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Effect of implementing childbirth preparation classes on women's self-efficacy and pregnancy outcomes

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ABSTRACT

Introduction: Childbirth preparation classes play a crucial role in equipping pregnant women with the knowledge and skills necessary to face labor with confidence. Low maternal self-efficacy is often associated with increased anxiety, longer labor duration, and negative birth experiences. This study examines how implementing childbirth preparation classes affects women's self-efficacy and pregnancy outcomes.

Research Methodology: This quasi-experimental study used a pre-test and post-test control group design. 60 pregnant women in their third trimester were recruited and randomly assigned to either the intervention group (n=30), who received childbirth preparation classes, or the control group (n=30), who received standard antenatal care. The classes were conducted over four sessions, covering the labor process, pain management, relaxation techniques, and postpartum care. Self-efficacy was measured using the Childbirth Self-Efficacy Inventory (CBSEI), while pregnancy outcomes were assessed through medical records and post-delivery interviews.

Result: The results showed a statistically significant increase in self-efficacy scores in the intervention group compared to the control group ($p < 0.01$). Additionally, women in the intervention group experienced shorter labor durations, lower cesarean section rates, and higher satisfaction with their birth experience. There were no significant differences in neonatal outcomes between the two groups.

Conclusion: Implementing childbirth preparation classes positively influences maternal self-efficacy and improves several pregnancy outcomes. Integrating such programs into routine antenatal care can enhance maternal confidence and promote safer, more positive birth experiences.

Keywords: Antenatal Education, Childbirth Preparation, Maternal Health, Pregnancy Outcomes, Self-Efficacy.

INTRODUCTION

Pregnancy and childbirth are important events in a woman's life that are often accompanied by significant physical, emotional, and psychological changes (Innab *et al.*, 2023). Many pregnant women face anxiety and fears related to the labor process, which can affect their confidence in facing labor (Abdolalipour *et al.*, 2023). Decreased self-efficacy during childbirth can lead to complications such as prolonged labor, fatigue, and increased medical intervention. Pregnancy and childbirth are transformative life events that evoke many emotions, from joy and excitement to fear and anxiety (Chua *et al.*, 2024). A woman's psychological readiness, particularly her self-efficacy, and the belief in her capacity to cope with and manage labor and delivery have been identified as critical factors influencing childbirth experiences and outcomes (Qi *et al.*, 2025). Low self-efficacy during pregnancy is often associated with a heightened fear of childbirth, increased perception of pain, longer labor durations, and greater likelihood of medical interventions, including cesarean sections (Karaçay Yikar, Keklik, and Nazik, 2025).

Pregnancy and childbirth are significant life events that can impact a woman's physical, emotional, and psychological well-being (Kearney *et al.*, 2024). A woman's belief in her ability to cope with childbirth, known as childbirth self-efficacy, has been identified as a key predictor of maternal confidence, birth satisfaction, and overall pregnancy outcomes. Low self-efficacy is often associated with increased fear of childbirth, heightened perception of labor pain, longer labor duration, and a higher likelihood of medical interventions, including cesarean sections (Dadi *et al.*, 2024). Childbirth preparation classes have been recognized as one of the practical approaches to increase pregnant women's knowledge and mental readiness in childbirth. Participation in this class can increase the mother's knowledge of the labor process, reduce fear, and increase self-efficacy in coping with labor pain (Fındık *et al.*, 2025). Some studies have shown that antenatal education provided through childbirth preparation classes contributes to increasing maternal confidence in coping and reducing anxiety levels (Rahman *et al.*, 2023). In addition, increased self-efficacy of pregnant women through childbirth preparation classes was associated with various better pregnancy outcomes, such as a decrease in the rate of preterm labor, an increase in the rate of normal labor, and a reduction in the need for medical intervention during childbirth (Henshall *et al.*, 2024).

