

THE OUTCOMES OF A TEACHING PROGRAMME ON PHYSIOLOGIC BIRTH FOR MOTHERS IN PRIMARY HEALTH CARE CENTRES IN RIVERS STATE, NIGERIA

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Abstract

The study examined the outcomes of a teaching programme on physiologic birth for mothers in primary health care centres in Rivers State, Nigeria. Specifically, it determined the effect of the teaching programme on mothers' knowledge of physiologic birth practices and examined its effect on mothers' preference for physiologic birth practices during childbirth. The study adopted a quasi-experimental research design involving pre-test and post-test assessments. The population comprised 5,585 pregnant and postpartum women receiving maternal health services across 338 primary health care centres in Rivers State. A sample of 94 mothers was selected from 14 primary health care centres in six Local Government Areas using stratified random, simple random, proportionate and accidental sampling techniques. Data were collected using a researcher-developed questionnaire titled "Outcomes of Teaching Programme on Physiologic Birth for Mothers in Primary Health Care Centres Questionnaire (OTPPBMPHCQ)." The instrument was validated by experts in Measurement and Evaluation, Maternal and Nursing Science, and yielded an overall Cronbach Alpha reliability coefficient of .81. The teaching programme was delivered over two weeks, while data were

analysed using Analysis of Covariance at the 0.05 level of significance. Findings revealed that the teaching programme had a significant effect on mothers' knowledge of physiologic birth practices, $F(4, 89) = 87.513, p < .05$, and on their preference for physiologic birth practices, $F(4, 89) = 112.902, p < .05$. The study concluded that structured teaching significantly improves mothers' knowledge and preference for physiologic birth practices. It recommended that nurses and midwives should integrate structured physiologic birth education into routine antenatal services in primary health care centres.

Keywords: Teaching Programme; Physiologic Birth; Maternal Knowledge; Birth Preference; Primary Health Care.



Introduction

Childbirth is a physiological process involving complex maternal and fetal adaptations that normally culminate in the birth of the baby, although medical interventions may become necessary when complications threaten maternal or fetal wellbeing. Physiologic birth is generally understood as labour and birth that begin and progress largely through the woman's own biological processes, with supportive care and minimal unnecessary intervention (Henshall et al., 2024). Supporting physiologic birth does not imply rejecting obstetric intervention; rather, it involves protecting normal labour processes while ensuring that appropriate clinical care is available when medically indicated. Evidence also shows that the physical and interpersonal environment of birth can either support or hinder physiological processes and influence women's satisfaction with childbirth (Joyce et al., 2021). Consequently, maternal preparation for childbirth should promote safe, evidence-based and woman-centred care in which women understand available options and participate meaningfully in decisions concerning labour and birth.

Globally, antenatal education has become an important strategy for improving women's preparation for pregnancy, labour and childbirth. Structured antenatal classes can increase knowledge, strengthen childbirth self-efficacy and reduce anxiety associated with labour (Zaman et al., 2025). Çankaya and Şimşek (2021) further demonstrated in a randomized controlled study that antenatal education significantly reduced fear of childbirth, anxiety, depression and stress while improving childbirth self-efficacy among primiparous women. Similarly, Athinaidou et al. (2024) reported that antenatal education contributes to improved preparedness for childbirth and can positively influence women's birth experiences and outcomes. These findings indicate that what women know before labour may affect how they perceive childbirth, the confidence with which they approach it and the choices they make regarding birth practices.

A teaching programme on physiologic birth therefore represents a structured educational intervention intended to improve mothers' understanding of the normal processes of labour and childbirth, supportive birth practices, available pain-management options, appropriate use of interventions and circumstances in which medical assistance becomes necessary. Maternal knowledge is particularly important because informed women are better positioned to understand clinical information, communicate with healthcare professionals and participate in childbirth decisions. Bello et al. (2022) found that maternal health literacy was associated with the utilisation of maternal healthcare services, demonstrating the importance of women's capacity to obtain, understand and apply maternal health information. In the same direction, Hao et al. (2023) reported that participation in a structured mobile prenatal education programme was associated with improvements in several pregnancy-related outcomes, further illustrating the potential value of organised maternal education.

