

## **The Influence of Maternal Empowerment Through Maternal Class on Maternal Knowledge about Pregnancy Danger Signs**

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**Abstract**—Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR) remain serious issues related to pregnancy and childbirth. To address this problem and enhance maternal knowledge about pregnancy danger signs, innovative efforts through maternal classes are necessary. The objective of this study is to examine the influence of maternal empowerment through maternal classes on maternal knowledge about pregnancy danger signs in UPT Karang Primary Health Center, Kutai Timur Regency. This study utilized a pre-experimental design with one-group pretest and posttest. The purpose was to assess the influence of maternal empowerment through maternal classes on maternal knowledge in UPT Karang Primary Health Center, Kutai Timur Regency. The population consisted of 54 pregnant women who attended maternal classes in UPT Karang Primary Health Center during the period of July 2022 to November 2022. Nonprobability sampling technique was used to select a sample of 22 pregnant women. The test statistic showed that the Sig (2-tailed) value was 0.008, which is less than  $\alpha$  ( $\alpha=0.05$ ). Based on the analysis using the Mc Nemar test, it can be concluded that there is a significant influence between pretest and posttest scores in the first and second meetings. Maternal empowerment through maternal classes significantly enhances knowledge about pregnancy danger signs. Expert teaching and class evaluation contribute to the effectiveness of this program in reducing maternal and infant mortality rates.

**Keywords:** Empowerment; Class; Pregnant Women

### **1. INTRODUCTION**

Pregnancy, a natural process essential for the continuity of the human lineage, involves the intricate journey of fertilization and the subsequent development of the fetus within a mother's womb. This remarkable process spans approximately 280 days, a duration calculated from the last day of the last menstrual period (LMP) (Badriyah, 2017). While pregnancy and childbirth are often viewed as natural events, it is crucial to recognize that they are not devoid of risks. Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR) persist as significant concerns associated with pregnancy and childbirth, underscoring the need for ongoing vigilance and improvements in maternal and infant healthcare. In an effort to bolster pregnant mothers' understanding of potential danger signs during pregnancy, innovative initiatives have been launched through prenatal classes. However, it is worth noting that the participation of pregnant mothers in these educational activities remains limited (Baroroh et al., 2017). Prenatal classes serve as a valuable platform for collective learning on matters related to maternal health, encompassing a wide array of topics, including pregnancy, childbirth, postpartum care, newborn care, infectious disease prevention, birth certificates, and the dispelling of pregnancy-related myths (Badriyah, 2017).

The significance of addressing issues related to health, particularly those pertaining to pregnancy and childbirth, extends beyond national borders and has become an international priority through the framework of the Sustainable Development Goals (SDGs). SDG point three places a strong emphasis on the importance of ensuring equitable health coverage and improving overall well-being for individuals of all ages. Within the broader health sector, a total of 38 SDG targets have been identified for achievement, each presenting its own set of challenges. These challenges encompass reducing Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR), controlling the spread of diseases such as malaria, tuberculosis (TB), Human Immunodeficiency Virus Acquired Immuno Deficiency Syndrome (HIV/AIDS), and intensifying efforts to enhance access to reproductive health services (Suriati, 2021). In essence, the journey of pregnancy and childbirth, while natural and awe-inspiring, is also marked by complexities and risks that demand ongoing attention and commitment to improving maternal and infant healthcare on both national and global scales. The Sustainable Development Goals serve as a critical framework for addressing these challenges and striving for better health outcomes for all.

Pregnancy is indeed a natural and awe-inspiring journey, marked by the creation of life and the nurturing of a new generation. The approximately 280-day duration of this process, from the last menstrual period (LMP) to childbirth, showcases the intricate development that occurs within a mother's womb. However, it is crucial to acknowledge that despite its natural course, pregnancy carries inherent risks that cannot be overlooked. Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR) persist as sobering reminders that maternal and infant health remain vulnerable areas. These challenges underline the importance of actively engaging expectant mothers in prenatal education and support. Prenatal classes, with their comprehensive approach to maternal health, not only empower pregnant women with knowledge but also provide a sense of community and solidarity. As nations work towards fulfilling the Sustainable Development Goals (SDGs), it is imperative that we focus on improving maternal and infant health, reducing mortality rates, and ensuring access to reproductive health services. The health sector, with its array of SDG targets, including the

reduction of MMR and IMR, control of diseases like malaria and HIV/AIDS, and enhancing reproductive health access, plays a pivotal role in advancing these global objectives. Therefore, embracing prenatal classes and similar initiatives is a step towards achieving equitable healthcare and well-being for all, regardless of age or geographical location.

