

Perinatal Care Practices And Their Role In Preventing Complications During Labor And Delivery

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Abstract

Background: The practices of perinatal care, such as antenatal care, skilled birth attendance, and timely obstetric care, are vital in the reduction of maternal and neonatal complications in the process of childbirth. Poor care is a significant cause of avoidable morbidity and mortality especially in resource constrained conditions. **Objective:** The aim of this research is to assess the effects of perinatal care practices in the prevention of complications during labor and delivery, and comparison of the results between enhanced and standard perinatal care groups. **Methodology:** A comparative observational study was done on 620 pregnant women who will be divided to enhance care and standard care groups. Clinical records and structured interviews were used to obtain the information. The most important ones were maternal complications, neonatal complications, and delivery practices. Chi-square tests and logistic regression were used to perform statistical analysis and the significance was defined as $p < 0.05$. **Findings:** Antenatal care was more used in the enhanced care (78% vs 52%, $p < 0.01$) and skilled birth attendance (88% vs 60%). There was a reduction in maternal complications (hemorrhage: 6% vs 14, $p = 0.01$), and it reduced neonatal complications. **Conclusion:** Optimal practices of perinatal care greatly help to reduce complications during labor and delivery and therefore, there is a need to intensify the maternal care systems.

Keywords: Perinatal, maternal health, neonatal outcomes, and labor complications, antenatal and skilled birth attendance.

1. Introduction

Perinatal care refers to health services given in pregnancy, birth, delivery and early postpartum, and it is an important element of the maternal and child health system in any country across the world. Perinatal care practices such as regular antenatal care (ANC), skilled birth attendance, system of timely birth referral, and emergency obstetric care access are critical in preventing such complications as postpartum hemorrhage, sepsis, obstructed labor, and birth asphyxia [1][2]. The complications have continued to be the major cause of maternal and neonatal morbidity and mortality, especially in low- and middle-income countries (LMICs), where universal access to healthcare do not exist and where the quality of care is often poor [3]. A lot has been achieved to lower maternal and neonatal death rates globally; nevertheless, differences are still present across the states and the population [4]. The World Health Organization reminds that evidence-based perinatal care practices can be used to prevent a high number of maternal and neonatal deaths [5]. Periodic ANC visits enable the early detection and intervention of high-risk pregnancies whereas, skilled birth attendance helps in safer birth and prompt resolution of complications [6]. Also, the application of such tools as the partograph and compliance with standardized clinical practices have been indicated to enhance labor monitoring and outcomes [7]. EmONC services are also important to deal with life-threatening conditions during labor and delivery. Early access of such services greatly results in lower mortality rates amongst mothers and neonatal mortality rates [8]. But the absence of healthcare infrastructures, lack of staff, and socioeconomic restrictions still restrict the performance of perinatal care in most institutions [9]. Moreover, the differences in the quality of services, such as the lack of proper education of medical staff and the uneven compliance with medical standards, all lead to negative outcomes [10]. Interest in integrated and patient-centered approaches to care has been growing in recent research also. Combinatory models of perinatal care of clinical services with health education, counseling, and community engagement have shown better maternal and neonatal outcomes [11][12]. These strategies will emphasize care continuity between pregnancy and the postpartum period when women will be provided with holistic and coordinated care. Although these gains have been realised, there are still complications of equitable access to quality perinatal care. The rural and marginalized populations tend to have a high level of barriers such as geographic lack of accessibility, economic factors, and cultural

issues that dictate the use of healthcare [13]. Additionally, new findings highlight the importance of health-systems strengthening and enhancing provider training and incorporating digital health technologies so as to improve service delivery and monitoring [14][15]. With these in mind, it is important to assess the effectiveness of perinatal care practice to prevent complications at labor and delivery to inform policy and practice. Comprehending the variations between the typical and improved models of care may be useful in understanding how to optimize maternal and neonatal health outcomes.

1.1 Objectives

- To assess how well perinatal care practices prevent complications.
- To compare the results of normal and improved care groups.
- To determine important practices to further health maternal and neonatal health.

