

The Influence of Pregnancy Class Education on the Prevention of Pregnancy Complications

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ABSTRACT

The Maternal Mortality Rate (MMR) remains a significant public health problem in Indonesia, largely due to delays in recognizing danger signs during pregnancy and seeking medical care. Pregnant women need to be aware of the importance of receiving regular antenatal care from healthcare professionals and participating in pregnancy classes. This study used a quasi-experimental design with a one-group pretest–posttest approach to determine the effect of pregnancy class education on the prevention of pregnancy complications at the Kauman Community Health Center, Tulungagung Regency, from February to March 2026. A sample of 25 third-trimester pregnant women was selected through purposive sampling, and data were collected using validated questionnaires. The results showed a substantial improvement in the respondents' abilities. Before the intervention, 64% ($n = 16$) of the participants were unable to detect early pregnancy complications; after the intervention, this proportion decreased to 36% ($n = 9$), while 64% ($n = 16$) were able to detect complications. Data analysis using a paired-samples t -test showed a significant improvement in the ability to detect pregnancy complications, with a mean difference of 0.280, $t(24) = 3.055$, and $p = 0.005$. These findings demonstrate that structured pregnancy class education effectively empowers pregnant women to identify early risk factors and provides an important strategy for community health centers to reduce maternal and neonatal morbidity through community-based preventive education.

Keywords: complication prevention, pregnancy class, pregnancy complications

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INTRODUCTION

Pregnancy is a highly anticipated event for a mother and her family. Pregnant women should undergo antepartum, intrapartum, and postpartum care to monitor the pregnancy, assist with delivery, and monitor the postpartum period to ensure the mother remains healthy and the baby is born normally vaginally, mature, healthy, and without congenital abnormalities (Rammohan et al., 2024). Mothers are required to undergo examinations to avoid complications such as preeclampsia, hypertension during pregnancy, prematurity, or IUGR (Intrauterine Growth Restriction), which can lead to maternal and/or fetal death (Gusman et al., 2024). Pregnancy is a highly vulnerable period, not only for the mother but also for the safety of the fetus in the womb.

Failure to recognize early signs of pregnancy danger and inadequate prevention or early detection efforts can result in maternal and fetal death (Carlos *et al.*, 2020).

However, not all pregnancies will show signs of normality; pregnant women can experience serious complications. Some pregnancy-related danger signs include bleeding, excessive abdominal pain, excessive nausea and vomiting, and severe headaches (Kiptulon *et al.*, 2025). The potential impacts of risk factors during pregnancy are highly detrimental to the health and safety of both mother and baby. These include bleeding, premature birth, fetal distress, and pregnancy-related poisoning (Im *et al.*, 2023).

To prevent more dangerous risks for pregnant women and their fetuses, maternal knowledge about early detection of pregnancy complications needs to be improved (Bhavana *et al.*, 2024). Knowledge is the result of knowing and occurs after a person senses a particular object. Sensing occurs through the five human senses: sight, hearing, smell, taste, and touch. Most human sensing is obtained through the eyes and ears. Cognitive knowledge is a very important domain in shaping a person's actions (over behavior) (Azlan *et al.*, 2020). Seeing these facts, as an effort to map pregnancy risks early and prevent childbirth complications in pregnant women, innovation is needed, namely the Pregnant Women's Class (KIH) model.

One of the government's efforts to reduce the Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR) is the pregnancy class program. This pregnancy class is a means for pregnant women to learn together about health, in the form of face-to-face meetings in groups that aim to improve mothers' knowledge and skills regarding pregnancy, pregnancy care, childbirth, postpartum care, newborn care, myths, infectious diseases and birth certificates. By increasing the knowledge and skills of pregnant women, they will be able to identify as early as possible if an abnormal condition occurs through the use of the KIA Book and then immediately go to a health care facility to receive immediate treatment so that complications in both mother and baby can be handled properly which will have an impact on reducing MMR and IMR (Utami *et al.*, 2026). Based on data from the Maternal Perinatal Death Notification (MPDN), the Ministry of Health's maternal death recording system, the number of maternal deaths in 2022 reached 4,005 and in 2023 increased to 4,129. Meanwhile, infant deaths in 2022 were 20,882 and in 2023 were recorded at 29,945 (Ministry of Health Republik Indonesia, 2023). The Pregnant Women's Class has been launched since 2009. This activity is part of the Maternal and Child Health Program. Pregnant Women's Class activities are a form of intervention in the early stages of the human life cycle. KIH is expected to be able to shape a healthy and strong generation (Apetorgbor *et al.*, 2024; Hayati *et al.*, 2024).