Healthcare professionals have widely recommended antenatal education to enhance maternal self-efficacy, specifically childbirth preparation classes (Adnani *et al.*, 2025). These classes provide expectant mothers with comprehensive knowledge about the childbirth process, pain management techniques, relaxation methods, and postpartum care, preparing them both physically and mentally for labor and delivery (Gholami *et al.*, 2025). Studies have shown that women who attend structured antenatal education programs report lower levels of anxiety, better pain-coping strategies, and improved satisfaction with the birth experience (Hossain *et al.*, 2024). Childbirth preparation classes are educational interventions designed to increase women's knowledge, promote healthy behaviors, and enhance emotional coping during labor. These classes often include information on the physiological process of childbirth, breathing and relaxation techniques, pain management strategies, and postpartum care. Numerous studies have highlighted the positive impact of such programs on maternal confidence, satisfaction, and overall birth outcomes (Miller *et al.*, 2024).

Despite their proven benefits, the integration of childbirth education into routine antenatal care remains inconsistent across healthcare systems, particularly in low-resource settings. There is a growing need to evaluate and strengthen antenatal education

strategies to improve maternal health indicators and empower women to take an active role in their childbirth journey. This study aims to examine the effect of implementing structured childbirth preparation classes on women's self-efficacy and pregnancy outcomes. By assessing psychological and clinical variables, the research seeks to contribute evidence supporting the inclusion of childbirth education as a standard component of prenatal care.

RESEARCH METHODOLOGY

This study employed a quasi-experimental design with a pre-test and post-test control group approach to evaluate the effect of childbirth preparation classes on women's self-efficacy and pregnancy outcomes. The study was conducted at a public maternal health clinic. Sixty pregnant women in their third trimester (28–36 weeks gestation) were selected using purposive sampling based on the inclusion criteria: 18–35 years, singleton pregnancy, low-risk pregnancy status, and no prior attendance in childbirth education programs. Participants were randomly assigned to either the intervention group (n = 30) or the control group (n = 30).

The intervention group participated in a structured childbirth preparation program consisting of four weekly sessions, each lasting approximately 90 minutes. The sessions covered topics such as the physiology of labor, stages of childbirth, breathing and relaxation techniques, pain relief options, birth planning, postpartum care, and newborn care. The program was delivered by trained nurse-midwives using interactive methods, including demonstrations, group discussions, and audiovisual aids. The control group received standard antenatal care without additional education sessions. Data was collected at the Baseline (pre-test) and before the first session to measure initial self-efficacy levels. Post-intervention: within one week after the final session, to assess changes in self-efficacy. Pregnancy outcomes (mode of delivery, labor duration, Apgar score, and birth weight) were obtained from medical records after delivery. Self-efficacy was measured using the Childbirth Self-Efficacy Inventory (CBSEI), a validated instrument consisting of 62 items assessing outcome expectancy and efficacy expectancy. Data were analyzed using paired t-tests, independent t-tests, and chi-square tests with a significance level set at $p < 0.05$. Ethical consent was obtained, and informed consent was obtained from all participants before data collection.