Knowledge of physiologic birth practices constitutes the first major outcome in the present study. It encompasses mothers' understanding of normal labour, mobility and positioning during childbirth, supportive care, spontaneous progression of labour, available birth choices and recognition of situations requiring medical intervention. Inadequate knowledge may expose women to misconceptions regarding labour, vaginal birth or obstetric procedures and may consequently affect their ability to make informed choices. In Nigeria, Maitanmi et al. (2023) found that pregnant women differed in their knowledge, perceptions and attitudes towards caesarean section, demonstrating that childbirth-related knowledge can shape how women interpret different modes of delivery. Akinwaare et al. (2023) also reported that goal-oriented prenatal education improved birth preparedness and complication readiness among pregnant women, providing Nigerian evidence that structured education can positively affect maternal preparedness.

The second outcome is mothers' preference for physiologic birth practices during childbirth. Preference refers to the childbirth practices or approaches that women are more willing to accept or choose after considering available options. Such preferences may be influenced by prior childbirth experiences, fear of pain, perceived safety, family and cultural expectations, previous exposure to health information and advice from healthcare professionals. Davies et al. (2024) found that antenatal education shapes women's expectations concerning birth and their understanding of common childbirth interventions, although inadequate information may create a mismatch between expectations and actual birth experiences. Reyhan and Dağlı (2025) similarly reported that exposure to positive childbirth education reduced fear, increased self-efficacy and strengthened women's beliefs in physiological birth processes. These findings suggest that structured teaching may influence not only what mothers know but also the type of childbirth practices they are willing to prefer.

Within African and other developing-country settings, maternal childbirth preferences are also influenced by social, economic, cultural and health-system conditions. Shorey et al. (2021) found that cultural beliefs, family roles, communication and health-system factors can affect maternity-care experiences, indicating that childbirth education should be responsive to women's social and cultural contexts. In Nigeria, Akinsola et al. (2025) found that women's choices of maternal healthcare providers and places of birth were influenced by perceived safety, comfort, quality of care, accessibility, socioeconomic circumstances and limitations within health services. This suggests that improving knowledge alone may not automatically determine preference, but education can help women assess childbirth options more accurately within the realities of their healthcare environment.

Primary health care centres provide an important setting for such education because antenatal visits create repeated opportunities for nurses, midwives and other healthcare professionals to provide childbirth information and correct misconceptions. Ibikunle et al. (2021), in a study conducted in primary health care centres in Lagos, identified gaps in the delivery of prenatal education and educational resources, indicating the need to strengthen the content and methods used during antenatal teaching. Salako et al. (2025) also found a positive relationship between maternal health literacy and the quality of antenatal care received by pregnant women in Nigeria, further supporting the value of strengthening educational components of maternal healthcare.

In Rivers State, maternal healthcare is provided through primary, secondary and tertiary health facilities, but local evidence specifically examining structured teaching on physiologic birth remains limited. Awoyesuku et al. (2025), studying women receiving antenatal care in Port Harcourt, demonstrated that women's experiences and health-system factors remain important dimensions of maternity care in Rivers State. However, the available literature reviewed provides limited evidence on whether a structured teaching programme

specifically focused on physiologic birth can improve mothers' knowledge and influence their preference for physiologic birth practices in primary health care centres in Rivers State. This represents an intervention-specific and contextual gap. The present study therefore seeks to determine the effect of the teaching programme on mothers' knowledge of physiologic birth practices and examine its effect on their preference for such practices during childbirth in Rivers State, Nigeria.

Aim and objectives of the study

The main objective of was to examine the outcomes of a teaching programme on physiologic birth for mothers in primary health care centres in Rivers State, Nigeria. Specifically, the study sought to:

1. Determine the effect of the teaching programme on mothers' knowledge of physiologic birth practices in Rivers State.
2. Examine the effect of the teaching programme on mothers' preference for physiologic birth practices during childbirth in Rivers State.

