EFFECTS OF INTRODUCING WORLD HEALTH ORGANIZATION SAFE CHILDBIRTH CHECKLIST ON MIDWIVES' KNOWLEDGE AND SELECTED ESSENTIAL CHILDBIRTH PRACTICES : A CASE STUDY OF A HEALTH CENTRE IV IN EASTERN UGANDA

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UGANDA CHRISTIAN UNIVERSITY

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Declaration

This is to declare that the work presented in this research report is my own original work and that it has never been submitted to this or any other institution known to me for the award of a master's degree or any other academic qualification. All the work from previous scholars has been cited accordingly, to acknowledge their contributions.

Esther Ahimbisibwe

Signature…….....

Date: 25/10/2024

This work has been designed under our supervision and I approve that it is ready for submission to Uganda Christian University for consideration.

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Signature…… ……

Date……24 October 2024……

Dedication

I dedicate this study project to the All-Powerful God, who has been my source of wisdom, strength and favor throughout this course. It is by his grace that I have come this far and I have completed this effort. I also want to thank my research supervisors: Professor Karen Drake, Professor Ketty Holt, and Dr. Grace Nantale, for their invaluable guidance and support from the start to finish. My lovely children Aijuka Vian, Arinda Vera, and Ainembabazi Varena, plus my beloved husband Kwijuka Moses, have been my source of support during this journey. Lastly my darling sister Abasabyona Milcah who has been there through thick and thin to guarantee that I finish this course

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List of Acronyms

BPD : Bronchopulmonary Dysplasia
CDC : Centers for Disease Control
CLD : Chronic Lung Disease

EBPs : Evidence Based Practices

EmOC : Emergency Obstetric Care

ENAP : Every Newborn Action Plan

EPMM : Ending Preventable Maternal Mortality

HIC : High Income Countries

ICD : International Classification of Diseases

ICM : International Confederation of Midwives

LBW : Low Birth Weight

LMICs : Low- and Middle-Income Countries

MMEIG : Maternal Mortality Estimation Inter-agency Group
MMR : Maternal Mortality Ratio
MPDSR : Maternal and Perinatal Death Surveillance and Response
NEC : Necrotizing Enterocolitis
NM : Neonatal Mortality
NICU : Neonatal Intensive Care Unit
PD : Perinatal Death
SCC : Safe childbirth checklist

SDGs : Sustainable Development Goals

SGA : Small for Gestation
SMM : Severe Maternal Morbidity
SSA : Sub-Saharan Africa
SPSS : Statistical Package for the Social Sciences
UDHS : Uganda Demographic Health Survey

UN : United Nations

UNFPA : United Nations Population Fund

UNICEF : United Nations International Children's Emergency Fund

WHO : World Health Organization Abstract

Abstract

Background/Purpose: There is a global concern about improving critical delivery procedures to reduce maternal and neonatal mortality rates. Evidence in Uganda shows that there is high prevalence of maternal and newborn death largely due to inadequate perinatal and postnatal care. This study examined the effects of introducing WHO SCC on midwives' knowledge and practices of selected essential birth practices in Uganda.

Theoretical/Conceptual Framework: The Lewin's Change Management Theory was used to enable the successful introduction of a different way of doing things from what the midwives were previously doing. The midwives embraced the teaching, coaching, mentorship and introduction of WHO SCC which later led to improved level of knowledge and practice of WHO SCC elements.

Methodology: This study adopted quantitative quasi-experimental pretest-posttest study design. Before intervention, a questionnaire was administered to collect data from study participants and data audit tool was used to collect data on practice from 121 files. After the introduction of an educational intervention which involved teaching, coaching and mentorship, data was again collected using the same data collection tools used at pre- intervention.

Results: The study showed that the introduction of WHO SCC had statistically significant effect on midwives' knowledge and practices regarding the self-reported data. There was also a statistically significant change in practice as measured by the audit tools.

Conclusion: The study finding demonstrated the significance of WHO SCC intervention on midwives' knowledge and practice. Midwives play an important role in providing care for expectant mothers before giving birth and to the mothers and their baby immediately after giving

birth. Undertaking midwives' responsibilities requires that they should be soundly knowledgeable, skillful and experienced in practicing their profession.

Recommendations: Midwifes' leadership should ensure that WHO-SCC is introduced and used more regularly and broadly in hospitals across the country.

Key Terms: WHO Safe Childbirth Checklist, Essential Birth Practices, Midwives, Knowledge and Practices.

Chapter One: Introduction

For many years, there has been a global concern about improving critical essential childbirth practices. Reaearch studies have shown that proper use of both routine and emergency essential childbirth practices recommended by World Health Organization (WHO) can prevent and lower maternal and newborn deaths (Abawollo et al., 2021; Achola et al., 2022; Bedada et al., 2020; Musarandega et al., 2022). The World Health Organization (WHO) recommends that midwives provide these services to mothers in labour, however this is not always the case (Mudhune et al., 2018).

