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Effect of the who Safe Childbirth Checklist on Maternal and Neonatal Outcomes in Selected Tertiary Hospitals in Rivers and Bayelsa States, Nigeria

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ABSTRACT

Background: Maternal and neonatal mortality remain major global public health challenges, particularly in low- and middle-income countries such as Nigeria, where preventable complications during childbirth continue to contribute significantly to poor outcomes. Evidence-based intrapartum care is essential in reducing these deaths; however, poor adherence to standardized clinical guidelines among midwives limits optimal care delivery. The World Health Organization Safe Childbirth Checklist (WHO SCC) was developed as a quality improvement tool to enhance adherence to essential childbirth practices and improve maternal and neonatal outcomes, yet its effectiveness in Nigerian tertiary hospitals remains underreported.

Aim: This study evaluated the effect of the WHO Safe Childbirth Checklist on maternal and neonatal outcomes in selected tertiary hospitals in Rivers and Bayelsa States, Nigeria.

Methods: A cluster randomized controlled trial design was used. The study involved midwives and labouring women in selected tertiary healthcare facilities in Rivers and Bayelsa States. Hospitals were randomly assigned to intervention and control groups. Midwives in the intervention group received structured training and implementation support on the WHO Safe Childbirth Checklist, while the control group continued routine maternity care without the checklist. Data were collected on checklist utilization, maternal outcomes (eclampsia and postpartum haemorrhage), and neonatal outcomes (birth asphyxia, stillbirth, and neonatal sepsis) before and after intervention. Data were analyzed using descriptive and inferential statistics at a 0.05 significance level.

Results: There was a significant increase in WHO SCC utilization in the intervention group. Adherence to essential childbirth practices improved significantly ($p < 0.001$), including blood pressure monitoring, uterotonic administration, infection prevention, neonatal resuscitation preparedness, early breastfeeding initiation, and monitoring of danger signs. Maternal outcomes showed significant reductions in eclampsia and postpartum haemorrhage in the intervention group compared to controls. Neonatal outcomes also improved significantly, with reductions in birth asphyxia and neonatal sepsis. However, no significant reduction was observed in stillbirth rates ($p > 0.05$).

Conclusion: The WHO Safe Childbirth Checklist significantly improved adherence to essential childbirth practices and reduced selected maternal and neonatal complications. It is an effective quality improvement intervention for strengthening safe childbirth practices in tertiary healthcare settings in Nigeria.

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Introduction

Maternal and neonatal mortality remain major global public health concerns despite decades of international interventions aimed at improving maternal and child health outcomes. Pregnancy and childbirth, although natural physiological processes, continue to expose millions of women and newborns to preventable complications and deaths, especially in Low- and Middle-Income Countries (LMICs). According to the World Health Organization, an estimated 287,000 women die annually from pregnancy-related causes worldwide, while approximately 2.4 million neonatal deaths occur within the first 28 days of life each year [1]. The burden of these deaths is disproportionately concentrated in sub-Saharan Africa and South Asia, where weak health systems, inadequate skilled birth attendance, delayed emergency obstetric interventions, and poor quality of maternal healthcare services persist [2].

Globally, significant progress has been made in reducing maternal and neonatal mortality over the past two decades through initiatives such as the Sustainable Development Goals (SDGs), particularly

SDG 3, which aims to reduce the global maternal mortality ratio to less than 70 per 100,000 live births and neonatal mortality to at least 12 deaths per 1,000 live births by 2030 [3]. However, many developing countries continue to struggle with achieving these targets due to persistent inequities in access to quality maternal and newborn healthcare services. The majority of maternal deaths are caused by preventable complications such as postpartum haemorrhage, hypertensive disorders including eclampsia, sepsis, obstructed labour, and unsafe abortion, while neonatal deaths commonly result from birth asphyxia, prematurity, neonatal infections, and complications associated with poor intrapartum care [4].

Nigeria contributes substantially to the global burden of maternal and neonatal mortality. The country remains one of the highest contributors to maternal deaths worldwide, accounting for nearly 20% of global maternal mortality despite representing only a small proportion of the world's population [2]. The Nigeria Demographic and Health Survey reported that maternal mortality remains critically high, while neonatal mortality continues to pose a significant public health challenge across the country (National Population Commission [5]. Several factors contribute to these poor outcomes, including inadequate healthcare infrastructure, shortage of skilled healthcare providers, poor referral systems, poverty, delayed health-seeking behaviour, and inconsistent adherence to evidence-based childbirth practices during labour and delivery [6].

In many Nigerian healthcare facilities, preventable maternal and neonatal complications continue to occur due to gaps in the quality of intrapartum care. Evidence suggests that even when women access health facilities for childbirth, failure by healthcare workers to consistently implement essential birth practices contributes significantly to maternal and newborn morbidity and mortality [7]. Essential childbirth practices such as monitoring maternal vital signs, early identification of obstetric danger signs, infection prevention measures, administration of uterotonics, neonatal resuscitation preparedness, and immediate breastfeeding initiation are sometimes inadequately implemented due to high workload, staff shortages, communication gaps, and lack of standardized care protocols.

To address these challenges, the World Health Organization developed the WHO Safe Childbirth Checklist (SCC) as a practical quality improvement tool aimed at promoting adherence to evidence-based maternal and newborn care practices during childbirth [8]. The checklist was adapted from the WHO Surgical Safety Checklist and designed to support healthcare workers, particularly midwives and skilled birth attendants, in remembering and implementing critical life-saving practices at four key pause points during childbirth: on admission, before pushing or caesarean section, soon after birth, and before discharge. The WHO Safe Childbirth Checklist focuses on essential practices that help prevent major causes of maternal and neonatal deaths, including postpartum haemorrhage, eclampsia, sepsis, and birth asphyxia.

Several international studies have demonstrated the effectiveness of the WHO Safe Childbirth Checklist in improving adherence to essential birth practices and enhancing patient safety during childbirth [9]. reported significant improvements in healthcare workers' compliance with recommended childbirth practices following implementation of the checklist in selected health facilities. Similarly [10]. found that checklist implementation, combined with coaching interventions, improved the quality of maternal and neonatal care in resource-limited settings. Despite these positive outcomes, implementation success varies across countries and healthcare institutions due to contextual challenges such as inadequate staffing, limited institutional support, poor training opportunities, and resource constraints.

In Nigeria, research on the implementation and effectiveness of the WHO Safe Childbirth Checklist remains relatively limited, particularly in the South-South region comprising Rivers and Bayelsa States. Tertiary hospitals within these states continue to manage high volumes of obstetric cases, including preventable maternal and neonatal complications associated with poor intrapartum care practices. Furthermore, evidence on the impact of checklist implementation on specific maternal and neonatal outcomes such as eclampsia, postpartum haemorrhage, birth asphyxia, and stillbirth remains insufficient within the Nigerian context. This gap in knowledge underscores the need for evidence-based interventions capable of strengthening quality improvement initiatives in maternity care.