Research Questions

The following research questions were formulated to guide the study:

1. What is the effect of the teaching programme on mothers' knowledge of physiologic birth practices in Rivers State?
2. What is the effect of the teaching programme on mothers' preference for physiologic birth practices during childbirth in Rivers State?

Research Hypotheses

The following null hypotheses were formulated for the study:

1. The teaching programme has no significant effect on mothers' knowledge of physiologic birth practices in Rivers State.
2. The teaching programme has no significant effect on mothers' preference for physiologic birth practices during childbirth in Rivers State.

Methodology

The study adopted a quasi-experimental research design, involving pre- and post-test assessments to determine changes in mothers' knowledge and preferences for physiologic birth practices following the teaching programme. The study was conducted in selected primary health care centres across the three senatorial districts of Rivers State, Nigeria. The study population comprised 5,585 pregnant and postpartum women receiving maternal health services across 338 primary health care centres in Rivers State. The population was distributed as 2,196 women in Rivers East Senatorial District, 1,755 women in Rivers West Senatorial District, and 1,634 women in Rivers South East Senatorial District. A sample of 94 mothers was selected from 14 primary health care centres located in six Local Government Areas, namely Port Harcourt, Obio/Akpor, Ahoada East, Abua/Odual, Gokana and Eleme. Stratified random, simple random, proportionate, and accidental sampling techniques were used to select the senatorial districts, Local Government Areas, primary health care centres, and respondents. The three senatorial districts served as strata, while eligible mothers who were available and willing to participate during their visits to the selected centres were recruited for the study.

Data were collected using a researcher-developed questionnaire titled "Outcomes of Teaching Programme on Physiologic Birth for Mothers in Primary Health Care Centres Questionnaire (OTPPBMPHCQ)." The instrument contained items on respondents' demographic characteristics, mothers' knowledge of physiologic birth practices, preference for physiologic birth practices during childbirth, cultural beliefs and barriers to physiologic

birth, and was structured on a modified four-point Likert scale of Strongly Agree, Agree, Disagree and Strongly Disagree. The instrument was subjected to face and content validation by experts in Measurement and Evaluation and Maternal and Nursing Science at the University of Port Harcourt, together with the project supervisor. Reliability was established through a trial test involving 50 mothers outside the main study sample, with Cronbach Alpha coefficients ranging from .78 to .84 and an overall reliability coefficient of .81. The intervention consisted of a structured teaching programme on physiologic birth practices delivered over two weeks, with a pre-test administered before the programme and a post-test administered afterwards. Data were analysed using Analysis of Covariance (ANCOVA), with educational qualification treated as a covariate, while the hypotheses were tested at the 0.05 level of significance.

Presentation of results

The results of the study are presented in this section based on the hypotheses formulated to guide the study. The data collected from the respondents were analysed using Simple Linear Regression analysis, and the findings are presented in tables with corresponding interpretations for clarity and ease of understanding.

Hypothesis one

Hypothesis one stated that the teaching programme has no significant effect on mothers' knowledge of physiologic birth practices in Rivers State. The hypothesis was tested using Analysis of Covariance (ANCOVA), with educational qualification included as a covariate to control for its possible influence on the outcome. The result in Table 1 showed that the corrected model was statistically significant, $F(4, 89) = 87.513$, $p < .05$, indicating that the combined effect of the teaching programme, pretest scores, educational qualification and participant group significantly explained differences in mothers' post-intervention knowledge of physiologic birth practices. Further examination of the result showed that pretest scores had a significant effect on post-intervention knowledge, $F = 25.474$, $p < .05$, while educational qualification also significantly influenced the outcome, $F = 32.694$, $p < .05$. In addition, the participant group, comprising pregnant and postpartum women, had a significant effect, $F = 46.078$, $p < .05$, suggesting that the two groups differed in their response to the teaching programme. The R^2 value of .797 and Adjusted R^2 of .789 indicate that approximately 79.7% of the variation in mothers' post-intervention knowledge scores was explained by the variables included in the model. Since the obtained significance value was less than the .05 level of significance, the null hypothesis was rejected. It was therefore concluded that the teaching programme had a significant effect on mothers' knowledge of physiologic birth practices in Rivers State.