The World Health Organization (WHO) created the Safe Childbirth Check in 2010 to enhance essential childbirth practices (Dohbit et al, 2019). The WHO Safe Childbirth Checklist (SCC), a checklist summarizes the essential evidence-based childbirth practices that must be provided prior to, during, and after delivery.

In many sub-Saharan countries where it has been introduced and used, the WHO SCC has demonstrated improvements in health workers' essential childbirth practices (Semrau et al., 2017). To enhance the outcomes of childbirth, the World Health Organization recommends SCC adoption and use everywhere (Mudhune et al., 2018; Nababan et al., 2017).

According to a study conducted in Kenya and Uganda, health workers adopted more evidence-based practices when they used SCC; however, the study could not identify which particular evidence-based practices were more commonly adopted (Achola et al., 2022). The adoption of the WHO SCC and its impact on midwives' knowledge and practices in Uganda has not been extensively documented in the literature. The purpose of this pilot study is to describe

the effect of the WHO safe childbirth checklist on midwives knowledge and practices of selected essential birth practices at a health center IV in Eastern Uganda.

Background

Maternal and neonatal mortality rates range from 3 to 1360 per 100,000 births worldwide, whereas neonatal mortality rates range from 0.95 to 40.6 per 1000 live births. The rates of these diseases are higher in low- and middle-income nations than in high-income ones. (Semrau et al., 2017). Globally, there are over 600 000 stillbirths associated to the intrapartum period every year, and about 300 000 maternal deaths occur during pregnancy or childbirth. It is also mentioned that in the first 48 hours of life, up to 90% of neonatal deaths take place. Over 40% of maternal deaths happen during the intrapartum phase, and 45% happen within a 24-hour period (Kaplan et al., 2021).

Maternal mortality rates in developing nations also exceed the global goal of 70 deaths per 100,000 live births. Maternal and newborn death rates in sub-Saharan Africa are above the sustainable development goal global target. In the year 2023, Sub-Saharan Africa alone accounted for around 70% of maternal deaths (182 000) world over (WHO, 2024).

Every day, difficulties associated to pregnancy and childbirth claim the lives of almost 830 women (Mudhune et al., 2017; Nababan et al., 2017). Severe bleeding, infections, elevated blood pressure throughout pregnancy, obstructed labors, and unsafe abortions account for about 75% of all maternal deaths. Health professionals can avert the majority of these by following the WHO's evidence-based recommendations, as outlined in the WHO SCC (Abawollo et al., 2021; Bedada et al., 2020; Musarandega et al., 2022).

According to Waiswa et al. (2021), Uganda's infant mortality rate remained unchanged at 27 per 1,000 live births for more than ten years, and reduced slightly to 22 per 1000 live birth while the country's maternal mortality rate is projected to be 189 per 100,000 live births, considerably below the target set by the Sustainable Development Goals of 70/100000 live births. The rate of newborn death was reported to be 42% per 100,000 live births (Baughirana et al., 2020; Uganda Bureau of Statistics, 2022). The high prevalence of maternal and newborn death in Uganda is a result of inadequate prenatal, perinatal, and postnatal care, which is projected to cause 6,000 maternal fatalities and 32,300 neonatal deaths annually. The WHO recommends evidence-based essential birthing practices, which can help avert the majority of these deaths by providing high-quality care throughout labor and delivery (Waiswa et al., 2021).

Maternal and newborn death rates in the Busoga Sub Region of Eastern Uganda are estimated to be 448/100,000 and 54/1000 live births, respectively, which are higher than the national rates (WHO, 202I). Many strategies have been developed in an attempt to lower the mortality and morbidity linked to childbirth. In order to increase the availability of Emergency Obstetric Care (EmOC) services, numerous health facilities have been built and necessary supplies have been supplied. Although more midwives and doctors were hired and trained, the issue persists in Uganda despite all of the efforts (Waiswa et al., 2021; WHO, 2015).

Because midwives accompany laboring mothers throughout the entire delivery process, they play a crucial role in providing necessary birthing practices. A Study indicated that the experience of childbirth and the result of labor are significantly impacted by the professional abilities, behaviors, and traits of the midwives, including compassion, kindness, gentleness, and composure (Babughirana et al., 2020).

According to Abawollo et al., (2021), giving birth is a complicated process that calls for keeping in mind to do all that is required to guarantee that the mother and the baby receive the safest treatment possible. It is also mentioned that checklists are crucial instruments for structuring such intricate and significant procedures. Studies have indicated that initiatives aimed only at enhancing midwives' education and expanding access to supplies are not enough to improve patient outcomes. Clinical practice and results have been demonstrated to be improved by interventions that include job aids like case sheets, checklists, and direct in-person support (Semrau et al., 2017).