Therefore, this study investigated the effect of the WHO Safe Childbirth Checklist on maternal and neonatal outcomes in selected tertiary hospitals in Rivers and Bayelsa States, Nigeria. Specifically, the study assessed the influence of checklist implementation on maternal outcomes such as eclampsia and postpartum haemorrhage, neonatal outcomes including birth asphyxia and stillbirth, as well as checklist utilisation rates among midwives. The findings of this study are expected to contribute to the growing body of evidence on quality improvement strategies for enhancing maternal and neonatal healthcare delivery in Nigeria and similar low-resource settings.

Methods

Study Design

This study adopted a cluster randomised controlled trial (Cluster-RCT) design to evaluate the effectiveness of the World Health Organization (WHO) Safe Childbirth Checklist on maternal and neonatal outcomes in selected tertiary hospitals in Rivers and Bayelsa States, Nigeria. The cluster randomised controlled trial design was considered appropriate because the intervention was implemented at the hospital level rather than at the level of individual participants. In this design, entire hospitals served as clusters and were randomly assigned to either the intervention group or the control group. This approach helped to minimise contamination between participants and healthcare workers within the same facility, which could occur if individual randomisation had been used.

The study employed a pre-intervention and post-intervention assessment approach. Baseline data on maternal and neonatal outcomes, checklist utilisation, and adherence to essential childbirth practices were collected from both intervention and control hospitals before implementation of the intervention. Following the intervention period, post-intervention data were collected using the same procedures to assess changes attributable to the implementation of the WHO Safe Childbirth Checklist.

The design enabled comparison of maternal and neonatal outcomes between intervention and control hospitals while also assessing the effect of the checklist on healthcare workers' compliance with essential childbirth practices. The study followed the Consolidated Standards of Reporting Trials (CONSORT) guidelines for cluster randomized trials to ensure methodological rigour and transparency.

Study Area
The study was conducted in selected tertiary healthcare institutions located in Rivers and Bayelsa States in the South-South geopolitical zone of Nigeria. Rivers State and Bayelsa State are among the major oil-producing states in Nigeria and are characterized by both urban and rural populations with varying levels of access to healthcare services.

The selected tertiary hospitals provide specialized maternal and newborn healthcare services, including antenatal care, labour and delivery services, emergency obstetric care, caesarean section services, neonatal intensive care, and postnatal care. These hospitals also serve as referral centers for primary and secondary healthcare facilities within and outside the states. The hospitals were selected because they manage high volumes of childbirth cases and employ skilled birth attendants, particularly midwives and obstetric healthcare professionals involved in intrapartum care.

Additionally, the selected facilities maintain structured labour ward records and maternal and neonatal health registers, which facilitated reliable data collection for the study. The hospitals also possess similar organisational structures and maternity care practices, making them suitable for comparison within the cluster randomised controlled trial framework.

Study Population
The study population comprised two categories of participants:
- Midwives working in labour, maternity, and obstetric units of the selected tertiary hospitals.
- Labouring women and their newborns who received childbirth services in the selected hospitals during the study period.

The midwives constituted the direct implementers of the WHO Safe Childbirth Checklist intervention, while maternal and neonatal outcome data were obtained from women and newborns managed in the facilities during the implementation period.

Inclusion Criteria
Midwives
- Registered midwives employed in the selected tertiary hospitals.
- Midwives working in labour wards, antenatal wards, maternity units, and postnatal units.
- Midwives who consented to participate in the study.

Maternal and Neonatal Records
- Records of women who delivered within the study facilities during the study period.
- Records containing complete information on maternal and neonatal outcomes.

Exclusion Criteria
Midwives
- Student midwives and trainee nurses.
- Midwives on leave or temporary posting during the study period.
- Midwives who declined participation.

Maternal and Neonatal Records
- Incomplete delivery records.
- Women referred out before delivery outcomes could be documented.

Sample Size Determination
The sample size for the study was determined using statistical formulas appropriate for cluster randomised controlled trials. Consideration was given to the expected effect size of the intervention, intra-cluster correlation coefficient, level of significance, statistical power, and estimated attrition rate.

A minimum sample size sufficient to detect statistically significant differences in maternal and neonatal outcomes between intervention and control groups was calculated. Adjustment for cluster effects was also incorporated to account for similarities among participants within the same hospital cluster.

The study involved all eligible midwives in the selected maternity units as well as maternal and neonatal records obtained during the study period. The sample size was considered adequate to ensure representativeness and improve the reliability and validity of the findings.

Sampling Technique
A multistage sampling technique was adopted for the study.

• Stage One: Selection of States
Rivers State and Bayelsa State were purposively selected due to their high maternal healthcare service utilization rates and the availability of tertiary healthcare institutions with functional maternity units.

• Stage Two: Selection of Hospitals
Eligible tertiary hospitals with functional obstetric and neonatal care units were identified in both states. Hospitals that met the inclusion criteria were selected for participation in the study.

• Stage Three: Randomization of Hospitals
The selected hospitals were randomly assigned into intervention and control groups using simple randomization techniques. Random allocation was conducted to reduce selection bias and ensure comparability between study groups.

• Stage Four: Recruitment of Participants
All eligible midwives working in the maternity and labour units of the selected hospitals were recruited into the study. Maternal and neonatal outcome data were extracted from hospital records for all eligible childbirth cases during the study period.

Description of the Intervention
The intervention consisted of the implementation of the WHO Safe Childbirth Checklist in the intervention hospitals. The WHO Safe Childbirth Checklist is a structured quality improvement tool designed to promote adherence to evidence-based childbirth practices during labour, delivery, and the immediate postpartum period.

Components of the Intervention
The intervention included the following components:

Training of Midwives
Structured training sessions were organized for midwives in the intervention hospitals. The training focused on:
- Overview of maternal and neonatal mortality
- Principles and objectives of the WHO Safe Childbirth Checklist
- Essential childbirth practices
- Identification and management of obstetric emergencies
- Neonatal resuscitation preparedness
- Proper documentation and checklist utilisation

The training involved lectures, demonstrations, simulations, and practical sessions. Training materials were adapted from WHO implementation guidelines.

Provision of Checklist Materials
Copies of the WHO Safe Childbirth Checklist were provided in labour wards, delivery rooms, and maternity units within the intervention hospitals. Posters and reminder materials were also displayed to encourage compliance.

Supportive Supervision and Monitoring
Continuous supervision and supportive monitoring were conducted throughout the intervention period to ensure proper implementation of the checklist. Supervisors monitored checklist completion, provided feedback, and addressed implementation challenges encountered by healthcare workers.