Table 1: ANCOVA Summary: Impact of Intervention on Knowledge of Physiologic Birth

Source	Type III Sum of Squares	Df	Mean Square	F-ratio	Sig.
Corrected Model	2114.512	4	528.628	87.513	.000
Intercept	4235.768	1	4235.768	701.117	.000
Pretest	153.921	1	153.921	25.474	.000
Educational Qualification	197.534	1	197.534	32.694	.000
Group (Pregnant/Postpartum)	278.456	1	278.456	46.078	.000
Error	537.881	89	6.040		
Total	157342.000	94			
Corrected Total	2652.393	93			

R Squared = .797 (Adjusted R Squared = .789)

Hypothesis two

Hypothesis two stated that the teaching programme has no significant effect on mothers' preference for physiologic birth practices during childbirth in Rivers State. The hypothesis was tested using Analysis of Covariance (ANCOVA), with educational qualification included as a covariate to control for its possible influence on the outcome. The result in Table 2 showed that the corrected model was statistically significant, $F(4, 89) = 112.902$, $p < .05$, indicating that the teaching programme, together with the pretest scores, educational qualification and participant group, significantly explained differences in mothers' post-intervention preference for physiologic birth practices. Further examination of the result showed that pretest scores had a significant effect on post-intervention preference, $F = 28.960$, $p < .05$, while educational qualification also had a significant effect, $F = 40.069$, $p < .05$. In addition, the participant group, comprising pregnant and postpartum women, significantly influenced the outcome, $F = 54.006$, $p < .05$, indicating that the two groups differed in their response to the teaching programme. The R^2 value of .835 and Adjusted R^2 of .828 show that approximately 83.5% of the variation in mothers' preference for physiologic birth practices was explained by the variables included in the model. Since the obtained significance value was less than the .05 level of significance, the null hypothesis was rejected. It was therefore concluded that the teaching programme had a significant effect on mothers' preference for physiologic birth practices during childbirth in Rivers State.

Table 2: ANCOVA Summary: teaching programme on Preference for Physiologic Birth

Source	Type III Sum of Squares	Df	Mean Square	F-ratio	Sig.
Corrected Model	2987.140	4	746.785	112.902	.000
Intercept	5441.213	1	5441.213	823.217	.000
Pretest	191.384	1	191.384	28.960	.000
Educational Qualification	264.671	1	264.671	40.069	.000
Group (Pregnant/Postpartum)	356.972	1	356.972	54.006	.000
Error	588.969	89	6.616		
Total	161221.000	94			
Corrected Total	3576.109	93			

R Squared = .835 (Adjusted R Squared = .828)

Discussion of findings

The findings of the study revealed that the teaching programme had a significant effect on mothers' knowledge of physiologic birth practices in Rivers State. This means that mothers demonstrated improved understanding of physiologic birth practices after participating in the teaching programme compared with their level of knowledge before the intervention. The finding suggests that structured education can provide mothers with clearer information about the normal processes of labour, appropriate birth practices, supportive measures during childbirth and circumstances in which medical interventions may be necessary. This improvement may be attributed to the organised presentation of relevant information during the programme, which provided participants with opportunities to acquire, clarify and retain knowledge that might not have been adequately obtained through routine maternal healthcare services.