In 1987, the World Health Organization accepted and promoted the partogram as a means of enhancing service quality and lowering mortality and morbidity related to childbirth. The WHO updated the partogram in 2000 and suggested using it for labor observation (Okusanya et al., 2018). As to Bedada et al. (2020), the World Health Organization states that a partogram is the most effective tool for assisting birth attendants in determining if labor is proceeding regularly or not, and in alerting you promptly if the mother's vital signs deviate from the usual range or if there are indications of fetal distress. When utilized appropriately, partograms can have an effect on mother health, birth outcomes, and the standard of intrapartum care.

Partograms are utilized in many countries, much like other important delivery practices, although numerous studies reveal that midwives do not use them as successfully as the WHO recommends. According to Okusanya et al., (2018), there have been reports of poor partogram utilization in Tanzanian, Nigerian, Kenyan, and Ugandan health facilities. Despite improvements in facility-based birthing and competent birth attendance by the end of the Millennium Development Goals, many women and newborns still die during and soon after childbirth

(Nababan et al., 2017). Countries continue to differ in the essential delivery practices, and the worldwide plan that aimed to increase the number of experienced birth attendants did not solve the issue. It was discovered that providing basic birth practices is crucial for lowering mortality and that mothers giving birth in medical facilities alone is insufficient. (Nababan et al., 2017)

Based on the Safe Surgical Checklist's experience, which showed a significant decrease in surgical complications and mortality, the World Health Organization (WHO) created the Safe Childbirth Check in 2010 to enhance important childbirth practices (Dohbit et al, 2019). WHO advises all trained birth attendants to use WHO SCC. The primary causes of maternal and newborn fatalities are covered in the items on the WHO SCC. 29 childbirth reminders from the WHO SCC are crucial for delivering high-quality care throughout labor and after delivery. (Mudhune et al., 2018; Nababan et al., 2017; Abawollo et al., 2021).

The implementation of the safe childbirth checklist (SCC) and the training of health workers on its usage led to an improvement in essential birthing practices from 57% to 76%, according to a study that examined the influence of the checklist on the behaviors of health professionals in Zambia's Luapula province. At the trial's beginning, the partogram completion rate was 60%; by the time the study was over, it had increased to 84%. At the study's baseline, 31% of laboring moms were being monitored with partograms; at the study's conclusion, that number had increased to 70%. Blood pressure monitoring increased from 59% to 70%, and healthcare professionals' attitude on the use of SCC changed greatly thus midwives embraced the use of WHO SCC (Mudhune et al., 2020).

In a study conducted in Rwanda, Tuyishime et al., (2018) found that there was an increase in the percentage of women who followed important birth practices, from 46% at the

study's baseline to 56% at its conclusion. According to the study's findings, using the WHO-SCC as a reference for important birth practices has been demonstrated to increase the standard of care.

Abawolla et al., (2021) and Nababan et al., (2017) discovered that the implementation of a modified WHO SCC in health facilities resulted in a significant improvement in the delivery of essential safety practices by health workers, hence enhancing practices of health care providers towards critical child birth practices in resource-poor settings. According to a pilot study conducted in Zambia's Luapula province, the average number of evidence-based essential birth practices provided at each birth event increased from 10 out of 29 before the SCC was introduced to 25 out of 29 after it was implemented (Mudhune, et al., 2018).

According to a study conducted in Uganda and Kenya, health workers adopt evidence-based practices more frequently when they utilize the WHO SCC; however, the study did not identify which specific evidence-based practices were improved (Achola et al., 2022). The adoption of the WHO SCC and its impact on midwives' knowledge and practices in Uganda has not been extensively covered in the literature. At a health facility IV in Eastern Uganda, the researcher conducted a study on the effects of introducing the WHO SCC on midwives' knowledge and behaviors of specific key birth practices.

Problem Statement

In accordance with the Sustainable Development Goals, Uganda aims to lower its maternal mortality rate to 70 per 100,000 live births and its neonatal mortality rate to 12/1000 live births by 2030. At now, the estimated rates of maternal mortality at 189/100,000 live births and neonatal mortality at 22/1000 live births surpass the predetermined threshold (UDHS, 2022).

Asphyxia, prematurity, infections, hypothermia, and hypoglycemia are the main causes of newborn fatalities in Uganda, while postpartum hemorrhage, infections, hypertensive disorders during pregnancy, and unsafe abortions are the main reasons of maternal deaths. This indicates that the WHO's recommended standards for the provision of basic birthing services are not being met. It is possible to avoid these reasons by enhancing basic birth procedures. There is currently little information available on the use of the WHO safe delivery checklist in Uganda, despite research demonstrating that its implementation enhances midwives' important birth practices. At a health center IV in Eastern Uganda, the researcher undertook this study on the effects of introducing the WHO safe delivery checklist on midwives' knowledge and behaviors of specific Essential Birth behaviors.

Purpose of the Study

This study sought to determine if introducing the WHO safe childbirth checklist has an effect on midwives' knowledge and practices of selected essential birth practices at a health Centre IV in Eastern Uganda.