Reinforcement of Essential Childbirth Practices
Regular reinforcement sessions were conducted to strengthen adherence to evidence-based childbirth practices, including:
- Monitoring maternal vital signs
- Prevention of postpartum haemorrhage
- Infection prevention practices
- Timely referral for obstetric complications
- Immediate newborn care
- Neonatal resuscitation preparedness

Duration of Intervention
The intervention was implemented over a specified period sufficient to allow integration of the checklist into routine maternity care practices before post-intervention evaluation was conducted.

Data Collection Instruments
Data were collected using multiple instruments to ensure comprehensive assessment of study outcomes.

WHO Safe Childbirth Checklist Utilisation Form
This instrument was used to assess the extent of checklist use by midwives during childbirth care. The form captured information on completion of checklist items at the four critical pause points.

Maternal and Neonatal Outcome Record Form
Structured extraction sheets were used to obtain data from hospital delivery registers, maternal records, and neonatal records. Information collected included:
- Incidence of eclampsia
- Incidence of postpartum haemorrhage
- Incidence of birth asphyxia
- Incidence of stillbirth
- Mode of delivery
- Maternal demographic variables

Observation Checklist
An observational checklist was used to assess healthcare workers' adherence to essential childbirth practices during labour and delivery.

Validity of Instruments
The instruments used for data collection were subjected to face and content validity by experts in maternal and child health nursing, midwifery, obstetrics, epidemiology, and research methodology. Their suggestions and corrections were incorporated into the final version of the instruments to ensure clarity, relevance, and adequacy in measuring the study variables.

Reliability of Instruments
Reliability of the data collection instruments was established through pilot testing in a tertiary healthcare facility outside the study area but with similar characteristics to the selected hospitals. The pilot study helped identify ambiguities and inconsistencies in the instruments.

Inter-rater reliability procedures were also employed for observational assessments to ensure consistency among data collectors. Reliability coefficients obtained from the pilot study demonstrated acceptable levels of consistency for the instruments used.

Procedure for Data Collection
Baseline data collection was conducted before implementation of the intervention. Pre-intervention data on maternal and neonatal outcomes, checklist utilisation, and childbirth practices were obtained from both intervention and control hospitals.

Following baseline assessment, the intervention was introduced in the intervention hospitals while the control hospitals continued routine maternity care practices without checklist implementation. Data collectors and research assistants were trained on study procedures, ethical conduct, and accurate completion of data collection instruments. Regular supervision was conducted during the data collection process to ensure quality control and minimize errors.

At the end of the intervention period, post-intervention data were collected using the same procedures and instruments applied during baseline assessment.

Outcome Measures
Primary Outcome Measures
The primary outcome measures included:
- Incidence of eclampsia
- Incidence of postpartum haemorrhage
- Incidence of birth asphyxia
- Incidence of stillbirth

Secondary Outcome Measures
Secondary outcomes included:
- Checklist utilization rates
- Adherence to essential childbirth practices
- Midwives' compliance with evidence-based maternity care procedures

Ethical Considerations
Ethical approval for the study was obtained from the Research Ethics Committees of the participating tertiary hospitals. Permission to conduct the study was also obtained from hospital management authorities and heads of maternity units.

The study adhered strictly to ethical principles guiding research involving human participants. Participation of midwives was voluntary, and informed consent was obtained before recruitment into the study. Participants were informed about the purpose, procedures, benefits, and possible risks associated with the study.

Confidentiality and anonymity were maintained throughout the study. Data obtained from hospital records were handled with strict confidentiality, and no identifying information was disclosed in the study report. Participants were assured that refusal to participate would not attract any form of penalty or affect their professional responsibilities.

Data Analysis

Data collected were coded, entered, cleaned, and analyzed using the Statistical Package for Social Sciences (SPSS) version 25. Descriptive statistics such as frequency distributions, percentages, means, and standard deviations were used to summarize demographic variables and study outcomes.

Inferential statistical analyses were conducted to test the study hypotheses and determine the effectiveness of the intervention. Chi-square tests were used to compare categorical variables between intervention and control groups, while independent t-tests and paired t-tests were used to assess differences in continuous variables where appropriate.

The level of statistical significance was set at 0.05. Findings were presented using tables, charts, and narrative descriptions to facilitate interpretation and discussion of results.

Results

Table 1: Baseline Characteristics of Participating Hospitals and Midwives

Variable	Intervention Group (n = 68)	Control Group (n = 66)	p-value
Mean age of midwives (years)	36.8 ± 7.4	35.9 ± 6.9	0.512
Female (%)	64 (94.1%)	62 (93.9%)	0.964
Mean years of practice	10.6 ± 4.3	9.9 ± 4.7	0.438
Registered Nurse/Midwife (%)	68 (100%)	66 (100%)	—
Previous exposure to WHO SCC (%)	14 (20.6%)	12 (18.2%)	0.731
Average monthly deliveries	312	298	—

Key: WHO SCC = WHO Safe Childbirth Checklist

Table 1 presents the baseline characteristics of participating hospitals and midwives in both the intervention and control groups before implementation of the WHO Safe Childbirth Checklist intervention. The findings revealed that the mean age of midwives in the intervention group was 36.8 ± 7.4 years, while that of the control group was 35.9 ± 6.9 years. There was no statistically significant difference in the mean ages of participants between the two groups ($p = 0.512$), indicating comparability at baseline.

The majority of participants in both groups were female, with females accounting for 94.1% (64) of participants in the intervention group and 93.9% (62) in the control group. The difference observed was not statistically significant ($p = 0.964$). Furthermore, all participants in both groups were registered nurse/midwives, representing 100% professional qualification among the study participants.

In relation to years of professional practice, midwives in the intervention group had a mean practice experience of 10.6 ± 4.3 years, whereas those in the control group had a mean of 9.9 ± 4.7 years. The difference between the groups was not statistically significant ($p = 0.438$), suggesting similarity in professional experience among participants.

The findings also showed that previous exposure to the WHO Safe Childbirth Checklist was generally low among participants in both groups. Only 20.6% (14) of midwives in the intervention group and 18.2% (12) in the control group reported previous exposure to the WHO Safe Childbirth Checklist, with no statistically significant difference between the groups ($p = 0.731$).

Regarding hospital delivery workload, the intervention hospitals recorded an average monthly delivery rate of 312 births, while the control hospitals recorded an average of 298 deliveries per month.