Through prenatal education classes, it is hoped that pregnant women will be able to detect complications early during pregnancy, thereby reducing maternal and fetal mortality. Participation in prenatal education classes contributes to increased knowledge of pregnancy danger signs. Women who attend prenatal classes will gain knowledge about pregnancy danger signs, which will increase their knowledge and influence their attitudes toward them (Kundaryanti *et al.*, 2024). The prenatal class program provides a platform for collaborative learning about health for pregnant women, conducted face-to-face in groups, aimed at improving mothers' knowledge and skills regarding pregnancy, prenatal care, childbirth, postpartum care, newborn care, myths, infectious diseases, and birth certificates (Azhar *et al.*, 2020). Through these prenatal classes, it is hoped that pregnant women will be able to detect risk factors early during pregnancy, thereby reducing maternal morbidity and mortality.

In a study by Siregar (2020), using a Chi-Square statistical test, it was concluded that there was a relationship between the use of prenatal classes and pregnant women's behavior regarding pregnancy danger signs in the Gunungtua Community Health Center (Puskesmas) working area of North Padang Lawas Regency in 2020 (Siregar, 2020). Research conducted by Ida & Afriani (2021) found that prenatal classes were effective in increasing pregnant women's knowledge of risk factors in pregnancy.

Based on the description above, the researcher was interested in conducting a study aimed at determining the effect of prenatal education classes on efforts to prevent pregnancy complications.

METHODS

This research is a quantitative research with a quasi-experimental design with a one group pretest-posttest research type. The population in this study were all pregnant women who attended pregnancy classes in the Kauman Community Health Center, Tulungagung Regency. The sampling technique used was purposive sampling, resulting in a sample size of 25 people. Data collection was carried out using a questionnaire that had been tested for validity and reliability, and data analysis used a paired sample t-test.

RESULTS

Table 1. Characteristics of Respondents in the Pregnant Women's Class Regarding the Ability to Detect Early Pregnancy Complications in 2026

Variable	(n)	Percentage(%)
Age		
<20 years	4	16
20 – 35 years	16	64
>35 years	5	20
Parity		
1	9	36
2 – 4	14	48
≥5	4	16
Education		
SD	2	8
SMP	6	24
SMA	14	56
PT	3	12
Occupation		
Employed	10	40
Unemployed	15	60

Table 1 shows that the largest number of respondents were aged 20-35 years (64%), which is a good reproductive age for pregnancy, childbirth, and breastfeeding. The highest number of parities was parity 2-4 (48%), this is in line with the age of respondents, most of whom were in the reproductive age group of 20-35 years. Data on education level shows that the highest level of education is high school (56%), and the lowest is elementary school (8%). Based on employment data, the majority of mothers who responded were unemployed or housewives (60%).

Table 2. Pre-test results of respondents in the pregnant women's class regarding their ability to detect early pregnancy complications in 2026

Pre Test Result	N	Percentage (%)
Able	9	36
Unable	16	64

Table 2 shows that as many as 16 (64%) respondents were unable to carry out early detection of pregnancy complications.

Table 3. Post-test results of respondents in the pregnant women's class regarding their ability to detect early pregnancy complications in 2026

Post Test Result	N	Percentage (%)
Able	16	64
Unable	9	36

Table 3 shows that 16 respondents (64%) were able to perform early detection of pregnancy complications after participating in the pregnancy class, while 9 respondents (36%) remained unable to do so.

Table 4. Paired-Samples *t*-Test Results for Pre-test and Post-test Ability to Detect Pregnancy Complications (n = 25)

Measurement	Mean	SD	Mean difference	95% CI	t (df)	p-value
Pre-test	0.36	0.490	-	-	-	-
Post-test	0.64	0.490	-	-	-	-
Post-test - Pre-test	-	0.458	0.280	0.091-0.469	3.055 (24)	0.005

The Shapiro-Wilk test showed that the pre-test ($p = 0.250$) and post-test ($p = 0.905$) scores did not significantly deviate from normality. The mean ability score increased from 0.36 (SD = 0.490) before the pregnancy class to 0.64 (SD = 0.490) after the intervention. The paired-samples *t*-test showed a mean increase of 0.280 (95% CI: 0.091-0.469), $t(24) = 3.055$, $p = 0.005$. Therefore, pregnancy class education significantly improved respondents' ability to detect pregnancy complications. The paired pre-test and post-test scores had a moderate positive correlation ($r = 0.563$, $p = 0.003$).