The data provided by the World Health Organization (WHO) sheds light on a grim reality – maternal mortality rates worldwide have remained distressingly high, with approximately 295,000 women losing their lives due to complications arising during pregnancy and childbirth in the year 2017. This issue strikes particularly close to home in Indonesia, where the maternal mortality rate stood at a troubling 126 per 100,000 live births, a stark reminder of the persistent challenges the country faces in ensuring the well-being of expectant mothers (Kemenkes RI, 2018). Nevertheless, there is a glimmer of hope on the horizon. Efforts are being made to reduce maternal mortality rates, not just in Indonesia but globally. By the year 2030, there is a collective aspiration that the maternal mortality rate in Indonesia will decline significantly, aiming to reach a rate of 70 per 100,000 live births. Such an ambitious goal reflects the dedication and commitment of healthcare professionals and policymakers to protect the lives of mothers during this critical phase (Kemenkes RI, 2018).

Zooming out to the broader Southeast Asian region, the maternal mortality rate in the ASEAN countries reached an alarming 235 per 100,000 live births in 2019. These statistics underscore the need for concerted efforts not only within individual nations but also within the regional context to improve maternal healthcare outcomes. Diving deeper into Indonesia's specific situation, data from the Indonesia Demographic and Health Survey (IDHS) for the period 2012-2015 paints a stark picture, with the maternal mortality rate soaring to 305 per 100,000 live births, resulting in a heartbreaking total of 4,221 maternal deaths in the country in 2019 (Kemenkes RI, 2018). These figures emphasize the urgency of implementing effective strategies and interventions to safeguard the lives of expectant mothers in Indonesia.

Taking a more localized view, in East Kalimantan, the maternal mortality rate in 2019 was 79 per 100,000 live births, with Kutai Timur Regency emerging as the second-largest contributor to maternal mortality after Kutai Kartanegara Regency (Provincial Health Office of East Kalimantan, 2019). This highlights the importance of tailoring maternal healthcare programs to address specific regional needs and disparities within the country. In conclusion, while the maternal mortality rates in Indonesia and the ASEAN region at large remain concerning, there is a shared commitment to reducing these rates and improving maternal healthcare outcomes. The data presented here serves as a call to action, urging governments, healthcare providers, and communities to work collaboratively to ensure that every mother has the opportunity to experience a safe and healthy pregnancy and childbirth.

In addressing the crucial knowledge needs of pregnant mothers and their families, the importance of conducting prenatal classes or empowerment activities cannot be overstated. These activities revolve around group learning and make extensive use of the Maternal and Child Health Handbook (KIA). Participating in prenatal classes represents a significant milestone in the journey towards a healthy pregnancy and childbirth experience, offering a plethora of benefits to expectant mothers. These classes are not merely informative but also provide a structured and comprehensive curriculum, ensuring that pregnant women receive a well-rounded education on maternal health (Badriyah, 2017).

Prenatal classes serve as an essential component of maternal healthcare, playing a pivotal role in educating both expectant mothers and their families about maternal health and well-being. The structured platform they provide equips pregnant women with knowledge spanning various facets of pregnancy, childbirth, postpartum care, and infant care. What sets these classes apart is their interactive nature, which allows pregnant mothers to engage directly with healthcare providers. This engagement fosters open discussions, enabling women to ask questions, seek clarifications, and receive expert guidance. As a result, their overall preparedness for the transformative journey of motherhood is greatly enhanced. One significant impact of prenatal classes is their ability to dispel myths and misconceptions surrounding pregnancy. These classes serve as a beacon of accurate information, demystifying the myriad of uncertainties that often shroud the pregnancy experience. By fostering a better understanding of what to expect during this critical period, prenatal classes empower expectant mothers to approach their pregnancy and childbirth with confidence and knowledge.

While maternal empowerment coverage in Indonesia has made significant strides, achieving a commendable 94% coverage rate, certain regions continue to grapple with unique challenges. A case in point is the Karanganyan Community Health Center (Puskesmas) situated in the Karanganyan District of Kutai Timur Regency. Here, despite nationwide progress, there remains a need for targeted interventions and increased access to prenatal classes to ensure that all expectant mothers, regardless of their geographical location, can benefit from the wealth of knowledge and support that these classes provide. It is only by addressing such regional disparities that we can truly achieve comprehensive maternal healthcare coverage for all women, regardless of their location within Indonesia.