Table 2: Pre- and Post-Intervention Utilization of WHO Safe Childbirth Checklist Among Midwives

Checklist Utilization	Intervention Group Pre-Intervention n (%)	Intervention Group Post-Intervention n (%)	Control Group Pre-Intervention n (%)	Control Group Post-Intervention n (%)	χ^2	p-value
Consistent checklist use	11 (16.2%)	59 (86.8%)	10 (15.2%)	13 (19.7%)	52.41	<0.001*
Partial checklist use	18 (26.5%)	7 (10.3%)	16 (24.2%)	18 (27.3%)	4.21	0.380
No checklist use	39 (57.3%)	2 (2.9%)	40 (60.6%)	35 (53.0%)	47.18	<0.001*

*Statistically significant at $p < 0.05$

Table 2 presents the pre- and post-intervention utilization of the WHO Safe Childbirth Checklist among midwives in the intervention and control groups. The findings revealed a substantial improvement in consistent checklist utilization among midwives in the intervention group following implementation of the training and supportive supervision programme. Before the intervention, only 11 (16.2%) of the midwives in the intervention group reported consistent use of the WHO Safe Childbirth Checklist. However, after the intervention, consistent checklist utilization increased markedly to 59 (86.8%). In comparison, the control group showed only a slight

increase from 10 (15.2%) at pre-intervention to 13 (19.7%) at post-intervention. The difference observed between the intervention and control groups was statistically significant ($\chi^2 = 52.41$, $p < 0.001$).

The findings further indicated that partial utilization of the checklist decreased among midwives in the intervention group after the intervention. At baseline, 18 (26.5%) of participants in the intervention group reported partial checklist utilization, whereas this reduced to 7 (10.3%) at post-intervention. Conversely, the control group showed a slight increase in partial checklist use from 16 (24.2%) before intervention to 18 (27.3%) after intervention. The difference in partial checklist utilization between the groups was not statistically significant ($\chi^2 = 4.21$, $p = 0.380$).

Similarly, the proportion of midwives who reported no checklist utilization decreased significantly in the intervention group following implementation of the WHO Safe Childbirth Checklist programme. Prior to the intervention, 39 (57.3%) of the midwives in the intervention group did not utilise the checklist, but this number reduced drastically to 2 (2.9%) after the intervention. In contrast, the control group showed only a minimal reduction from 40 (60.6%) at pre-intervention to 35 (53.0%) at post-intervention. The observed reduction in non-utilization among the intervention group was statistically significant ($\chi^2 = 47.18$, $p < 0.001$).

Table 3: Comparison of Maternal Outcomes Before and After WHO Safe Childbirth Checklist Implementation

Maternal Outcome	Intervention Pre-Intervention n (%)	Intervention post-intervention n (%)	Control Pre-Intervention n (%)	Control post-intervention n (%)	χ^2	p-value
Eclampsia	28 (8.9%)	11 (3.2%)	26 (8.4%)	23 (7.6%)	11.84	0.001*
Postpartum haemorrhage	34 (10.8%)	19 (5.5%)	31 (10.0%)	28 (9.2%)	6.29	0.012*
Maternal sepsis	16 (5.1%)	9 (2.6%)	15 (4.8%)	14 (4.6%)	3.47	0.062

*Statistically significant at $p < 0.05$

Table 2 presents the pre- and post-intervention utilisation of the WHO Safe Childbirth Checklist among midwives in the intervention and control groups. The findings revealed a substantial improvement in consistent checklist utilisation among midwives in the intervention group following implementation of the training and supportive supervision programme. Before the intervention, only 11 (16.2%) of the midwives in the intervention group reported consistent use of the WHO Safe Childbirth Checklist. However, after the intervention, consistent checklist utilisation increased markedly to 59 (86.8%). In comparison, the control group showed only a slight increase from 10 (15.2%) at pre-intervention to 13 (19.7%) at post-intervention. The difference observed between the intervention and control groups was statistically significant ($\chi^2 = 52.41$, $p < 0.001$).

The findings further indicated that partial utilisation of the checklist decreased among midwives in the intervention group after the intervention. At baseline, 18 (26.5%) of participants in the intervention group reported partial checklist utilisation, whereas this reduced to 7 (10.3%) at post-intervention. Conversely, the control group showed a slight increase in partial checklist use from 16 (24.2%) before intervention to 18 (27.3%) after intervention. The difference in partial checklist utilisation between the groups was not statistically significant ($\chi^2 = 4.21$, $p = 0.380$).

Similarly, the proportion of midwives who reported no checklist utilisation decreased significantly in the intervention group following implementation of the WHO Safe Childbirth Checklist programme. Prior to the intervention, 39 (57.3%) of the midwives in the intervention group did not utilise the checklist, but this number reduced drastically to 2 (2.9%) after the intervention. In contrast, the control group showed only a minimal reduction from 40 (60.6%) at pre-intervention to 35 (53.0%) at post-intervention. The observed reduction in non-utilisation among the intervention group was statistically significant ($\chi^2 = 47.18$, $p < 0.001$).

Table 4: Comparison of Neonatal Outcomes Before and After WHO Safe Childbirth Checklist Implementation

Neonatal Outcome	Intervention Pre-Intervention n (%)	Intervention post-intervention n (%)	Control Pre-Intervention n (%)	Control post-intervention n (%)	χ^2	p-value
Birth asphyxia	42 (13.4%)	17 (4.9%)	39 (12.6%)	34 (11.1%)	14.67	<0.001*
Stillbirth	18 (5.7%)	14 (4.1%)	17 (5.5%)	16 (5.2%)	1.22	0.269
Neonatal sepsis	20 (6.4%)	10 (2.9%)	18 (5.8%)	16 (5.2%)	4.98	0.026*

*Statistically significant at $p < 0.05$

Table 4 presents the comparison of neonatal outcomes before and after implementation of the WHO Safe Childbirth Checklist in the intervention and control groups. The findings revealed a significant reduction in the incidence of birth asphyxia among newborns delivered in the intervention hospitals following implementation of the checklist. At the pre-intervention stage, 42 (13.4%) cases of birth asphyxia were recorded in the intervention group, whereas the number reduced markedly to 17 (4.9%) after the intervention. In comparison, the control group showed only a slight reduction from 39 (12.6%) before intervention to 34 (11.1%) after intervention. The difference observed between the intervention and control groups was statistically significant ($\chi^2 = 14.67$, $p < 0.001$).

The findings further indicated a slight reduction in stillbirth rates following implementation of the WHO Safe Childbirth Checklist in the intervention hospitals. Before the intervention, 18 (5.7%) cases of stillbirth were recorded in the intervention group, while the number decreased to 14 (4.1%) at post-intervention. Similarly, the control group showed only a marginal reduction from 17 (5.5%) before intervention to 16 (5.2%) after intervention. However, the difference observed between the intervention and control groups was not statistically significant ($\chi^2 = 1.22$, $p = 0.269$).

Regarding neonatal sepsis, the findings demonstrated a reduction in the incidence among newborns managed in the intervention hospitals after checklist implementation. Cases of neonatal sepsis declined from 20 (6.4%) at pre-intervention to 10 (2.9%) at post-intervention in the intervention group. In contrast, the control group showed only a slight decrease from 18 (5.8%) before intervention to 16 (5.2%) after intervention. The observed difference between the intervention and control groups was statistically significant ($\chi^2 = 4.98$, $p = 0.026$).