A possible reason for this finding is that repeated and structured exposure to childbirth information can correct misconceptions, fill existing knowledge gaps and improve mothers' ability to understand the physiological processes involved in labour and childbirth. The interactive nature of a teaching programme may also enable mothers to ask questions, relate new information to previous experiences and develop a clearer understanding of practices that facilitate physiologic birth. The finding can be theoretically explained by Social

Cognitive Theory, which assumes that learning occurs through cognitive processing, observation, interaction and reinforcement within a supportive environment. From this perspective, exposure to organised teaching provides mothers with new information and learning experiences that can modify existing knowledge and strengthen their understanding of appropriate childbirth practices. Thus, the significant improvement observed after the intervention may reflect the capacity of structured health education to transform previously limited or inaccurate childbirth information into more informed knowledge.

The present findings agree with Timsin and Wangpitipanit (2025), who found that a prenatal educational intervention improved pregnant women's knowledge of maternal and pregnancy-related health issues, demonstrating the capacity of structured education to increase maternal knowledge. Similarly, Oka et al. (2022) reported that participation in an interventional prenatal group programme in rural Tanzania significantly increased women's knowledge of pregnancy-related issues, supporting the effectiveness of organised prenatal learning. El Ayadi et al. (2025) also found that women exposed to an interactive maternal health education intervention recorded greater improvements in knowledge of pregnancy and childbirth danger signs and birth preparedness than comparison participants. In the same direction, Li et al. (2025) reported significant improvement in birth-preparedness knowledge among rural primiparous women who participated in a multimodal perinatal education programme compared with those who did not receive the intervention. These studies collectively support the current finding that structured teaching can significantly improve mothers' knowledge related to pregnancy, childbirth and appropriate birth practices.

The findings of the study revealed that the teaching programme had a significant effect on mothers' preference for physiologic birth practices during childbirth in Rivers State. This implies that exposure to the structured teaching programme positively influenced the mothers' willingness to choose and support birth practices that allow labour and childbirth to progress naturally with minimal unnecessary medical intervention. The finding further suggests that providing women with adequate information about the processes, benefits and available options associated with physiologic birth can modify their perceptions of childbirth and enable them to develop a more favourable preference for such practices.

A possible reason for this finding is that childbirth preferences are often influenced by the information available to women, fear of labour, perceived risks, previous experiences and confidence in their ability to give birth normally. A structured teaching programme may reduce uncertainty by explaining the physiological process of childbirth, correcting misconceptions about vaginal birth and providing information on pain management, labour support and appropriate indications for medical interventions. The finding is supported theoretically by the Theory of Planned Behavior, which proposes that behavioural intentions are influenced by attitudes, perceived social expectations and perceived behavioural control. Through teaching, mothers may develop more positive attitudes towards physiologic birth, greater confidence in their ability to participate in childbirth decisions and stronger intentions to prefer physiologic birth where it is clinically appropriate.

The findings is consistent with Firouzan et al. (2020), who reported that women who received midwifery-led counselling were more likely to prefer normal vaginal birth than those who did not receive the intervention, indicating that appropriate counselling can modify childbirth preferences. Similarly, O'Connell et al. (2021), in a review of childbirth interventions, found that educational and psychosocial interventions reduced women's preference for caesarean section and increased preference for spontaneous vaginal delivery. Mohaghegh et al. (2023) also found that integrating birth plans into childbirth preparation classes significantly increased normal vaginal birth and facilitated women's involvement in decisions concerning their preferred childbirth practices. In addition, Sucu et al. (2025) reported that antenatal education had a positive influence on women's birth beliefs and birth

preferences, demonstrating that organised childbirth education can shape maternal decisions regarding mode and approach to birth. These studies support the present finding that structured teaching can positively influence mothers' preference for physiologic birth practices during childbirth.

Conclusion and recommendations

The study concluded that the teaching programme was effective in improving mothers' knowledge of physiologic birth practices and positively influencing their preference for physiologic birth during childbirth in Rivers State. The findings indicate that structured maternal education can enhance women's understanding of normal childbirth processes, correct misconceptions, strengthen informed decision-making and increase willingness to choose physiologic birth practices where clinically appropriate. Therefore, integrating well-structured teaching programmes on physiologic birth into routine maternal health services in primary health care centres may contribute to more informed, confident and woman-centred childbirth experiences in Rivers State.