Maternal and infant mortality rates stand as formidable public health challenges, not confined to Indonesia but reverberating globally. The collective commitment to reducing these rates unites healthcare providers, policymakers, and communities worldwide. Central to this endeavor is the imperative to empower pregnant women with the knowledge essential for the early recognition of danger signs during pregnancy. The critical importance of timely detection and intervention cannot be overstated, as it holds the potential to substantially alter the trajectory of maternal and neonatal health outcomes. In light of these considerations, efforts aimed at enhancing maternal health education, such as the implementation of prenatal classes, take center stage in the pursuit of sustainable development goals and the quest for healthier pregnancies and childbirth experiences. These classes serve as a vital conduit for equipping expectant mothers with the insights and awareness necessary to navigate the intricate landscape of pregnancy safely.

The evident geographic disparities in maternal mortality rates within Indonesia underscore the necessity for targeted interventions tailored to specific local contexts. In regions like Kutai Timur, where maternal mortality rates may deviate from the national average, the customization of education programs becomes imperative. Initiatives that delve into the effectiveness of prenatal class empowerment in heightening pregnant mothers' awareness of pregnancy risks constitute a valuable step in this direction. Such research holds the potential to yield invaluable insights into the impact of localized interventions, guiding healthcare providers and policymakers in formulating strategies that align with the distinctive needs of these communities. Ultimately, this localized approach contributes tangibly to the overarching objective of advancing maternal and infant health outcomes on a broader scale, marking a pivotal stride toward healthier societies and prosperous futures.

Despite empowerment efforts being in place since 2018, weaknesses persist in enhancing pregnant mothers' knowledge about pregnancy risks. Therefore, this study will examine the influence of prenatal class empowerment on pregnant mothers' knowledge levels regarding danger signs during pregnancy at the Karanganyan Community Health Center (Puskesmas) in Kutai Timur Regency.

## 2. RESEARCH METHODS

The types and designs of research are models or methods used by researchers to conduct a study that guides the course of the research. The research design utilized in this study is a Pre-Experimental design in the form of a one-group pretest and posttest design, which assesses the impact of providing empowerment through prenatal classes on the knowledge level of pregnant mothers at the Karanganyan Community Health Center (Puskesmas) in Kutai Timur Regency. The population in this study comprises all pregnant mothers participating in prenatal classes at the Karanganyan Community Health Center (Puskesmas) in Kutai Timur Regency, who were recorded during the period from July 2022 to November 2022, totaling 54 pregnant mothers. Sampling was conducted using Nonprobability sampling technique, with a sample size of 22 individuals who meet the inclusion criteria: 1) individuals who can communicate effectively; 2) residing within the working area of the Karanganyan Community Health Center (Puskesmas); 3) pregnant women; 4) pregnant women attending prenatal classes; 5) pregnant women willing to be respondents; and 6) women willing to answer the questionnaire about maternal knowledge. The exclusion criteria include: 1) pregnant women unwilling to participate as respondents, and 2) pregnant women who are currently not in good health.

The research instrument consists of two parts. The first part is the respondent's characteristic data, filled out by the researcher with respondent's initials, respondent number, as well as questions about age, education, occupation, and pregnancy frequency. The second instrument is a questionnaire to assess the knowledge level before and after the empowerment of pregnant mothers, filled out by pregnant mothers and including questions about the implementation of prenatal classes. This instrument did not undergo validity and reliability testing as it used a standardized set of questions from the 2009 Indonesian Ministry of Health guidelines for the Implementation of Prenatal Classes, which has been used in prenatal classes across Indonesia. The analysis of this study comprises two stages. The first stage is univariate analysis, aimed at observing the frequency distribution of the following variables: pregnant mothers' knowledge scores before, after intervention, and one month after intervention. The second stage is bivariate analysis, using the non-parametric McNemar test to analyze the significance of differences between two paired ordinal-scale data. The decision to accept or reject the hypothesis in the McNemar Test is based on probability ( $Asymp.sig < 0.05$ , the hypothesis is rejected). The testing was conducted using SPSS 16.0 for Windows software. The significance criteria are if the p-value is  $< 0.05$ , and alternatively, it can be compared with the calculated Z value and the tabulated Z value.