Table 5: Adherence to Essential Childbirth Practices Among Midwives

Essential Childbirth Practice	Pre-Intervention n (%)	Post-Intervention n (%)	χ^2	p-value
Blood pressure monitoring	37 (54.4%)	64 (94.1%)	28.71	<0.001*
Administration of uterotonics	41 (60.3%)	66 (97.1%)	24.39	<0.001*
Infection prevention practices	43 (63.2%)	65 (95.6%)	18.56	<0.001*
Neonatal resuscitation preparedness	29 (42.6%)	61 (89.7%)	33.74	<0.001*
Early breastfeeding initiation	32 (47.1%)	60 (88.2%)	25.62	<0.001*
Monitoring maternal danger signs	35 (51.5%)	63 (92.6%)	29.11	<0.001*

*Statistically significant at $p < 0.05$

Table 5 presents the level of adherence to essential childbirth practices among midwives before and after implementation of the WHO Safe Childbirth Checklist intervention. The findings revealed a significant improvement in blood pressure monitoring among midwives following the intervention. Prior to implementation of the checklist, only 37 (54.4%) of the midwives adhered consistently to blood pressure monitoring during labour and delivery. However, post-intervention findings showed a marked increase to 64 (94.1%). The observed improvement was statistically significant ($\chi^2 = 28.71$, $p < 0.001$).

Similarly, adherence to the administration of uterotonics improved significantly after implementation of the WHO Safe Childbirth Checklist. Before the intervention, 41 (60.3%) of midwives consistently administered uterotonics appropriately, while this increased substantially to 66 (97.1%) after the intervention. The difference observed was statistically significant ($\chi^2 = 24.39$, $p < 0.001$).

The findings also demonstrated significant improvement in infection prevention practices among midwives. At the pre-intervention stage, 43 (63.2%) of participants adhered to standard infection prevention measures, whereas post-intervention adherence increased to 65 (95.6%). The improvement observed was statistically significant ($\chi^2 = 18.56$, $p < 0.001$).

With respect to neonatal resuscitation preparedness, the study revealed a remarkable increase in adherence following implementation of the checklist. Prior to the intervention, only 29 (42.6%) of midwives adequately prepared for neonatal resuscitation during childbirth, but this increased significantly to 61 (89.7%) after the intervention. The difference was statistically significant ($\chi^2 = 33.74$, $p < 0.001$).

Furthermore, adherence to early breastfeeding initiation improved significantly after the intervention. The proportion of midwives who initiated breastfeeding early increased from 32 (47.1%) before intervention to 60 (88.2%) after intervention. This improvement was statistically significant ($\chi^2 = 25.62$, $p < 0.001$).

The findings equally showed a significant improvement in monitoring maternal danger signs during labour and delivery. Before implementation of the WHO Safe Childbirth Checklist, only 35 (51.5%) of midwives consistently monitored maternal danger signs, whereas this increased to 63 (92.6%) after the intervention. The observed difference was statistically significant ($\chi^2 = 29.11$, $p < 0.001$).

Discussion

The result of this study presents the baseline characteristics of participating hospitals and midwives in both the intervention (n = 68) and control (n = 66) groups prior to implementation of the study intervention. The purpose of examining baseline characteristics in quasi-experimental and interventional studies is to determine whether both groups are comparable at the onset of the study, thereby ensuring internal validity and minimizing selection bias (Polit & Beck, 2021).

The mean age of midwives in the intervention group was 36.8 ± 7.4 years, while that of the control group was 35.9 ± 6.9 years. The difference was not statistically significant ($p = 0.512$), indicating that both groups were age-matched. This suggests that participants in both groups were within a similar productive working age range, which is important in clinical practice settings where cognitive performance, clinical judgment, and physical endurance influence midwifery care delivery.

In terms of gender distribution, both groups were predominantly female, with 94.1% in the intervention group and 93.9% in the control group ($p = 0.964$). This reflects the global and regional trend in nursing and midwifery professions, where females constitute the majority workforce due to historical, cultural, and professional patterns (WHO, 2020). The near-identical distribution of gender further supports group comparability and reduces the likelihood of gender-based confounding in practice adherence outcomes.

The mean years of professional practice were 10.6 ± 4.3 years in the intervention group and 9.9 ± 4.7 years in the control group, with no statistically significant difference ($p = 0.438$). This indicates that both groups consisted of moderately experienced midwives. Clinical experience is a critical determinant of adherence to maternal and neonatal protocols, as increased years of practice are often associated with improved competence and clinical confidence in intrapartum care (ICM, 2018). The similarity in experience level across both groups enhances the validity of comparative outcomes observed in the study.

All participants in both groups were Registered Nurses/Midwives (100%), indicating uniform professional qualification across the study population. This homogeneity is particularly important in studies assessing compliance with standardized tools such as the WHO Safe Childbirth Checklist (WHO SCC), as variations in professional qualification could otherwise influence baseline knowledge, clinical reasoning, and adherence behaviors.

Previous exposure to the WHO Safe Childbirth Checklist was relatively low in both groups, with 20.6% in the intervention group and 18.2% in the control group ($p = 0.731$). The lack of significant difference indicates comparable baseline familiarity with the WHO SCC. However, the overall low exposure underscores a critical gap in continuing professional development and implementation of standardized maternal safety tools in clinical settings. This finding aligns with previous studies in low- and middle-income countries, where adoption of structured safety checklists remains suboptimal due to limited training and institutional support [11].

The average monthly delivery load was 312 in the intervention hospitals and 298 in the control hospitals. Although statistical comparison was not provided, the figures suggest comparable workload distribution between facilities. High delivery volume is an important contextual factor as it may influence compliance with protocols due to workload pressure, staffing constraints, and time limitations during labour management.

Furthermore, the baseline data demonstrate that both intervention and control groups were well-matched across demographic, professional, and clinical workload variables. The absence of statistically significant differences across key characteristics strengthens the internal validity of the study and supports the attribution of any post-intervention differences in outcomes to the implementation of the intervention rather than pre-existing disparities between groups. This aligns with best practices in nursing and midwifery research methodology, which emphasize baseline equivalence as a foundation for credible intervention evaluation [12].

Table 2 presents the pre- and post-intervention utilization of the WHO Safe Childbirth Checklist (WHO SCC) among midwives in both the intervention and control groups. The findings demonstrate a marked improvement in checklist utilization following the intervention, particularly within the intervention group, highlighting the effectiveness of structured training and implementation support in improving adherence to evidence-based intrapartum care protocols.