Research Question

What are the effects of introducing WHO Safe Childbirth Checklist on midwives' knowledge and practices of selected essential birth practices at a health centre IV in Eastern Uganda?

Study Objectives

- To identify the effects of introducing WHO Safe Childbirth Checklist on midwives' knowledge of selected essential birth practices at a health centre IV in Eastern Uganda.

- To describe the effects of introducing WHO Safe Childbirth Checklist on midwives' practices of selected essential birth practices at a health centre IV in Eastern Uganda.

Significance of the Study

It is anticipated that the results of this study will challenge midwifes to try using the WHO safe childbirth checklist routinely as they care for labouring mothers in order to improve essential birth practices and thus improve quality of care. It is also believed that there may be improvement in the number of evidence based practices (EBPs) done and improved completion rates of all the essential birth practices done which may result in improved quality of care and thus positive outcome of labour.

If effective, midwives' managers may want to put the WHO SCC into permanent usage by adopting the tool and introducing it in all other facilities in the district offering essential birth services. They may also find that introducing WHO SCC is an effective way to improve midwives knowledge and essential birth practices and thus inform policy makers to formulate guidelines and standards on WHO SCC to guide use of the tool in all health facilities.

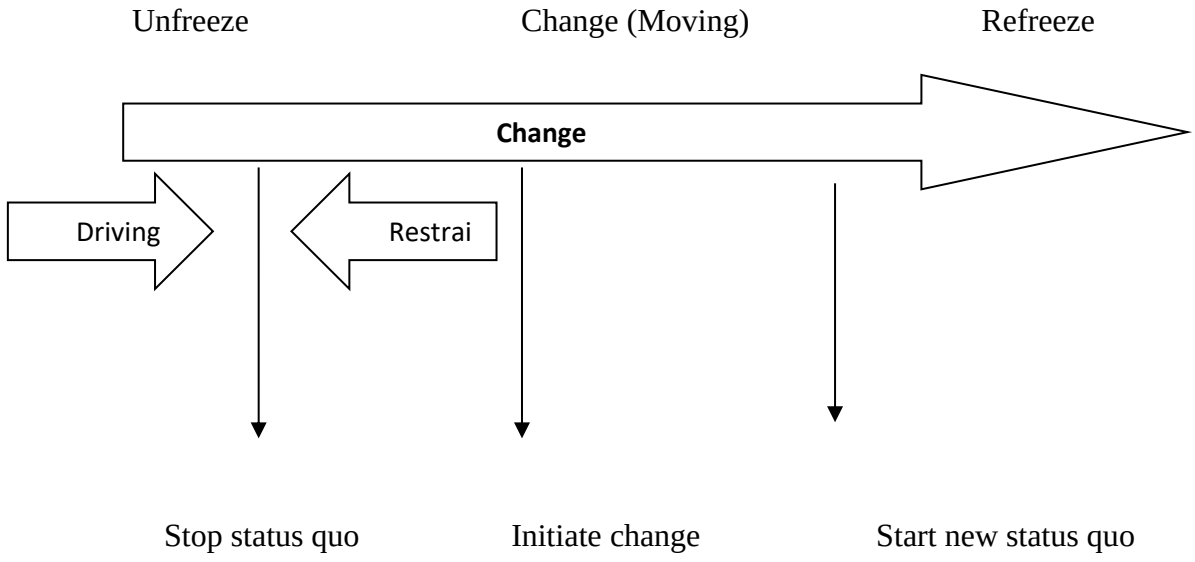
Theoretical Framework

Nurses in a variety of specialty areas utilize Lewin's Change Management Theory as a shared change theory for diverse quality improvement programs aimed at transforming bedside care (Burnes, 2020; Palumbo, 2015; Shirey, 2013). According to the idea, restraining factors or barriers that oppose driving forces used to maintain the status quo, and driving forces that push in the direction of change have an impact on both individuals and groups of persons. Lewin asserts that balance is preserved by the tension existing between the driving and restraining

forces. He pointed out that, in order to alter the status quo, organizations must use his three-step components theory to carry out planned change activities (Crosby, 2020).

Kurt Lewin thought that the ideas of change and consistency are connected. Change is a constant in group life; the types and amounts of change vary only. Many facets of nursing practice incorporate change theory, which is ideal for bringing about change. Three steps make up Lewin's idea of planned change. One component leads to the other, and they are sequentially ordered chronologically. Unfreezing, moving/changing, and refreezing are the three parts. Below is an explanation of these elements (Burnes, 2020; Peterson & Bredow, 2019).

Figure 1: Lewin's Change Theoretical Framework



Note. (Peterson & Bredow, 2019).

Unfreezing

Unfreezing is the initial step component of Lewin's theory of change**.** The initial phase entails disrupting the quasi-stationary equilibrium. The people, organizations, or groups understand that the way things are currently being done is no longer the optimal course of action.