## 3. RESULT AND DISCUSSION

The total sample size studied was 22 individuals. The data obtained from the research results were then organized in the form of a frequency distribution table. The univariate analysis in this study can be observed in the following table:

Table 1. Characteristics of Respondents

Variable	Category	Frequency	Percent (%)
Age	<20 years	4	18.2
	20-35 years	17	77.3
	35 years	1	4.5
Parity	First pregnancy	4	18.2
	More than one pregnancy	18	81.8
Gestational Age:	Trimester I, 1-19 weeks	6	27.3
	Trimester II, 20-24 weeks	5	22.7
	Trimester III, 25-32 weeks	11	50.0
<b>Total</b>		<b>22</b>	<b>100</b>

Based on Table 1, it can be observed that the majority of pregnant mothers are in the age range of 20-35 years, accounting for 17 (77.3%) pregnant mothers. According to the number of pregnancies (parity), the majority have had more than one pregnancy, totaling 18 (81.8%). In terms of gestational age, the majority of pregnant mothers are in Trimester III, specifically between 25-35 weeks, accounting for 11 (50.0%) pregnant mothers.

From the research results, it was found that the majority of pregnant women aged 20-35 years, which is 17 (77.3%) pregnant women, based on the number of pregnancies (parity), most of them had more than one pregnancy, which is 18 (81.8%), and based on the gestational age, the majority of pregnant women were in the third trimester, 25-35 weeks, which is 11 (50.0%) pregnant women.

Koblinsky's theory (2017) regarding the optimal age range of 20-35 years for women to become pregnant and give birth introduces an interesting perspective on the relationship between age and knowledge. According to this theory, this age range is considered safe and conducive to productive reasoning and cognitive abilities, which can significantly impact a woman's knowledge during pregnancy. As a woman's age advances within this range, her cognitive faculties tend to mature, potentially enhancing her capacity to acquire and retain knowledge. Moreover, the theory posits that maternal age and the number of pregnancies influence knowledge levels. Parity, which quantifies the number of pregnancies resulting in live-born or stillborn infants, plays a pivotal role in this context. Essentially, women with more than one pregnancy tend to exhibit higher knowledge levels. This can be attributed to the cumulative effect of prior experiences and individual needs, where each pregnancy contributes to a wealth of knowledge for the expectant mother. These experiences become a source of valuable insight for her.

Budiarti et al.'s research (2018), titled "The Relationship Between Maternal Characteristics and Husband's Support with Pregnant Women's Knowledge of Signs of Pregnancy Danger," supports these theoretical claims. The study identified age, the number of pregnancies, and gestational age as influential factors in pregnant women's knowledge levels. Gestational age, particularly in the third trimester, appears to be a significant contributor. At this stage, encompassing weeks 25-35, pregnant women often become more attuned to the physical and emotional changes they undergo. This heightened awareness may explain why a substantial portion of expectant mothers in this trimester display a greater level of knowledge. In conclusion, Koblinsky's theory and empirical evidence from Budiarti et al.'s study collectively underline the intricate interplay between age, pregnancy experience, and gestational age in shaping the knowledge levels of pregnant women. These factors, when considered holistically, provide valuable insights into strategies for enhancing maternal education and healthcare during pregnancy.

In conclusion, the assumptions drawn from the research findings suggest that age, the number of pregnancies (parity), and gestational age play pivotal roles in influencing the level of knowledge among pregnant women. These factors not only align with established theories and research but also provide valuable insights for healthcare professionals and educators seeking to enhance maternal health education and support. Recognizing the importance of these variables can guide the development of targeted interventions and educational programs aimed at improving the overall health and well-being of expectant mothers. Based on the research findings, the researcher assumes that maternal age and the number of pregnancies have an impact on improving the level of knowledge in pregnant women because individuals in a healthy and productive age range tend to acquire understanding and reasoning more quickly, and having more than one pregnancy provides pregnant women with additional knowledge gained from previous experiences.

This table provides insights into the knowledge level of pregnant mothers regarding pregnancy danger signs at the Karanganyan Community Health Center in Kutai Timur Regency before their participation in prenatal classes. The univariate analysis in this study can be observed in the following table:

**Table 2.** Pregnant mothers' knowledge level regarding pregnancy danger signs at the Karanganyan Community Health Center in Kutai Timur Regency before participating in prenatal classes.

Variable	Category	Frequency	Percent (%)
Knowledge	Good	4	18,2
	Moderate	18	81,8
<b>Total</b>		<b>22</b>	<b>100</b>

Based on Table 2, it can be determined that the majority of respondents before attending prenatal classes in session 1 had moderate knowledge, totaling 18 respondents (81.8%), while the minority had good knowledge, which accounted for 4 respondents (18.2%).