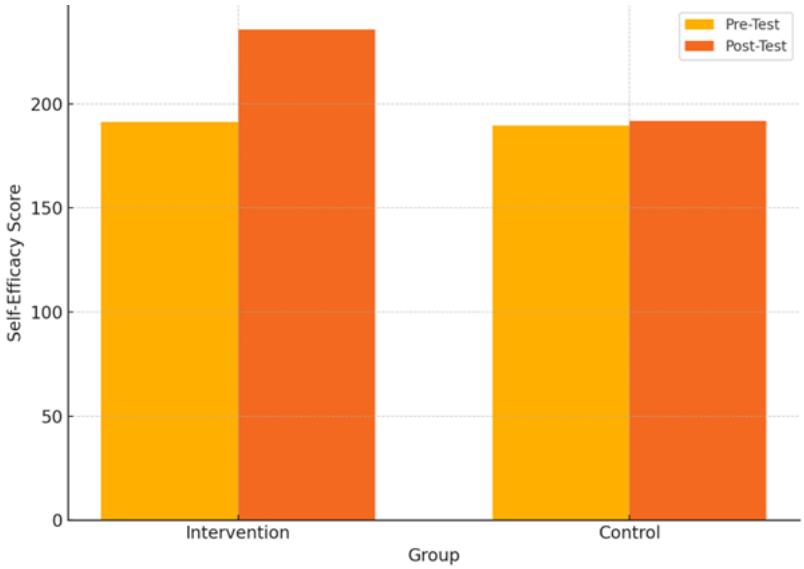
RESULT

Table 1 Participant Characteristics

Characteristic	Intervention Group (n = 30)	Control Group (n = 30)	p-value
Age (mean ± SD)	27.4 ± 3.2	26.9 ± 3.6	0.542
Gestational Age (weeks)	32.1 ± 1.5	31.8 ± 1.6	0.334
Primigravida (%)	60%	56.7%	0.781
Education (High school or above)	86.7%	83.3%	0.697
Employment Status (Employed %)	50%	46.7%	0.754
Previous Antenatal Class Attendance (%)	0%	0%	-

Table 1 presents participants' demographic and baseline obstetric characteristics in both the intervention and control groups. The data show no statistically significant differences between the two groups across all measured variables ($p > 0.05$), indicating that the groups were comparable at baseline. Age and Gestational Age: Participants' mean age and gestational age in both groups were similar, with no significant differences ($p = 0.542$ and $p = 0.334$, respectively). This suggests that maternal age and pregnancy stage

did not bias the outcomes. Primigravida Status: A slightly higher percentage of women in the intervention group were primigravida (60%) compared to the control group (56.7%), but the difference was not statistically significant (p = 0.781), indicating similar pregnancy experience levels. Education Level: Most participants in both groups had at least a high school education, which may contribute positively to health literacy and participation in antenatal education. The difference was not statistically significant (p = 0.697). Employment Status: About half of the women in each group were employed, with no significant difference (p = 0.754), indicating balanced socioeconomic representation. Previous Antenatal Class Attendance: None of the participants in either group had previously attended childbirth preparation classes, eliminating prior exposure as a confounding variable. The lack of significant differences between the two groups in all baseline characteristics strengthens the study's internal validity, suggesting that any differences observed in outcomes are likely attributable to the intervention.



Graph 1. The following graph shows Self-Efficacy Scores before and after intervention in the intervention and control groups. There was a significant increase in the intervention group after taking a childbirth preparation class.

Sixty pregnant women completed the study, with 30 participants in the intervention group and 30 in the control group. The two groups had no significant differences in baseline demographic or obstetric characteristics (p > 0.05), ensuring comparability. Self-Efficacy Scores. The analysis revealed a statistically significant increase in Childbirth Self-Efficacy Inventory (CBSEI) scores among women in the intervention group after attending childbirth preparation classes. The mean self-efficacy score increased from 191.2 ± 25.4 (pre-test) to 235.6 ± 22.1 (post-test), with a p-value < 0.001. In contrast, the control group showed no significant change in self-efficacy scores (pre-test: 189.5 ± 27.0; post-test: 191.8 ± 26.3; p = 0.416). Pregnancy Outcomes. Mode of Delivery. The rate of normal vaginal delivery was higher in the intervention group (73.3%) compared to the control group (50%), while cesarean section rates were lower (26.7% vs. 50%). The difference was statistically significant (p = 0.041). Duration of Labor. The average duration of labor was significantly shorter in the intervention group (7.1 ± 1.8 hours) compared to the control group (9.3 ± 2.1 hours) (p < 0.01). Apgar Scores. No significant differences between the two groups were found in the Apgar scores at 1 and 5 minutes (p > 0.05). Birth Weight: Both groups had similar mean birth weights, with no statistically significant difference (p > 0.05). Based on postnatal interviews, women in the

intervention group reported higher levels of satisfaction and perceived control during labor, indicating a more positive childbirth experience overall. These results support the idea that childbirth preparation classes should be part of routine antenatal services, as they have been shown to improve pregnant women's emotional and physical readiness and positively impact their childbirth experience.