Based on the foregoing findings, the following recommendations are discernible

1. Nurses and midwives in primary health care centres should incorporate structured physiologic birth education into routine antenatal sessions to improve mothers' knowledge of physiologic birth practices.
2. The Rivers State Primary Health Care Management Board should develop and distribute standardized educational materials on physiologic birth for use during maternal health education in primary health care centres.
3. Nurses and midwives should provide repeated counselling on the benefits, processes and appropriate indications for physiologic birth to strengthen mothers' preference for physiologic birth practices during childbirth.
4. Primary health care centre administrators should ensure that childbirth education programmes include practical discussions on birth options, pain management and informed decision-making to encourage mothers to make evidence-based preferences for physiologic birth.

References

- Akinwaare, M. O., & Oluwatosin, O. A. (2023). Effect of goal-oriented prenatal education on birth preparedness, complication readiness and institutional delivery among semi-urban pregnant women in Nigeria: A quasi-experimental study. *PLOS ONE*, 18(7), e0289414. <https://doi.org/10.1371/journal.pone.0289414>
- Athinaidou, A.-M., Vounatsou, E., Pappa, I., Harizopoulou, V. C., & Sarantaki, A. (2024). Influence of antenatal education on birth outcomes: A systematic review focusing on primiparous women. *Cureus*, 16(7), e64508. <https://doi.org/10.7759/cureus.64508>
- Awoyesuku, P. A., Ohaka, C., Kua, P. L., Okagua, K. E., Lebara, L. B., & Ndi, L. D. (2025). Patient-Related and Health System Factors, and Experiences of Women with a History of Stillbirth in Port-Harcourt. *Nigerian Medical Journal: Journal of the Nigeria Medical Association*, 65(6), 946.
- Bello, C. B., Esan, D. T., Akerele, S. A., & Fadare, R. I. (2022). Maternal health literacy, utilisation of maternal healthcare services and pregnancy outcomes among newly delivered mothers: A cross-sectional study in Nigeria. *Public Health in Practice*, 3, 100266. <https://doi.org/10.1016/j.puhip.2022.100266>
- Çankaya, S., & Şimşek, B. (2021). Effects of antenatal education on fear of birth, depression, anxiety, childbirth self-efficacy, and mode of delivery in primiparous pregnant