The research outcomes illuminate a critical aspect of maternal healthcare – the knowledge levels of pregnant women before attending prenatal classes. Before the commencement of these educational sessions, the majority of respondents, comprising 81.8% of the sample, were found to possess moderate knowledge. In contrast, a smaller subset of participants, totaling 18.2%, exhibited good knowledge. This initial disparity in knowledge underscores the significance of initiatives aimed at improving the understanding of pregnancy and childbirth, especially considering that these natural processes are not without risks. In fact, some of the most significant contributors to Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR) are intricately linked to pregnancy and childbirth.

Recognizing the importance of enhancing the knowledge of pregnant women, particularly in relation to pregnancy danger signs, innovative measures have been introduced through the implementation of prenatal classes, as noted by (Baroroh et al., 2017). However, a noteworthy challenge emerges – the relatively low participation of pregnant women in these classes. The current maternal and child health education paradigm primarily relies on individual consultations or case-specific interactions during antenatal check-ups or integrated health post activities. While valuable, this approach has inherent limitations. Knowledge dissemination is constrained within the boundaries of each consultation, coordination between healthcare providers can be suboptimal, mothers receive information solely as provided by healthcare professionals, long-term planning and guidance are lacking, and cross-program or cross-sector monitoring is often absent. Moreover, the absence of a consistent schedule for these education sessions further complicates efforts to ensure comprehensive and effective maternal and child health education, as highlighted by Suriati(2021). In light of these challenges, it becomes evident that a more structured and inclusive approach, such as prenatal classes, can serve as a catalyst for addressing these limitations and fostering a more informed and prepared cohort of expectant mothers.

According to a study conducted by Iin Prima Fitriah (2021), titled "The Effect of Prenatal Classes on the Improvement of Knowledge and Attitudes of Pregnant Women," the research findings showed that the average knowledge score before attending prenatal classes was  $11.56 \pm SD 3.847$ , while after attending, it increased to  $15.69 \pm SD 2.496$ . As for the average attitude score, it was  $46.81 \pm SD 6.544$  before attending the classes, and it increased to  $63.69 \pm SD 4.438$  afterward. The study found a significant effect of prenatal classes on the improvement of knowledge (p value 0.000) and attitudes (p value 0.000) of pregnant women in the Ranah Ampek Hulu Tapan Primary Health Center's working area. The researcher assumes that before the empowerment of pregnant women through prenatal classes, some pregnant women had limited knowledge about the potential danger signs during pregnancy.

Given these findings, it is reasonable to assume that prior to the introduction of prenatal classes, many pregnant women had limited awareness and knowledge regarding potential danger signs during pregnancy. This assumption underscores the vital role that prenatal classes play in equipping expectant mothers with essential knowledge and fostering positive attitudes toward maternal and child health. By addressing these knowledge gaps and nurturing supportive attitudes, prenatal classes serve as a promising avenue for improving maternal and infant health outcomes, ultimately contributing to the reduction of Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR) in the community. As an additional assumption, it can be inferred that the limited participation of pregnant women in prenatal classes could be attributed to various factors, including access barriers, cultural beliefs, and lack of awareness about the benefits of such classes. These factors may have contributed to the moderate-to-low levels of knowledge observed among the respondents before attending prenatal classes.

This table provides valuable information regarding the knowledge level of pregnant mothers concerning pregnancy danger signs at the Karanganyan Community Health Center in Kutai Timur Regency after their participation in prenatal classes.

**Table 3.** Pregnant mothers' knowledge level regarding pregnancy danger signs at the Karanganyan Community Health Center in Kutai Timur Regency after participating in prenatal classes.

Variable	Category	Frequency	Percent (%)
Knowledge	Good	12	54,5
	Moderate	10	45,5
<b>Total</b>		<b>22</b>	<b>100</b>

Based on Table 3, it can be inferred that the majority of respondents after attending prenatal classes in session 1 had good knowledge, totaling 12 respondents (54.5%), while the minority had moderate knowledge, which accounted for 10 respondents (45.5%).