2. Methods

2.1 Study Design

A comparative observational case study was carried out in order to assess the effectiveness of perinatal care practices in avoiding complications in the labor and delivery. The participants were grouped into two categories, an enhanced care (comprehensive perinatal) group, which obtained comprehensive perinatal care (i.e. regular antenatal care, skilled birth attendance and emergency support) and a standard care group (i.e. usual maternal healthcare). This design facilitated the ability to compare the results in the real world between various levels of care [16].

2.2 Study Population

There were 620 participants (310 on either side) in this study. The enrolment of women occurred at the time of pregnancy and continued up to seven days after child birth to determine the neonatal outcomes indicated in table 1. The inclusion criteria were women aged 18-40 years and receiving care in specific selected healthcare facilities.

Table 1: Distribution of Study Population

Group	Pregnant Women (n)	Neonates Followed (n)
Enhanced Care	310	310
Standard Care	310	310
Total	620	620

2.3 Perinatal Care Practices Assessed

The main perinatal care practices considered consisted of antenatal care (ANC) visits, presence of skilled birth attendants at the time of delivery, application of partograph to monitor labor phase, and access to emergency obstetric services. These are generally considered as the best practices to minimize maternal and neonatal complications [17].

2.4 Data Collection

To guarantee reliability in the data collection, the various sources were used to obtain the data contained in figure 1. Clinical documentation included data on maternal and neonatal outcomes, structured interviews included demographic and care-related information and the hospital delivery records confirmed delivery practices.

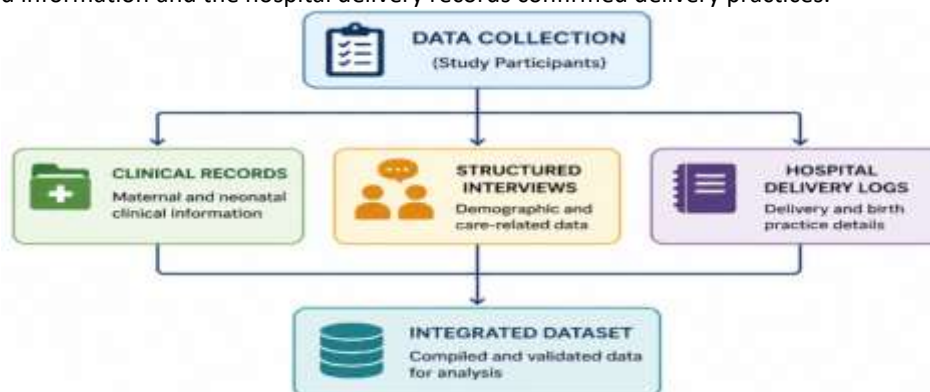


Figure 1: Data Collection Framework

2.5 Outcome Measures

The main outcomes were maternal (e.g. hemorrhage and infection) and neonatal (e.g. birth asphyxia, low birth weight) complications, mode of delivery (normal vs cesarean) and overall birth outcomes, reported in table 2.

Table 2: Outcome Measures

Outcome Category	Indicators
Maternal Outcomes	Hemorrhage, infection
Neonatal Outcomes	Asphyxia, low birth weight
Delivery Outcomes	Mode of delivery
Birth Outcomes	Live birth, complications

2.6 Statistical Analysis

Statistical software was used to analyse data. The summary of the baseline characteristics used descriptive statistics presented in figure 2. Categorical variables have been compared between groups using chi-square tests and relative risk (RR) estimated using chi-square to estimate the probability of having complications. The use of logistic regression analysis regarding the predictors of adverse outcomes and the inclusion of confounders was done. Statistical significance was set at $p < 0.05$ [18][19].