At baseline, consistent use of the WHO SCC was low and comparable between both groups, with 16.2% in the intervention group and 15.2% in the control group. This reflects a generally poor level of routine integration of standardized safety tools into clinical practice prior to the intervention. Such low baseline utilization is consistent with findings in other low- and middle-income countries, where WHO SCC adoption is often hindered by inadequate training, lack of institutional enforcement, and poor awareness among maternity care providers (Spector et al., 2013; WHO, 2015).

Following the intervention, there was a substantial and statistically significant increase in consistent checklist use within the intervention group, rising sharply from 16.2% to 86.8% ($\chi^2 = 52.41$, $p < 0.001$). This dramatic improvement indicates a strong positive effect of the intervention on midwives' compliance with standardized childbirth safety protocols. From a nursing and midwifery practice perspective, this finding underscores the importance of structured capacity-building interventions, continuous professional development, and clinical reinforcement in improving adherence to patient safety tools. It also reflects improved clinical accountability and systematic integration of checklist-based care into routine obstetric practice.

In contrast, the control group showed only a marginal increase in consistent checklist use from 15.2% to 19.7%, which was not statistically significant in terms of meaningful clinical improvement when compared with the intervention group. This suggests that routine practice without targeted intervention is insufficient to significantly improve compliance with WHO SCC utilization, even in settings where midwives possess similar baseline qualifications and experience.

For partial checklist use, the intervention group demonstrated a reduction from 26.5% pre-intervention to 10.3% post-intervention. This decline suggests a shift from inconsistent or incomplete utilization toward full adherence, which is clinically desirable in improving maternal and neonatal outcomes. In contrast, the control group showed a slight increase from 24.2% to 27.3%, indicating no meaningful improvement and possibly reflecting ongoing inconsistent practice patterns.

A particularly important finding is the reduction in "no checklist use" within the intervention group, which declined significantly from 57.3% at baseline to 2.9% post-intervention ($\chi^2 = 47.18$, $p < 0.001$). This indicates near-universal adoption of the WHO SCC after the intervention, demonstrating strong behavioral and practice change among midwives. In obstetric nursing practice, elimination of non-use is critical because failure to apply standardized safety checks is associated with increased risk of preventable maternal and neonatal complications, including postpartum hemorrhage, sepsis, and birth asphyxia (WHO, 2015).

Conversely, the control group showed a deterioration in practice, with "no checklist use" increasing from 60.6% to 53.0% remaining relatively high post-intervention, suggesting no sustained improvement and possibly reflecting systemic gaps in training reinforcement and supervision.

Furthermore, the results in Table 2 provide strong empirical evidence that targeted intervention significantly improves the utilization of the WHO Safe Childbirth Checklist among midwives. The statistically significant differences observed ($p < 0.001$) reinforce the effectiveness of structured implementation strategies in enhancing adherence to maternal safety protocols. From a midwifery and nursing perspective, this highlights the critical role of continuous education, supportive supervision, and institutional commitment in improving evidence-based practice compliance and ultimately strengthening maternal and neonatal health outcomes in clinical settings.

Table 3 presents a comparative analysis of maternal outcomes before and after the implementation of the WHO Safe Childbirth Checklist (WHO SCC) among women managed in the intervention and control hospitals. The findings provide important evidence on how structured clinical safety interventions can influence maternal morbidity outcomes, particularly in high-burden obstetric settings. In nursing and midwifery practice, such outcome-based evaluations are critical for assessing the effectiveness of evidence-based interventions in improving maternal survival and quality of care (WHO, 2015; ICM, 2018).

Regarding eclampsia, the intervention group recorded a significant reduction from 8.9% pre-intervention to 3.2% post-intervention ($\chi^2 = 11.84$, $p = 0.001$). In contrast, the control group showed only a slight reduction from 8.4% to 7.6%, which was not statistically meaningful. This marked decline in the intervention group suggests that the WHO SCC contributed to improved early detection and timely management of hypertensive disorders of pregnancy. From a midwifery perspective, eclampsia is largely preventable when antenatal and intrapartum monitoring protocols such as regular blood pressure assessment and prompt escalation of abnormal findings are consistently applied. The checklist likely reinforced adherence to these critical steps, thereby reducing progression from preeclampsia to eclampsia. This finding aligns with WHO recommendations that structured clinical reminders improve early recognition of obstetric complications and enhance patient safety outcomes (WHO, 2015).

Similarly, postpartum haemorrhage (PPH), a leading cause of maternal mortality globally, showed a significant reduction in the intervention group from 10.8% to 5.5% ($\chi^2 = 6.29$, $p = 0.012$). The control group, however, demonstrated only a marginal change from 10.0% to 9.2%. This suggests that the intervention played a critical role in improving adherence to active management of the third stage of labour (AMTSL), including timely administration of uterotonics, uterine massage, and close postpartum monitoring. In nursing and midwifery practice, PPH prevention relies heavily on strict adherence to standardized protocols, and the WHO SCC serves as a cognitive and procedural guide to ensure no critical step is omitted during delivery care. The observed reduction is therefore clinically significant, as even small decreases in PPH incidence translate into substantial reductions in maternal morbidity and mortality in resource-limited settings (Prata et al., 2013).

For maternal sepsis, the intervention group showed a reduction from 5.1% to 2.6%, while the control group remained relatively unchanged (4.8% to 4.6%). However, the difference did not reach statistical significance ($\chi^2 = 3.47$, $p = 0.062$). Although not statistically significant, the downward trend in the intervention group is clinically important. Maternal sepsis is closely associated with infection prevention practices such as hand hygiene, sterile delivery techniques, timely antibiotic administration, and postpartum monitoring. The WHO SCC includes key infection prevention checkpoints, and its use may have contributed to improved compliance with aseptic techniques. The lack of statistical significance may be due to limited sample size, variability in infection sources, or environmental and infrastructural factors beyond the checklist's direct influence, such as water supply, staffing constraints, or facility hygiene conditions.

Overall, the findings in Table 3 demonstrate that implementation of the WHO Safe Childbirth Checklist is associated with significant improvements in major maternal outcomes, particularly in reducing eclampsia and postpartum haemorrhage. These outcomes are among the most preventable causes of maternal mortality when evidence-based protocols are strictly followed. From a nursing and midwifery standpoint, the checklist functions as a structured clinical decision-support tool that enhances situational awareness, reduces omission of critical steps, and promotes standardized care delivery during labour and delivery.

The results also reinforce the importance of system-level interventions in improving maternal health outcomes. According to WHO (2015), patient safety tools such as checklists are most effective when integrated into routine clinical workflow, supported by training, supervision, and institutional commitment. The observed improvements in the intervention group therefore reflect not only individual behavior change among midwives but also enhanced clinical governance and accountability.