The research findings shed light on the significant impact of attending prenatal classes on pregnant women's knowledge of pregnancy danger signs. Following their participation in the initial prenatal class, the majority of respondents exhibited commendable knowledge levels, with 12 individuals, constituting 54.5% of the sample, demonstrating good knowledge. A smaller proportion, comprising 10 respondents (45.5%), fell into the category of moderate knowledge. These distinctions in knowledge levels underscore the transformative potential of prenatal classes in equipping expectant mothers with essential information. To contextualize the importance of this knowledge, it's vital to understand what pregnancy danger signs entail. According to Ekayanti (2019), these signs encompass symptoms arising from infections or complications during pregnancy. They encompass a range of indicators, including swelling of the hands and feet, vaginal bleeding, high fever, premature rupture of membranes, persistent vomiting, and a lack of fetal movement. Recognizing and understanding these signs is paramount for pregnant women as it enables them to respond promptly to any potential threats to their health or the health of their unborn child.

Prenatal classes, as described by the Ministry of Health Ekayanti (2019), provide a structured and supportive environment for pregnant women to enhance their knowledge systematically and comprehensively. Facilitated by midwives or healthcare professionals, these classes use a well-rounded package of materials, including Maternal and Child Health (MCH) books, flip charts, implementation guidelines, facilitator guides, and prenatal exercise books.

Through these classes, expectant mothers not only gain critical knowledge but also have the opportunity to learn together, share experiences, and engage in discussions related to maternal and child health. This collaborative approach not only enhances their individual preparedness but also fosters a sense of community and support among pregnant women, ultimately contributing to improved maternal and infant healthcare outcomes.

The alignment of this research with the studies conducted by Ida Baroroh (2017) and Suryani (2019) reinforces the notion that empowering pregnant women through group prenatal classes can yield substantial improvements in knowledge. In Baroroh's study, the presence of a significant relationship between knowledge and participation in prenatal classes is a noteworthy revelation. This finding underscores the pivotal role that these classes play in enhancing expectant mothers' understanding of maternal and child health topics. It's particularly striking that 43.8% of prenatal class participants were found to possess good knowledge, indicating that these classes effectively contribute to knowledge enrichment.

Suryani's research further accentuates this point by demonstrating the impact of prenatal class implementation on knowledge related to nutrition education for pregnant women. The statistically significant difference between pre-test and post-test scores emphasizes that participation in prenatal classes leads to tangible improvements in knowledge. This study underscores the effectiveness of structured prenatal classes in equipping pregnant women with the insights and information necessary to make informed decisions about their health and the well-being of their unborn children. In light of these research findings, it is reasonable to assume that group prenatal classes hold the potential for substantial knowledge enhancement. These classes provide a conducive environment wherein pregnant women can engage in collaborative learning, share their unique experiences, and actively participate in structured discussions on maternal and child health (MCH) topics. This systematic, comprehensive, continuous, and scheduled approach ensures that expectant mothers have access to essential knowledge, which can have a profoundly positive impact on their health and the health of their babies. As these studies have indicated, investing in prenatal classes not only empowers pregnant women but also contributes significantly to the broader goal of improving maternal and infant healthcare outcomes.

The observation of increased knowledge levels among respondents after their participation in prenatal classes carries with it the potential for profound implications in the realm of maternal and infant healthcare. It can reasonably be assumed that this surge in knowledge equips pregnant women with the tools and insights necessary to make more informed decisions during pregnancy and childbirth. Armed with a deeper understanding of pregnancy danger signs and other critical aspects of maternal and child health, expectant mothers may become more adept at recognizing potential risks and responding proactively. The ultimate result of this heightened awareness and knowledge could manifest in improved maternal and infant health outcomes—a prospect that holds immense significance in the field of public health.

This assumption underscores the pivotal role that prenatal classes can play in preparing and empowering expectant mothers for the challenges they may encounter throughout the journey of pregnancy and childbirth. Prenatal classes provide a unique space wherein pregnant women can engage in collective learning, share their diverse experiences, and participate in structured discussions that cover the spectrum of maternal and child health (MCH) topics. This systematic, comprehensive, continuous, and scheduled approach to education ensures that pregnant women receive a well-rounded and evidence-based education. This not only boosts their knowledge but also instills them with the confidence to navigate the complexities of pregnancy with greater autonomy. In essence, the researcher's assumption reflects the profound potential of group prenatal classes to effect positive change in maternal and infant healthcare by equipping expectant mothers with the knowledge, skills, and confidence they need to make informed decisions and enhance the well-being of both themselves and their newborns. This, in turn, contributes to the broader goal of reducing maternal and infant mortality rates and ensuring healthier pregnancy and childbirth experiences for all.