DISCUSSION

The results of this study show that the implementation of childbirth preparation classes significantly increases the self-efficacy of pregnant women and positively impacts several aspects of pregnancy outcomes. These findings align with previous studies showing that comprehensive antenatal education can improve mental readiness, reduce anxiety, and encourage mothers to be more active in the delivery process.

Increased Self-Efficacy

A significant increase in the Childbirth Self-Efficacy Inventory (CBSEI) score in the intervention group showed that the information, training, and support provided through the childbirth preparation class strengthened the mother's confidence in her ability to cope with childbirth. The knowledge provided during the class sessions about the stages of labor, relaxation techniques, and pain management helps mothers develop effective coping strategies. As Bandura's theory explains, increasing self-efficacy will increase a person's motivation and performance in challenging situations, including childbirth (Sandström, Kaunonen, and Aho, 2024). Women with high levels of self-efficacy have lower pain perceptions and more positive childbirth experiences (Hooper *et al.*, 2025). In the long term, increased self-efficacy also has an impact on breastfeeding success, mother-child attachment, and postpartum mental health. Self-efficacy, or a person's belief in their ability to complete tasks or face challenges, is an essential factor in many aspects of life, including health and well-being (Wang *et al.*, 2023). In the context of pregnancy and childbirth, the self-efficacy of pregnant women plays a role in determining how they deal with the delivery process, manage pain, and make decisions related to medical interventions. Improving pregnant women's self-efficacy can contribute to a more positive childbirth experience, better pregnancy outcomes, and reduced unnecessary medical interventions. Childbirth preparation classes not only provide education but also shape the mindset and mental readiness of mothers. Therefore, this strategy is worth considering as part of standard antenatal services, especially in areas with high rates of childbirth anxiety and medical interventions (Xu *et al.*, 2025).

Shorter Duration of Labor

The duration of labor is an important indicator in assessing the efficiency and comfort of the birth process. Prolonged labor can increase the risk of complications for both mother and baby and often leads to medical interventions such as induction or cesarean sections (Tanke *et al.*, 2025). In this study, pregnant women who took a childbirth preparation class were shown to experience a significantly shorter duration of labor than the group who did not take the class. This shorter labor duration reflects maternal self-efficacy's important role in labor (Fleet *et al.*, 2024). Mothers with high levels of self-efficacy tend to be calmer, more cooperative, and able to follow the instructions of health workers well. Childbirth preparation classes also equip mothers with relaxation and breathing techniques such as deep breathing, guided imagery, and body awareness, which have been proven to be effective in reducing muscle tension, lowering stress hormone levels, and increasing natural oxytocin production to facilitate contractions (Egenberg *et al.*, 2025).

In addition, education during pregnancy helps reduce anxiety and fear that can slow down the progress of labor through neurohormonal pathways. Mothers who understand the delivery process thoroughly also show better coordination with health workers, which supports the smooth and efficient delivery process (Fritzson *et al.*, 2023). Thus, educational approaches such as childbirth preparation classes improve mothers' mental and physical readiness and have a real clinical impact in shortening the duration of labor. These results confirm the importance of integrating antenatal education programs to improve maternal and infant health services (Dixon *et al.*, 2023).