The system's gap that requires modification has been located. The change agent researches the variables that can help and those that impede the process of change. According to Lewin's theory, the motivating factors are rational, positive, conscious, logical, and economic. The motivating factors direct staff members toward the future state.

According to Lewin, restraining factors are negative, emotional, illogical, and unconscious. As a result, they serve as the main obstacles to change initiatives by highlighting possible opposition to change. According to Lewin, it's critical to strike a balance between these pressures by including employees in the change process, communicating effectively, and offering training to close the skills and knowledge gap. He emphasized that change agents need to make sure compliance is met and present a compelling case for change. He went on to say that more driving factors than restraint forces are needed for change to occur (Burnes, 2020; Peterson & Bredow, 2009). Hussain et al., (2018) quoted a study by Cummings and Worley (2003) that the five crucial leadership activities for the change process were identified. These tasks include managing the transition, maintaining momentum, generating political support, inspiring change, and formulating a vision. In order for any organization to undergo change, leaders must be involved in the process.

According to Lewin, poor communication is the most frequent factor impeding individual or group transformation. Because they choose to continue doing things the same way and are unaware of the reasons for the change, this makes people resistant to change. Other impediments to change include resistance to change, a lack of time to adjust to new changes, a lack of resources to support change, and a change agent's inability to incorporate all stakeholders from the beginning of planning to the completion of the change. Increasing the driving forces that

influence behavior away from the status quo or current state, lowering the restraints that prevent a shift away from the equilibrium that is already in place, and striking a balance between the driving and restraint forces to move in the direction of the desired change are the three strategies Lewin suggested to help with the first component of unfreezing (Hussain., 2018).

Boost the driving forces. Boosting driving forces help in breaking down the existing way of doing things before building up a new way of operating. It entails raising problem awareness among staff members so they may see why the status quo is not optimal and, in turn, embrace change. This allows individuals to abandon ingrained practices and upset the equilibrium that has been established. This can be achieved by crafting a strong argument that demonstrates why the status quo is unsustainable. Data and proof should be used in the messaging to encourage people to accept change (Hussain et al., 2018).

Educating showing data is another way of boosting the driving force. By highlighting the issues and using guidlines as a point of reference to illustrate the ideal course of action, it challenges the status quo. This aids in identifying opportunities for improvement by highlighting the gaps in the current process. When this is done, people have powerful reactions, which increase their motivation to look for novel approaches to problems. It is challenging to gain the support and involvement required to make any kind of significant change without this drive (Wojciechowski et al., 2016; Bozak, 2003). Using the existing facts as a guide, discussing the risks associated with the status quo highlights the motivations for change. If employees understand that there are drawbacks to the way things are being done, this fosters a strong desire for change (Hassan et al., 2018).

Educating the employees' leaders as a way of boosting the driving forces. Leaders play an important role because most of the times the employees trust their leaders. By teaching them about the new change, you may increase the leaders' confidence and get their support for the new proposal. According to Higgins, Judge, and Ferris (2003), leaders who exhibit encouraging behavior offer recommendations or assistance during the transition process, which results in increased task dedication and effectiveness.

Reduce the restraints. Reduce the restraining forces that prevent a shift away from the equilibrium by involving the employees and their leaders in the process. The biggest obstacles to change are fear and ambiguous communication. Having leaders and employees buy into new ideas is facilitated by effective communication. Employee involvement in the transformation process is enhanced and employees' faith is reaffirmed by the leader's candor throughout the process. Employees are able to express their thoughts and feel more in control because to it. According to Higgins, Judge, and Ferris (2003), leaders who exhibit encouraging behavior offer recommendations or assistance during the transition process, which results in increased task dedication and effectiveness.

Employees can recognize and accept that there are gaps in their performance when they check in with the guidelines and standards and participate in brainstorming sessions with their leaders to determine what needs to change. This lowers resistance to change and upends the status quo. Hussain et al., (2018) cited Mathieus et al., (2006) research, revealed that giving employees more authority and responsibility increases the effectiveness of their involvement. Employee buy-in to the change idea results from empowering them with understanding of the

problem and making them see the need for change. Every time they participated in the transformation process, from planning to problem-solving, employees felt empowered.

Strike a balance between the driving and restraint forces. Striking a balance between the driving forces and restraining forces is done in order to move in the direction of the desired change. The balance is reached when the limiting factors are lessened and the driving forces that promote change are recognized. Lewin underlined that for unfreezing to happen, there needs to be a greater force propelling than restricting. In order to eliminate leaders' and employees' fear of change, a balance between motivating and limiting factors can be struck through appropriate awareness creation, effective communication, and employee involvement. According to Burns (2020), the change agent must build a solid rapport with the staff and communicate with them in a way that strikes a balance between the driving and restraint forces. Establishing trust among coworkers, clearly defining roles and duties for each person, and granting decision-making authority to staff members are all ways to foster teamwork. It is possible to accomplish effective communication by paying attention to the worries of the workforce, promoting frequent and transparent communication, and conducting staff meetings sensibly.