This table provides a comprehensive analysis of the impact of empowering pregnant mothers through prenatal classes on their knowledge level regarding pregnancy danger signs at the Karanganyan Community Health Center in Kutai Timur Regency. The information contained in this table is instrumental in understanding the effectiveness of prenatal education in enhancing the awareness and comprehension of pregnant mothers regarding potential pregnancy-related risks.

**Table 4.** Analysis of the Effect of Empowerment of Pregnant Mothers through Prenatal Classes on Pregnant Mothers' Knowledge Level Regarding Pregnancy Danger Signs at the Karanganyan Community Health Center in Kutai Timur Regency.

Pengetahuan ibu Hamil Pre-test dan Post Test	
N	22
<i>Sig. (2-tailed)</i>	0.008

*Source: Primary Data*

Based on Table Analysis 4, the Influence of Empowerment of Pregnant Mothers through Prenatal Classes on Pregnant Mothers' Knowledge Level Regarding Pregnancy Danger Signs at the Karanganyan Community Health Center in Kutai Timur Regency, it can be observed that the test statistic result indicates that Sig (2-tailed) has a value of 0.008,

which means  $0.008 < \alpha$  ( $\alpha=0.05$ ). Therefore, it can be concluded from the analysis using the McNemar test that there is a significant influence between the pretest and posttest scores in the first and second sessions.

From the research, it was found that the majority of respondents, after participating in prenatal classes in the first and second meetings, had significantly improved knowledge about pregnancy danger signs. The test statistic results showed a Sig (2-tailed) value of 0.008, which means  $0.008 < \alpha$  ( $\alpha=0.05$ ). Therefore, it can be concluded from the McNemar test analysis that there is a significant influence between the pretest and posttest scores after the first and second meetings.

As explained in the theory presented by the Ministry of Health (Kemenkes, 2018), the empowerment of pregnant women through prenatal classes, facilitated by midwives or healthcare professionals using a package of prenatal class materials, including MCH books, flip charts, class implementation guidelines, facilitator guides, and prenatal exercise books, has several advantages. Pregnant women benefit from following prenatal classes because the material is delivered systematically, comprehensively, continuously, and according to a planned schedule, similar to prenatal check-ups. This ensures the health of both the mother and the fetus, a safe delivery, comfortable postpartum care, and a healthy baby. Additionally, it helps prevent complications during pregnancy, childbirth, and the postpartum period. Furthermore, it optimizes the growth and development of the newborn and involves physical activities for pregnant women. The material is also more comprehensive, making it easier to prepare and present during the classes by healthcare personnel. Lastly, it allows the possibility of bringing in experts or professionals to explain specific topics, making the learning process more effective. The classes are held regularly and scheduled continuously, and the healthcare personnel evaluate the classes with pregnant women to encourage improvements in the quality of the learning system. All these factors contribute to increasing knowledge among pregnant women.

The present research holds a notable resonance with a study conducted by Lina Siti Nuryawati (2017), titled "The Relationship between Prenatal Classes and Maternal Knowledge of Pregnancy Danger Signs in Surawangi Village, Working Area of UPTD Puskesmas Jatiwangi, Majalengka District." Nuryawati's study shed light on the state of maternal knowledge and participation in prenatal classes in a specific region. The findings indicated a concerning trend, with over 70.2% of pregnant women being classified as inactive participants in prenatal classes. Equally alarming was the revelation that less than 47.4% of pregnant women possessed limited knowledge pertaining to pregnancy danger signs. Crucially, Nuryawati's research went a step further by establishing a direct relationship between prenatal classes and maternal knowledge regarding pregnancy danger signs in Surawangi Village, located within the working area of UPTD Puskesmas Jatiwangi in Kab. Majalengka. This correlation was substantiated by a calculated U value of 0.023, further highlighting the pivotal role that prenatal classes play in equipping expectant mothers with the necessary knowledge to recognize and respond to pregnancy-related risks.

The striking parallels between Nuryawati's study and the current research underscore the universality of the challenge in ensuring comprehensive maternal education and the imperative of increasing the participation of pregnant women in prenatal classes. These findings emphasize the need for concerted efforts not only at the regional level but also on a broader scale to enhance the accessibility and effectiveness of prenatal education, ultimately contributing to improved maternal and infant healthcare outcomes.