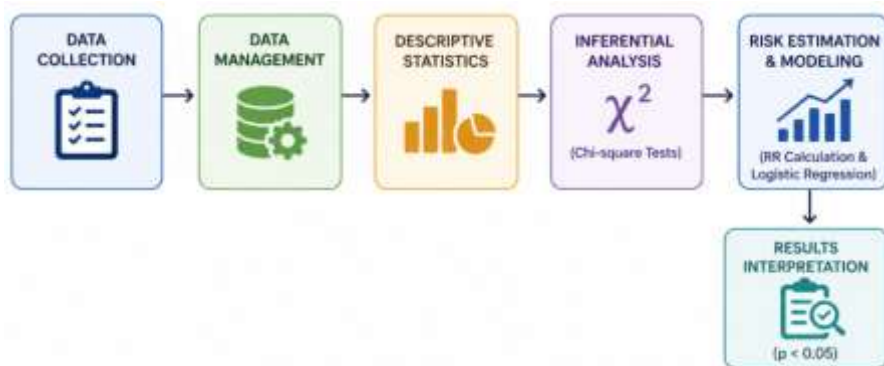


Figure 2: Analytical Approach

3. Results & Discussion

The following section has the comparative results of maternal and neonatal outcomes with enhanced and standard perinatal care groups. The results demonstrate major disparities in service provision and complication rates as well as the overall birth outcomes. Women who were provided with good care showed a better uptake of antenatal care and skilled birth attendance. As a result, the complication rate of mothers and neonatal was lower. The statistical analysis supports the evidence of effectiveness of structured practices of perinatal care in the area of reducing risks during labor and delivery, highlighting on their critical importance in enhancing maternal and neonatal health outcomes.

3.1 Participant Characteristics

Baseline characteristics were similar in both the enhanced care and standard care group; thus there was a low level of demographic variation. In both groups, most of the participants were aged 18 to 35 years (76 vs 74). Table 3 indicated that the enhanced care group had slightly more literacy rates (68% vs. 60% in the standard care group). The gravida women were also evenly matched in terms of the proportion of primigravida women (42 vs 40).

Table 3. Baseline Characteristics

Variable	Enhanced Care (%)	Standard Care (%)
Age (18–35)	76	74
Literacy	68	60
Primigravida	42	40

3.2 Antenatal Care Practices

There was a great use of antenatal care in the enhanced care group. The percentage of women abiding by the minimum four ANC visits (78% vs. 52% difference statistically significant $p < 0.01$) in comparison to the standard care group was also more common in women. This is an indication of better healthcare participation provided through better practice of care.

Table.4. ANC Utilization

ANC ≥4 Visits	Enhanced Care	Standard Care	p-value
Yes	78%	52%	<0.01
No	22%	48%	

3.3 Skilled Birth Attendance

Access to trained health care providers in the delivery process was also significantly increased in women who received enhanced care meaning that skilled birth attendance was high as depicted in figure 3. This helps in better handling of labor and minimizing complications.

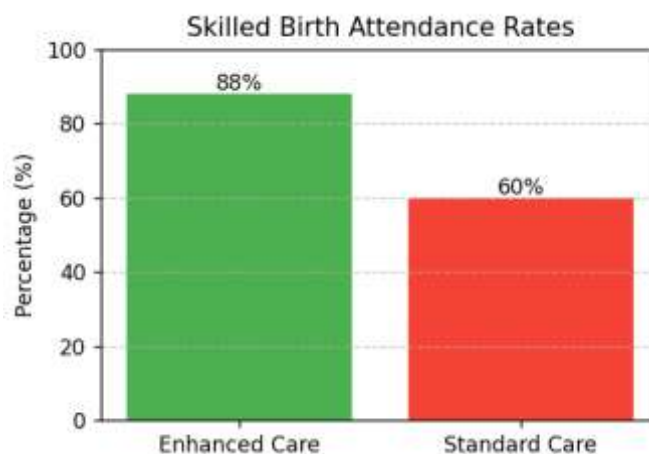


Figure.3. Skilled Birth Attendance Rates

3.4 Maternal Complications

There was reduced maternal complications in the enhanced care group. Hemorrhage (6% vs 14%), infection (5% vs 12%), and hypertension (8% vs 15%) were less frequent, with all differences being statistically significant as indicated in table 5. These results underscore the effectiveness of better perinatal care practices.