Mode of Delivery

The mode of delivery is an important indicator in assessing the success of the birth process. This study showed that mothers who took a childbirth preparation class had a higher percentage of normal (vaginal) deliveries and a lower rate of cesarean sections compared to the control group. These findings reflect the positive impact of structured antenatal education on maternal decision-making and maternal preparedness for childbirth. Several factors contribute to these results. First, increased maternal knowledge and understanding of the childbirth process, including the choice of medical interventions, allows them to make more conscious and rational decisions. Second, education during pregnancy helps reduce excessive fear of childbirth (tokophobia), which is often the reason mothers choose elective medical procedures such as cesarean sections (Litaqia and Cahya Mulat, 2025).

In addition, high self-efficacy plays an important role in improving the mother's ability to manage stress and pain so that labor can occur more smoothly without needing medical intervention. Childbirth preparation classes also strengthen collaboration between mothers and health workers, which creates effective communication and supports a safe and comfortable normal delivery (Ahmadpour *et al.*, 2024). The high number of non-indicative cesarean sections is a challenge in the health system because it has the potential to cause postoperative complications, longer recovery, and increased cost burdens. Therefore, the results of this study confirm that non-medical interventions such as childbirth preparation classes can be an effective strategy to reduce unnecessary surgical actions. Thus, the increase in normal childbirth rates in the intervention group suggests that educational approaches improve maternal psychological readiness and support more natural, safe, and preferred childbirth practices. Therefore, this program should be integral to ongoing antenatal services (Ganna and Indriyani, 2023).

Outcome Bayi

Infant outcomes are an important indicator in evaluating the success of pregnancy and childbirth. This study assessed outcomes based on Apgar scores and birth weight in the first and fifth minutes. The results showed no significant difference between the intervention and control groups in the two parameters. Both the Apgar score and the baby's weight were in the normal range, which indicates that the childbirth preparation class did not negatively impact the physiological condition of the newborn. These findings suggest that educational interventions such as childbirth preparation classes have more impact on mothers' psychological and behavioral aspects, such as increased self-efficacy, emotional calmness, and the ability to manage the labor process. Although it does not directly affect infant outcomes in the form of clinical scores, this educational approach still indirectly contributes to the quality of neonatal care (Guo *et al.*, 2023).

Mothers who feel more prepared and confident during the delivery process tend to have a better initial bond with the baby and are better prepared to initiate early breastfeeding (IMD). A positive mother's emotional state can also increase a sensitive

response to the baby's needs in early life, which affects long-term growth and development. Thus, even though the baby's outcome is not significantly different physiologically, the childbirth preparation class still has important value as part of a holistic approach to antenatal care. This program supports the overall well-being of mothers and babies and needs to be integrated into maternal and child healthcare practices.

Practical Implications

The results of this study provide important empirical evidence for health practitioners, especially midwives and community nurses, to integrate childbirth preparation classroom programs into standard antenatal services. Improving self-efficacy through an educational approach improves the childbirth experience and contributes to better clinical outcomes. The limitations of this study include a relatively small sample size and being conducted in one location, so the generalization of results is still limited. Follow-up studies with randomized, multicenter designs are recommended to confirm these findings and evaluate the long-term effects on maternal experiences and child development.

CONCLUSION

This study shows that the implementation of childbirth preparation classes has a significant positive impact on increasing the self-efficacy of pregnant women and improving several pregnancy outcomes. Mothers who took the childbirth preparation class showed higher self-confidence, shorter duration of labor, and higher normal labor rates compared to the group that did not take the class. These findings confirm that non-medical educational approaches can improve mothers' physical and psychological readiness during childbirth. Although physiological infant outcomes, such as Apgar score and birth weight, did not show significant differences between groups, they remained in the normal category. This indicates that the education program does not have a negative impact on neonatal conditions and instead contributes to maternal readiness in postpartum care, including the initiation of breastfeeding and the formation of early bonding. Childbirth preparation classes have proven to be an effective, inexpensive, and safe intervention to improve the quality of antenatal services. Therefore, integrating this program into the health care system for pregnant women is highly recommended as part of a holistic approach to improving maternal and infant health.

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Conflict of Interest

There are no potential conflicts of interest relevant to this article.

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