Based on the research findings, several assumptions can be made regarding the influence of prenatal classes on pregnant women's knowledge about pregnancy danger signs. The majority of respondents exhibited significantly improved knowledge about pregnancy danger signs after participating in prenatal classes, suggesting that the systematic and structured educational approach employed in these classes plays a pivotal role in enhancing pregnant women's understanding of these vital health indicators. The use of comprehensive materials and expert facilitators helps deliver information effectively and enables expectant mothers to grasp the content thoroughly. Moreover, the theory presented by the Ministry of Health underscores that prenatal classes are instrumental in preventing complications during pregnancy, childbirth, and the postpartum period. This implies that the knowledge gained through prenatal classes equips pregnant women with the ability to identify and respond to potential danger signs promptly, mitigating the risk of complications and contributing to safer pregnancies and healthier babies. The involvement of physical activities for pregnant women during prenatal classes also suggests a holistic approach to maternal health education, combining theoretical knowledge with practical exercises for a more comprehensive understanding. The presence of healthcare professionals, particularly midwives, as facilitators in prenatal classes enhances the credibility and effectiveness of the educational process, potentially leading to a deeper and more accurate understanding of pregnancy danger signs. Furthermore, the continuity of prenatal classes, along with post-class evaluations, indicates a commitment to continuous improvement in the quality of the learning system, allowing healthcare personnel to tailor their teaching methods and content to better meet the needs of pregnant women and further enhance their knowledge. Ultimately, these assumptions align with broader initiatives to reduce maternal and infant mortality rates, highlighting the pivotal role of prenatal classes in equipping expectant mothers with knowledge that can save lives and improve overall maternal and infant health outcomes. However, challenges related to prenatal class participation, as highlighted in previous research, emphasize the need to address barriers such as access issues or lack of awareness to ensure that more pregnant women can benefit from these educational opportunities.

The research outcomes underscore a pivotal assumption regarding the profound impact of empowering pregnant women through prenatal classes. This assumption is grounded in the premise that participating in these classes equips expectant mothers with a unique advantage—an environment conducive to focused learning, facilitated by seasoned

healthcare professionals, particularly midwives. This specialized guidance provided by experts in the field enriches the learning experience by ensuring the meticulous and comprehensive delivery of essential information. One key aspect of the prenatal class experience that bolsters this assumption is the capacity for post-class evaluations. These assessments serve as a critical tool for gauging the level of knowledge acquired by pregnant women, with a particular focus on understanding pregnancy danger signs in this study. By systematically evaluating their grasp of this vital information, healthcare providers can tailor their interventions more precisely to address areas where additional support is needed. This targeted approach to education empowers pregnant women to not only recognize but also respond effectively to potential risks during pregnancy, thereby contributing significantly to their overall well-being and the health of their unborn children.

Moreover, these concerted efforts to enhance maternal knowledge through prenatal classes align seamlessly with midwives' broader initiatives to reduce maternal and infant mortality rates. Midwives play a pivotal role in maternal and child healthcare, and their expertise is instrumental in guiding expectant mothers towards safer pregnancies and childbirth experiences. By imparting knowledge in prenatal classes, midwives become invaluable agents of change in the collective pursuit of healthier outcomes for both mothers and their infants. In conclusion, the assumption regarding the substantial impact of empowering pregnant women through prenatal classes resonates deeply with the principles of focused learning, expert guidance, and precise evaluation. These components not only enhance maternal knowledge but also dovetail seamlessly with the overarching mission to curtail maternal and infant mortality rates, reinforcing the vital role of midwives and healthcare providers in shaping healthier futures for expectant mothers and their children.

## 4. CONCLUSION

The statistical analysis undertaken reveals a crucial insight into the effectiveness of prenatal classes in empowering pregnant mothers and bolstering their understanding of pregnancy danger signs. The significance level (Sig) of 0.008, as compared to the predetermined alpha ( $\alpha$ ) value of 0.05, stands as a compelling indicator of the study's findings. With Sig being smaller than  $\alpha$ , it provides compelling evidence that there exists a substantial and meaningful connection between the pretest and posttest scores in both the first and second prenatal class sessions. In essence, this statistical outcome solidifies the conclusion that attending prenatal classes indeed leads to a significant improvement in pregnant mothers' knowledge regarding pregnancy danger signs. The positive impact of these classes becomes apparent as expectant mothers engage in comprehensive learning sessions. As they progress through the sessions, they become increasingly equipped to recognize and respond to potential danger signs, thereby enhancing their ability to safeguard both their own well-being and that of their unborn children. This outcome underscores the vital role that prenatal classes play in promoting maternal health and ensuring a safer and healthier pregnancy experience for expectant mothers, reaffirming their importance in the realm of maternal and infant healthcare.

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