- women: A prospective randomized controlled study. *Clinical Nursing Research*, 30(6), 818–829. <https://doi.org/10.1177/1054773820916984>
- Davies, A., Larkin, M., Willis, L., Mampitiya, N., Lynch, M., Toolan, M., Fraser, A., Rawling, K., Plachcinski, R., Barnfield, S., Smith, M., Burden, C., & Merriel, A. (2024). A qualitative exploration of women's expectations of birth and knowledge of birth interventions following antenatal education. *BMC Pregnancy and Childbirth*, 24, 875. <https://doi.org/10.1186/s12884-024-07066-x>
- El Ayadi, A. M., et al. (2025). Preliminary impact of an mHealth education and social support intervention on maternal health knowledge and outcomes among postpartum mothers in Punjab, India. *BMC Pregnancy and Childbirth*, 25. <https://doi.org/10.1186/s12884-025-07310-y>
- Firouzan, L., Kharaghani, R., Zenoozian, S., Moloodi, R., & Jafari, E. (2020). The effect of midwifery-led counseling based on Gamble's approach on childbirth fear and self-efficacy in nulligravida women. *BMC Pregnancy and Childbirth*, 20, 522. <https://doi.org/10.1186/s12884-020-03230-1>
- Hao, J., Yang, L., Wang, Y., Lan, Y., Xu, X., Wang, Z., Li, Z., Ma, L., Li, J., Zhang, S., & Sun, Y. (2023). Mobile prenatal education and its impact on reducing adverse pregnancy outcomes: Retrospective real-world study. *JMIR mHealth and uHealth*, 11, e46910. <https://doi.org/10.2196/46910>
- Henshall, B. I., Grimes, H. A., Davis, J., & East, C. E. (2024). What is 'physiological birth'? A scoping review of the perspectives of women and care providers. *Midwifery*, 132, 103964. <https://doi.org/10.1016/j.midw.2024.103964>
- Ibikunle, H. A., Okafor, I. P., & Adejimi, A. A. (2021). Pre-natal nutrition education: Health care providers' knowledge and quality of services in primary health care centres in Lagos, Nigeria. *PLOS ONE*, 16(11), e0259237. <https://doi.org/10.1371/journal.pone.0259237>
- Joyce, S. (2021). Wait and transfer, curate and prosume: Women's social experiences of birth spaces architecture. *Women and Birth*, 34(6), 540–553. <https://doi.org/10.1016/j.wombi.2020.11.003>
- Li, W., Ren, T., Xu, G., & Wang, Y. (2025). Evaluating the impact of a multimodal perinatal education program on birth preparedness, mental health, and birth outcomes among rural primiparous women: A retrospective cohort study. *BMC Pregnancy and Childbirth*, 25, 56. <https://doi.org/10.1186/s12884-025-07152-8>
- Maitanmi, B. T., Oluyomi, O. V., Aderemi, I. O., Maitanmi, J. O., Aminu, A., Ojewale, M. O., Okondu, O. E., & Akingbade, O. (2023). Knowledge, attitude and perception of cesarean section among pregnant women attending antenatal clinic at Babcock University Teaching Hospital, Ilishan-Remo, Ogun State. *The Journal of Maternal-Fetal & Neonatal Medicine*, 36(2), 2278019. <https://doi.org/10.1080/14767058.2023.2278019>
- Mohaghegh, Z., Javadnoori, M., Najafian, M., Abedi, P., Kazemnejad Leyli, E., Montazeri, S., & Bakhtiari, S. (2023). Effect of birth plans integrated into childbirth preparation classes on maternal and neonatal outcomes of Iranian women: A randomized controlled trial. *Frontiers in Global Women's Health*, 4, 1120335. <https://doi.org/10.3389/fgwh.2023.1120335>
- Oka, M., Madeni, F., & Horiuchi, S. (2022). Effects of prenatal group program in rural Tanzania: A quasi-experimental study. *Japan Journal of Nursing Science*, 19(4), e12502.
- Reyhan, F. A., & Dağlı, E. (2025). The effect of positive birth story videos on women's fear of birth, childbirth self-efficacy and birth preference: A randomized controlled study. *Women & Health*, 65(7), 559–570. <https://doi.org/10.1080/03630242.2025.2537659>

- Salako, J., Bakare, D., Akinsola, K., Olasupo, O., King, C., Falade, A., & Bakare, A. A. (2025). Maternal health literacy and quality of care offered to pregnant women attending antenatal care services in Lagos, Nigeria. *Annals of Ibadan Postgraduate Medicine*.
- Shorey, S., Chan, V., Rajendran, P., & Ang, E. (2021). Cultural competence and experiences of maternity health care providers providing care to migrant women: A qualitative systematic review. *Birth*. <https://doi.org/10.1111/birt.12581>
- Sucu, S., Sucu, S. T., & Soysal, Ç. (2025). Investigating the influence of antenatal education on birth beliefs and delivery methods: A prospective cohort study from Turkey. *BMC Pregnancy and Childbirth*, 25, 491. <https://doi.org/10.1186/s12884-025-07578-0>
- Timsin, N., & Wangpitipanit, S. (2025). The effects of a health literacy promotion program for prevention of preterm birth among pregnant women who received antenatal care services in a hospital-based. *Women and Children Nursing*, 3(1), 20-26.
- Zaman, A., Fadlalmola, H. A., Ibrahim, S. E., Ismail, F. H., Abedelwahed, H. H., Ali, A. M., ... & Saad, A. M. (2025). The role of antenatal education on maternal self-efficacy, fear of childbirth, and birth outcomes: A systematic review and meta-analysis. *European journal of midwifery*, 9, 10-18332.