The result of this study provides strong evidence that the WHO Safe Childbirth Checklist significantly improves maternal outcomes, particularly in reducing life-threatening obstetric complications. This underscores its value as an essential tool in midwifery practice for strengthening quality of care, improving maternal safety, and advancing progress toward global maternal mortality reduction targets.

Table 4 presents the comparison of neonatal outcomes before and after the implementation of the WHO Safe Childbirth Checklist (WHO SCC) in both the intervention and control groups. The findings provide important evidence on the effectiveness of structured intrapartum safety interventions in improving early neonatal survival outcomes, particularly in resource-constrained maternity settings where preventable neonatal complications remain a major public health challenge. In nursing and midwifery practice, neonatal outcomes such as birth asphyxia, stillbirth, and neonatal sepsis are key indicators of the quality of intrapartum and immediate postnatal care (WHO, 2015; Lawn et al., 2014).

For birth asphyxia, the intervention group recorded a substantial reduction from 13.4% pre-intervention to 4.9% post-intervention ($\chi^2 = 14.67$, $p < 0.001$). In contrast, the control group showed only a slight reduction from 12.6% to 11.1%, which was not clinically significant. This sharp decline in the intervention group suggests that the WHO SCC significantly improved adherence to essential intrapartum monitoring practices such as fetal heart rate assessment, timely identification of fetal distress, and prompt decision-making regarding emergency obstetric interventions. In midwifery practice, birth asphyxia is largely preventable when skilled birth attendants consistently monitor labour progression using standardized protocols such as partograph use and continuous fetal surveillance. The checklist likely reinforced these critical actions, ensuring early detection of complications and timely referral or intervention, thereby reducing hypoxic injury at birth. This finding aligns with global evidence that structured intrapartum care tools improve neonatal survival outcomes by reducing delays in clinical decision-making (WHO, 2015; Bhutta et al., 2017).

Regarding stillbirth, the intervention group showed a reduction from 5.7% to 4.1%, while the control group recorded a marginal decline from 5.5% to 5.2%. However, this difference was not statistically significant ($\chi^2 = 1.22$, $p = 0.269$). Although not significant, the observed reduction in the intervention group may still reflect improved intrapartum surveillance and better adherence to essential obstetric care practices. Stillbirth is a multifactorial outcome influenced not only by intrapartum care but also by antenatal factors such as maternal health status, placental function, and fetal growth restriction. Therefore, while the WHO SCC improves intrapartum care processes, its direct effect on stillbirth

reduction may be limited unless combined with comprehensive antenatal and referral system strengthening. This is consistent with WHO observations that reductions in stillbirth require integrated maternal and neonatal health interventions across the continuum of care (WHO, 2020).

For neonatal sepsis, the intervention group demonstrated a significant reduction from 6.4% to 2.9% ($\chi^2 = 4.98$, $p = 0.026$), while the control group showed minimal change from 5.8% to 5.2%. This finding highlights the effectiveness of the WHO SCC in improving infection prevention and control practices during delivery and the immediate postnatal period. In nursing and midwifery care, neonatal sepsis is strongly associated with breaches in aseptic technique, poor hand hygiene, inadequate cord care, and delayed recognition of neonatal infection signs. The checklist serves as a structured reminder for infection prevention measures, including sterile delivery techniques, timely cord care, and early neonatal assessment. The significant reduction observed in the intervention group suggests improved compliance with these essential practices, thereby reducing neonatal exposure to infectious agents. This is consistent with evidence indicating that structured safety checklists enhance adherence to infection prevention protocols and reduce healthcare-associated infections in newborns (Spector et al., 2013; WHO, 2015).

Overall, the findings in Table 4 demonstrate that implementation of the WHO Safe Childbirth Checklist is associated with significant improvements in key neonatal outcomes, particularly in reducing birth asphyxia and neonatal sepsis. These outcomes are critical indicators of intrapartum care quality and immediate newborn management. From a nursing and midwifery perspective, the checklist functions as an essential cognitive aid that supports clinical decision-making, reduces omission of critical care steps, and standardizes evidence-based practice during childbirth.

The lack of significant improvement in stillbirth rates suggests that while the WHO SCC is highly effective in improving intrapartum and immediate postnatal care processes, its impact on broader fetal outcomes may require integration with strengthened antenatal surveillance, emergency obstetric referral systems, and improved maternal health optimization strategies. This underscores the importance of a continuum-of-care approach in maternal and newborn health programming.

The result of this study therefore provides strong evidence that the WHO Safe Childbirth Checklist improves neonatal survival outcomes, particularly by reducing preventable conditions such as birth asphyxia and neonatal sepsis. This reinforces its value as a critical quality improvement tool in midwifery practice, supporting safer childbirth, enhancing clinical adherence to standards, and contributing to the reduction of neonatal morbidity in low-resource healthcare settings.

Table 5 presents the comparison of adherence to essential childbirth practices among midwives before and after the implementation of the WHO Safe Childbirth Checklist (WHO SCC). The findings demonstrate a consistent and statistically significant improvement across all measured clinical practices in the post-intervention period ($p < 0.001$ for all variables), indicating a strong positive impact of the intervention on the quality of intrapartum and immediate postnatal care. In nursing and midwifery practice, adherence to essential childbirth practices is fundamental to reducing preventable maternal and neonatal morbidity and mortality, as emphasized in global safe motherhood initiatives (WHO, 2015; ICM, 2018).

Blood pressure monitoring showed a remarkable increase from 54.4% pre-intervention to 94.1% post-intervention ($\chi^2 = 28.71$, $p < 0.001$). This improvement is clinically significant because routine blood pressure assessment is essential for early detection of hypertensive disorders of pregnancy, including preeclampsia and eclampsia. In midwifery practice, failure to monitor blood pressure consistently is a major contributor to delayed diagnosis of obstetric complications. The WHO SCC likely enhanced midwives' compliance by providing structured prompts that reinforce timely monitoring at critical points during labour and antenatal assessments.

Similarly, administration of uterotonics increased from 60.3% to 97.1% ($\chi^2 = 24.39$, $p < 0.001$). This practice is central to the prevention of postpartum haemorrhage (PPH), the leading cause of maternal mortality globally. The WHO recommends active management of the third stage of labour, including routine administration of uterotonics such as oxytocin, to reduce uterine atony and excessive bleeding (WHO, 2015). The near-universal adherence observed post-intervention reflects improved compliance with evidence-based obstetric protocols and highlights the effectiveness of the checklist in reinforcing life-saving interventions during delivery.

Infection prevention practices also improved significantly from 63.2% to 95.6% ($\chi^2 = 18.56$, $p < 0.001$). This finding is particularly important in reducing maternal and neonatal infections, including puerperal sepsis and neonatal sepsis. In nursing and midwifery care, infection prevention relies on strict adherence to hand hygiene, sterile procedures, and proper cord care. The WHO SCC serves as a cognitive aid that ensures these steps are not overlooked, particularly in high-pressure labour ward environments. This improvement is consistent with evidence that structured checklists enhance compliance with Infection Prevention and Control (IPC) measures in clinical settings (Spector et al., 2013).

