primary health care level. From a clinical implication perspective, the results of this study emphasize the important role of midwives and health workers in providing structured and continuous counseling on pregnancy discomfort during antenatal visits. The integration of systematic counseling is expected to increase mothers' comfort, strengthen their readiness to adapt to pregnancy

changes, and support more comprehensive and mother-centered midwifery care. This approach has the potential to improve the quality of antenatal care and create a more positive pregnancy experience for expectant mothers.

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