Moving

Moving or Changing is the second step component where actual change occurs. It is the part of the action step. To bring about the necessary transformation, it entails putting all of the new innovations into practice. The change agent and stakeholders then carry out the plans for enacting change that were created in the first step component. When someone learns what to do and comprehends the benefits, they can put new innovations into practice. Lewin suggested that

mentoring, role modeling, implementation, coaching, and training be used as catalysts to bring about change inside an organization (Burnes, 2020; Peterson & Bredow, 2009).

Training. Training on the new methods of doing things is required before any changes can occur inside an organization. Gilson and Rubby, (2006), referenced by Hussain et al., (2018), discovered that when workers are given more authority and responsibility, their involvement is more successful. The best way to do this is to provide staff with the knowledge and abilities they need to bring about change through training. Seminars and workshops can be organized to provide training. Lewin contends that by providing workers with appropriate training, it's critical to strike a balance between motivating and limiting factors. Training programs for staff members' aid in closing the knowledge and ability gap that exists before new changes may be implemented. Additionally, training was found to lessen resistance to change (Burnes, 2020; Peterson & Bredow, 2009).

Coaching. This can be done by the change agent to other employees'. It can be accomplished through problem-based coaching, ongoing medical education, or even by giving employee executives the authority to train the staff members they oversee.

Mentorships. Lewin recommended that ongoing mentoring be carried out to assist staff members in mastering the new abilities and knowledge they have acquired from training so they can convert knowledge into skills after the new method of doing things has been implemented. Employees that receive mentorships are more confident in their ability to implement the new planned change (Burnes, 2020).

Role modeling. This encourages workers to carry out the actions of their role model and inspires workers to follow their example, so affecting change. Burns proposed that an employee

leader with extensive knowledge of the new change or a change agent can serve as a role model (Burnes, 2020).

Implementation. At this point, workers start implementing the new change on their own by carrying out the necessary activities. Lewin pointed out that in order for the new way of doing things to settle in and become accustomed to it, implementation takes time. Continuously good communication, teamwork, defined roles within the team, resource availability, and incorporating new changes into everyday work are the factors that control implementation. Short wins can be found throughout implementation, and staff members who do better than others are acknowledged and given rewards to encourage all other staff members to put in extra effort to see the intended change through to completion (Burnes, 2020).

Maintaining teamwork can be achieved by consistently reminding each employee of their tasks and responsibilities, fostering trust among coworkers by promptly resolving problems, and giving employees the freedom to continue making decisions for themselves. According to Burnes, (202), maintaining effective communication among employees can be achieved by attentively listening to their problems, promoting regular and unambiguous communication, providing timely feedback, and carefully organizing meetings.

Refreezing

Refreezing is the last step component of Lewin's theory of change. It entails making certain that the new quasi-stationary equilibrium incorporates the altered mode of operation. It examines how long-lasting the organization's change will be (Peterson & Bredow, 2019).

The organization is prepared to refreeze when the adjustments have taken place and everyone has come to terms with the new methods of operation. The refreeze step is designed to

institutionalize the changes and aid in better understanding within the company and among its members. This can be achieved by ensuring that the modifications are consistently applied and integrated into routine company operations. Employees feel secure and at ease with the new working methods after establishing a new feeling of stability (Burnes, 2020).

This is due to the possibility that people will believe the alteration was only momentary if refreezing is not done. Thus, after change has been effective, it is crucial to ensure that the new status quo is upheld. People will be free to accept another change in this way, knowing that the previous change was highly significant. As part of the refreezing process, it's critical to acknowledge and express gratitude to all those involved for their perseverance and acceptance of the change. This gives them hope for the success of upcoming changes (Burnes, 2020).

Lewin suggested that the main drivers for refreezing that might support the upkeep of the recent modifications in the team's or organization's culture are acknowledging achievement, retraining, and monitoring of critical performance areas. He pointed out that acknowledging accomplishments fosters employee faith in their work and increases their motivation to stick with the present course of action because staff leaders would be able to observe and value the outcomes. Retraining assists staff members in acquiring new knowledge and skills, this boosts their confidence in their work and helps them forget about outdated methods in favor of the more modern ones. Employees are encouraged to stick with the new approach by monitoring key performance areas because they understand that their work would be evaluated based on the outcomes, upholding the status quo (Burns, 2020).

Operationalization of the Theory

The researcher will implement the adoption of WHO SCC at a health institution maternity department using Lewin's theory of planned change. The moving phase, also known as the doing step where the intended change will be put into practice, and the unfreezing step components will be used by the researcher to upset the status quo and assist staff in understanding the gaps in critical birth practices. The researcher will only fully apply the unfreezing and moving phases, the first two steps of the theory, according to the nature of the study.

Unfreezing

The purpose of unfreezing is to destabilize the existing quo and force midwives to be open to changing their ways and willing to accept change. Lewin's suggested driving forces will be employed to accomplish this.