Neonatal resuscitation preparedness showed the most dramatic improvement, increasing from 42.6% to 89.7% ($\chi^2 = 33.74$, $p < 0.001$). This is highly significant in reducing neonatal mortality associated with birth asphyxia. In midwifery practice, preparedness for neonatal resuscitation involves ensuring availability of functional equipment, readiness of personnel, and prompt response at delivery. The WHO SCC likely improved anticipatory readiness by prompting midwives to prepare resuscitation equipment before delivery and ensuring immediate action when required. This aligns with global evidence that timely neonatal resuscitation is one of the most effective interventions for preventing intrapartum-related neonatal deaths (Lawn et al., 2014).

Early initiation of breastfeeding improved from 47.1% to 88.2% ($\chi^2 = 25.62$, $p < 0.001$). This practice is critical for neonatal survival as early breastfeeding provides colostrum, enhances immunity, promotes mother–infant bonding, and reduces neonatal hypoglycaemia. In nursing and midwifery practice, early breastfeeding initiation is often delayed due to workload, lack of awareness, or cultural barriers. The checklist appears to have strengthened midwives' commitment to initiating breastfeeding within the first hour of birth, consistent with WHO recommendations for optimal newborn feeding practices (WHO, 2015).

Monitoring of maternal danger signs also increased significantly from 51.5% to 92.6% ($\chi^2 = 29.11$, $p < 0.001$). This improvement reflects enhanced vigilance in detecting postpartum complications such as hemorrhage, sepsis, and hypertensive crises. In midwifery

care, continuous observation and early recognition of danger signs are essential for timely escalation and referral. The WHO SCC likely reinforced structured postpartum monitoring, ensuring that midwives systematically assess maternal condition during the critical postpartum period.

Overall, the findings in Table 5 demonstrate that the WHO Safe Childbirth Checklist significantly improved adherence to essential childbirth practices across all domains of maternal and neonatal care. The consistent statistical significance ($p < 0.001$) indicates that the intervention had a strong and uniform effect on clinical behavior change among midwives. From a nursing and midwifery perspective, this underscores the importance of structured clinical tools in bridging the gap between knowledge and practice, improving compliance with evidence-based guidelines, and enhancing patient safety outcomes.

Furthermore, the WHO safe childbirth checklist (WHO SCC) functions as an effective quality improvement intervention that strengthens adherence to essential childbirth practices, reduces omissions in care, and promotes standardized, safe, and evidence-based midwifery practice. These improvements are fundamental to achieving better maternal and neonatal outcomes and advancing global efforts toward reducing preventable deaths in childbirth [13-18].

Conclusion

The study demonstrated that implementation of the WHO Safe Childbirth Checklist significantly improved adherence to essential childbirth practices among midwives in selected tertiary hospitals in Rivers and Bayelsa States, Nigeria. The intervention contributed to reductions in eclampsia and birth asphyxia and enhanced overall quality of maternal and newborn care. Although no statistically significant reduction in stillbirth was observed, the checklist remains an effective strategy for improving patient safety during childbirth. Sustained training, supportive supervision, and institutional commitment are essential for successful implementation and long-term integration of the WHO Safe Childbirth Checklist into maternity care practice in Nigeria.

References

1. World Health Organization (2024) Trends in maternal mortality 2000-2023 WHO.
2. (2023) United Nations Children's Fund (UNICEF) Levels and Trends in Child Mortality Report 2023 New York UNICEF https://data.unicef.org/resources/levels-and-trends-in-child-mortality-2023/.
3. United Nations (2015) Transforming our world the 2030 agenda for sustainable development United Nations https://sdgs.un.org/2030agenda.
4. (2023) World Health Organization, Newborn mortality WHO https://www.who.int/data/gho/data/themes/topics/topic-details/GHO/child-mortality-and-causes-of-death.
5. (2022) National Population Commission (NPC) [Nigeria] & ICF (2019) Nigeria demographic and health survey 2018 NPC and ICF https://www.scirp.org/reference/referencespapers?referenceid=3241515.
6. Federal Ministry of Health Nigeria (2022) National Guidelines for Maternal and Newborn Health Care Abuja FMOH https://health.gov.ng/family-health-policy/.
7. Semrau KEA, Hirschhorn LR, Marx Delaney M (2017) Outcomes of a coaching-based WHO Safe Childbirth Checklist programme in India. New England Journal of Medicine 377: 2313-2324.
8. (2015) World Health Organization, WHO safe childbirth checklist implementation guide: Improving the quality of facility-based delivery for mothers and newborns WHO https://www.healthynewbornnetwork.org/hnn-content/uploads/Implementation-guide.pdf.
9. Spector JM, Agrawal P, Kodkany B (2012) Improving quality of care for maternal and newborn health: Prospective pilot study of the WHO Safe Childbirth Checklist programme. PLoS One 7: e35151.
10. Semrau KEA, Hirschhorn LR, Marx Delaney M, Singh VP, Saurastri R, et al. (2017) Outcomes of a coaching-based WHO Safe Childbirth Checklist program in India. New England Journal of Medicine 377: 2313-2324.
11. Spector J M, Agrawal P, Kodkany B, Lipsitz S, Lashoher A, et al. (2012) Improving quality of care for maternal and newborn health: Prospective pilot study of the WHO Safe Childbirth Checklist program. PLoS ONE 7: e35151.
12. World Health Organization (2015) WHO Safe Childbirth Checklist Implementation Guide. Geneva: WHO https://www.healthynewbornnetwork.org/hnn-content/uploads/Implementation-guide.pdf.
13. Afulani PA, Diamond-Smith N, Golub G, Sudhinaraset M (2017) Development of a tool to measure person-centred maternity care in developing settings. BMJ Global Health 2: e000198.
14. Federal Ministry of Health (2022) National guidelines for maternal and newborn health care in Nigeria. Federal Ministry of Health.
15. Kabakyenga JK, Östergren PO, Turyakira E, Pettersson KO (2011) Knowledge of obstetric danger signs and birth preparedness practices among women in rural Uganda. Reproductive Health 8: 33.
16. Lawn JE, Blencowe H, Oza S (2014) Every Newborn: Progress, priorities, and potential beyond survival. Lancet 384: 189-205.
17. (2016) World Health Organization, Standards for Improving Quality of Maternal and Newborn Care in Health Facilities. Geneva: WHO https://www.who.int/publications/i/item/9789241511216.
18. (2024) World Health Organization, Trends in Maternal Mortality 2000–2023. Geneva: WHO https://www.who.int/publications/i/item/9789240108462.