Table.5. Maternal Complications

Outcome	Enhanced Care	Standard Care	p-value
Hemorrhage	6%	14%	0.01
Infection	5%	12%	0.02
Hypertension	8%	15%	0.03

3.5 Neonatal Outcomes

The number of neonatal complications was also reduced in the enhanced care group, indicating the increased perinatal management and intervention during the birth and delivery stages.

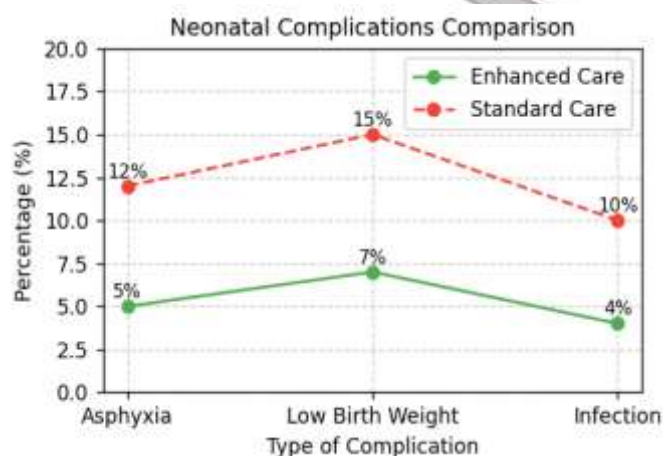


Figure.4. Neonatal Complications Comparison

Figure 4 contrasts neonatal complication of enhanced and standard care. Better rates of care are recorded at all times: asphyxia (5% vs 12%), low birth weight (7% vs 15%), and infection (4% vs 10%), which means that better outcomes are provided by better interventions.

4. Discussion

The research results of this article indicate that improved perinatal care methods are crucial towards eliminating maternal and neonatal complications during labor and delivery. The women, who also, benefitted through the increased care demonstrated high utilization of the ANC services and increased rates of skilled birth attendance, which are vital in early detection and treatment of pregnancy-related risks. Such advantages led to a substantial reduction in cases of complications related to hemorrhage, infection, and distress in newborns.

4.1 Key Insights

There are a number of valuable insights in the study. Effective birth attendance means ensuring that there is suitable monitoring of the labor process, and appropriate intervention in the event of complications thus eliminating negative results. ANC visits (consistently) help to detect high-risk pregnancy promptly and implement preventive strategies and referrals. Also, emergency obstetric services are vital in treating potentially fatal complications and enhancing childbirth survival.

4.2 Comparison with Previous Studies

The findings are aligned with the available global evidence, which indicates that holistic and integrated perinatal care not only contributes to a significant decrease in maternal and neonatal morbidity and mortality but also reiterates its relevance. The same studies have shown that enhancing systems of perinatal care results in higher birth rates and decreased risk of healthcare.

4.3 Limitations

The study, even with its contributions has its limitations. Observational type of the study does not allow determining causal relations. Moreover, the studies will also depend on clinical records and self-reported data, which might cause reporting bias and thus impact the validity of the results.

5. Conclusion

This paper concludes that perinatal care practices are a key factor in the reduction of maternal and neonatal complications during labour and delivery. Improved care methods, such as frequent antenatal care, competent birth/delivery, and availability of emergency obstetric services, contribute to health outcomes to a great degree. Results indicated that timely identification of risks, prompt medical practice and the use of continuous monitoring throughout pregnancy and delivery lead to better and safer deliveries and decreased morbidity. Conversely, restricted access to the practices predisposes adverse results. The improvement of healthcare infrastructure, strengthening the perinatal care systems and the availability of trained professionals are crucial to realizing improved maternal and neonatal health.

Creating awareness and urging the use of perinatal services will also boost the results. Comprehensive perinatal care is, on the whole, one of the primary strategies to enhance the safety of childbirth and decrease the incidence of complications to prevent.

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