Boasting the driving forces. Increasing driving forces entails raising midwives' knowledge of the gaps in critical birth practices and explaining why the existing approach to providing these practices is inefficient. This will be accomplished by creating an effective message that uses data to support it and inspire midwives to embrace novel ideas.

To help midwives understand why change is required, there will be a discussion of the risks associated with the status quo. Midwives will be given information on maternal and newborn mortality as well as morbidity, along with an explanation of how the lack of basic delivery practices significantly raises these rates. If midwives understand that the way things are currently done has an adverse effect on the lives of both mothers and the newborns, this will produce a strong desire for change.

By presenting data from several African regions where the WHO SCC has been implemented, the researcher will instruct midwives on how the WHO SCC can result in better essential birth practices. By doing this, midwives will have strong feelings and be highly motivated to try to embrace implementing the WHO SCC.

In order to equip midwifery leaders to serve as role models during implementation, they will get full education on the WHO SCC. This will be accomplished through one-on-one instruction until the leaders of the midwives believe they have the authority to serve as role models. Additionally, the leaders of the midwives will serve as co-trainers for the moving step component.

Reduce the restraints. By incorporating the workers and their leaders in the process, the restraining forces that prohibit a shift away from the equilibrium will be reduced. This will be accomplished by holding brainstorming sessions with midwives and midwifery leaders to determine what needs to change. In order to detect any gaps in crucial birth practices, they will also be encouraged and given permission to assess how they have been doing and compare the results with the norms and standards. This will lessen their reluctance to change by assisting them in realizing and accepting that there are gaps in basic delivery procedures.

Strike a balance between the driving and restraint forces. Striking a balance between the driving forces and restraining forces will be achieved after identifying the driving forces that foster change and reducing the restraining forces. This will be done by building strong teamwork through allocating clear roles and responsibilities to each midwife, building trust with in employees by allowing them to share ideas, offering flexibility, allowing them to set goals on how to achieve proper use of WHO SCC and giving the employees autonomy in decision

making. Effective communication will also be accomplished by paying attention to the worries of the staff, providing them with quick feedback, and arming them with information about the issue that needs to be changed. The researcher will effectively run the meetings by setting the agenda the day before to give the midwives time to get organized, providing open space for the midwives to ask questions and add action items in real time, as well as by adding talking points and effectively managing the time.

Moving

All of the scheduled actions to promote change will be implemented in the moving step component. In order to successfully affect change at a health center IV, the researcher will use training, coaching, implementation, mentorships, and role modeling during this phase component.

Training. Training will be done by the researcher as the main trainer with the help of midwives leaders as co-trainers. The training will begin with a pre-test to all midwives in order to assess their knowledge and practices of WHO SCC. This will help the researcher to identify where more emphasis should be put. All midwives at the health facility will be trained on the WHO SCC and all the essential childbirth practices that are found on the WHO SCC. The training will be done in a workshop which will be organized at the health facility. It will be done in two shifts to accommodate all the midwives and allow normal functioning of the facility services to go on. Each training group will take two days therefore the training will take four days. It will be both theoretical and practical training. Midwives will be given an opportunity to interact with the WHO SCC, learn how it can be used and understand the essential childbirth practices that are on the WHO SCC. This will be done in order to empower the midwives with

knowledge and skills which they will put into practice and start using the WHO SCC in order to improve the essential birth practices. Training modalities will include presentations, discussions and demonstrations. Midwives training will help to bridge the knowledge and skills gap which is needed for implementation of new change.

Implementation. Here midwives will begin using the WHO SCC applying the knowledge and skills gained from the training. WHO SCC will be put in every mothers file, all the necessary equipment and essential drugs will be availed to midwives. Implementation will take two months. In the first month of implementation, there will be continuous coaching and mentorships by the researcher and during the second month, the researcher will leave the midwives to work alone. During implementation, short wins will be awarded to the identified outstanding midwives who will be using the WHO SCC well. The outstanding midwives will be recognized and rewarded to motivate all other employees to work hard towards achieving the planned change

Coaching. Coaching will be done on a weekly basis every Monday morning during continuous medical education. Problem based coaching will be used in order to empower the midwives to think critically and understand better. Midwives will be given time to ask questions and their questions will be answered. This will help midwives to gain more skills and knowledge of WHO SCC and how it is used. Midwives will also gain more confidence on using the WHO SCC.

Role modeling. Role modeling will be done by midwives leader in order to encourage the midwives to continue using the WHO SCC. Midwives will be motivated to emulate what the

role models will be doing and thus they will gain more confidence and get used to the new change of using WHO SCC during labour monitoring and management.