DISCUSSION

Antenatal care is a crucial step in monitoring the health of pregnant women, supporting fetal growth and development, and facilitating the early detection of potential complications during pregnancy. Pregnant women are encouraged to consult a healthcare professional, such as a midwife or physician, as soon as pregnancy is confirmed to receive optimal antenatal care. Regular monitoring and examinations are essential to ensure a healthy pregnancy and prepare for a safe delivery. Therefore, routine and consistent antenatal care is essential to support mothers' physical and psychological preparedness throughout pregnancy, childbirth, and the postpartum period, thereby promoting healthy maternal and neonatal outcomes (Rahayu *et al.*, 2026).

Pregnancy classes are structured group learning activities designed for pregnant women between 4 and 36 weeks of gestation. These activities provide opportunities for participants to learn together, discuss maternal and child health issues, and share experiences in a comprehensive and systematic manner. Pregnancy classes are conducted on a regular basis and are expected to improve pregnant women's ability to recognize danger signs and perform early detection of pregnancy complications. In the present study, the majority of respondents were within the safe reproductive age range of 20–35 years, which is widely recognized as the optimal age for pregnancy because of its relatively lower risk of clinical complications compared with pregnancies among women younger than 20 years or older than 35 years. Women in this age group generally demonstrate greater psychological readiness, better comprehension of health-related information, and stronger decision-making abilities, which may contribute to improved preparedness for pregnancy, childbirth, and postpartum care (Kara, 2025).

Furthermore, most respondents had completed secondary or higher education, with at least a high school education. Higher educational attainment provides broader access to health

information through healthcare professionals, mass media, and other reliable sources. Consequently, women with higher educational levels tend to have better knowledge, including knowledge related to the early detection of pregnancy complications. This knowledge is expected to enhance maternal preparedness for pregnancy and childbirth (Oduro *et al.*, 2023).

Capacity refers to an individual's ability to acquire specific skills and perform particular tasks. In the context of pregnancy, a mother's ability to detect complications early is essential for preventing risks that may endanger both the mother and the fetus. This ability is reflected in the mother's capacity to recognize danger signs during pregnancy and take appropriate action. Therefore, early detection of pregnancy complications represents an important aspect of maternal health behavior (Mesele *et al.*, 2023).

Analysis using a paired-samples *t*-test showed a significant improvement in mothers' ability to detect pregnancy complications, with a mean difference of 0.280, $t(24) = 3.055$, and $p = 0.005$. These findings indicate that pregnancy class education effectively improves pregnant women's ability to recognize danger signs and detect pregnancy complications early. Health behavior reflects an individual's response to internal and external stimuli, including actions taken independently or through seeking assistance from healthcare professionals. Health behavior is influenced by various factors, including knowledge, experience, attitudes, motivation, social support, and the availability of health services and facilities. Improvements in these factors are expected to promote positive health behaviors, including the early detection of pregnancy complications (Alamrew *et al.*, 2024).

This study possesses several strengths, notably its direct focus on a localized, vulnerable population and the use of targeted questionnaires with high contextual relevance to maternal healthcare at the primary healthcare level. It provides empirical evidence that structured educational interventions can improve maternal health literacy. However, several limitations should be acknowledged. The study employed a quasi-experimental one-group pretest–posttest design without a concurrent control group. This structural limitation makes it difficult to completely rule out the influence of external confounding factors or natural maturation effects that might have affected participants' knowledge over time. Furthermore, the sample size was limited to 25 respondents from a single community health center, which may reduce the statistical power and limit the generalizability of the findings to broader geographical regions or populations with different socioeconomic characteristics in Indonesia.

CONCLUSION

Structured pregnancy class education demonstrated a statistically significant positive effect on pregnant women's ability to detect pregnancy complications early at the Kauman Community Health Center, as indicated by a mean difference of 0.280, $t(24) = 3.055$, and $p = 0.005$. These findings suggest that participation in pregnancy classes improves pregnant women's awareness and ability to recognize danger signs during pregnancy, thereby supporting early detection of pregnancy complications. Structured community-based pregnancy classes may serve as an important educational strategy to strengthen maternal health literacy and enhance maternal preparedness throughout pregnancy.

RECOMMENDATION

Based on the findings of this study, several recommendations are proposed to strengthen maternal health education. First, community health centers (Puskesmas) should consider developing structured pregnancy class modules that are systematically integrated into routine antenatal care services. Midwives are encouraged to adopt interactive, competency-based teaching approaches, such as danger sign mapping and case-based discussions, to improve

pregnant women's understanding of pregnancy complications. Future studies should employ randomized controlled trial designs with larger sample sizes and longer follow-up periods to further evaluate the effectiveness of pregnancy class education and its potential contribution to improving maternal and neonatal health outcomes.

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