Operational Definitions

WHO Safe Childbirth Checklist (WHO SCC)

In this study, WHO SCC refers to a quality improvement reminder tool comprised of 29 essential birth practices which target the major causes of maternal deaths, stillbirths and neonatal deaths. It is designed to help health workers to adhere to evidence-based practices that are associated with improving maternal and neonatal outcome. The WHO SCC is used as a reminder tool during the four critical moments of delivery process. it is used at admission, just prior to delivery, immediately after delivery and prior to discharge**.**

Introduction of WHO SCC

Introduction of WHO SCC refers to the act of starting to use WHO SCC as a reminder tool of all the essential birth practices that were approved by WHO during the delivery process.

Midwives

As a concept in this study midwives refers to persons who are trained and licensed by Uganda nurses and midwives council, to work as health care providers and provide care, support and manage the delivery process. In this study certificate midwives, diploma midwives and degree midwives working at a health centre four where the study is to be conducted will be considered.

Midwives' Essential Birth Knowledge

As a concept in this study midwives essential birth knowledge refers to the midwives understanding of the selected essential birth practices that were approved by WHO as evidence -

based practices which result in good outcome of labour if appropriately offered to labuoring mothers**.**

Midwives' Essential Birth Practices

Midwives' essential birth practices as a concept in this study refers to the way midwives apply skills of essential birth practices in management of labor and the delivery process.

Essential Birth Practices

Essential birth practices in this study refer to the evidence-based practices that are listed on the WHO safe childbirth checklist. These practices have shown to contribute greatly to improvement of quality of care during the delivery process and they are believed to contribute to reduction in both maternal and neonatal mortality and morbidity.

In this study, the selected essential birth practices are;

- Monitoring labour using a partograms for every mother in labour
- Assess mother for criteria to start antibiotics
- Assess mother for signs of pre-eclampsia/eclampsia or the need to administer magnesium sulphate and antihypertensive treatment
- Assess mother for abnormal bleeding
- Assess Baby for criteria to start antibiotics
- Placing baby in skin-to-skin contact
- Discuss and offer family planning options to mother before discharge.

These essential birth practices have been selected based on the major causes of maternal and neonatal mortality and morbidity in the literature. They are believed to address the major

causes of mortality and morbidity if offered appropriately as recommended by WHO and they are offered by midwives.

Summary

Chapter one is comprised of an introduction to the research study, description of the background of the study, the problem statement, purpose of the study, research questions and study objectives. It also described the significance of the study, the theoretic framework that will be used in this study and how it will be used to guide the study. It also has the operational definitions that will be used in this study. Chapter two will review literature related to use of WHO SCC and its effects on midwives' knowledge and practices. Chapter three will discuss the methodology of the study.

Chapter Two: Literature Review

This chapter presents literature related to use of WHO SCC and its effects on midwives' knowledge and practices on the selected essential birth practices. The literature is discussed under the following three topics: high maternal and neonatal morbidity and mortality rates, the causes of both maternal and neonatal mortality and morbidity, and the strategies that have been used to reduce both maternal and neonatal mortality and morbidity.

High Maternal and Neonatal Morbidity and Mortality are a Global Concern

This topic begins with defining maternal mortality and morbidity, and it also defines both neonatal mortality and morbidity. It further discusses the statistics of maternal mortality rates, statistics of neonatal mortality rates and the effects of both maternal and neonatal mortality and morbidity.

Definition of Maternal Mortality and Morbidity

World Health Organization defines a maternal mortality as, "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes" (Hoyert, 2022; Onambele et al., 2022). This definition makes it clear that any mother who passes away during pregnancy, childbirth, or the postpartum period for pregnancy-related reasons is taken into account; however, women who pass away during pregnancy or the postpartum period for non-pregnancy-related reasons, such as accidents, are not taken into consideration. According to the criteria, a maternal death can also be identified if the cause of death is documented as either a direct or indirect maternal cause. Some academics disagree with this criterion, arguing that some women

pass away after the 42-day postpartum period from causes related to pregnancy and childbirth (WHO, 2019). This led to the classification of maternal mortality based on the cause and the time it has occurred in the International Classification of Diseases and Related Health Problems (ICD) a standardized system to describe medical conditions (WHO, 2019). The ICD further classified and described maternal death as direct, indirect and late maternal deaths as described in the following paragraphs. As stated in the ensuing paragraphs, the ICD further categorized and defined maternal deaths as direct, indirect, and late maternal deaths.

Maternal deaths that occur directly can be attributed to obstetric difficulties during pregnancy, labor, and the puerperium, as well as to interventions, omissions, improper treatment, or a series of events stemming from any of the aforementioned factors. Examples of direct maternal mortality include sepsis, ruptured uterus, obstructed labor, hypertensive disorders in pregnancy, and obstetric hemorrhage (Musarandega et al., 2022; WHO, 2019).

Maternal fatalities originating from pre-existing conditions or conditions that arose during pregnancy and were made worse by the physiological consequences of pregnancy are referred to as indirect maternal deaths. For instance, an indirect maternal fatality occurs when a woman dies from a cardiac or renal illness that she had prior to becoming pregnant and that was made worse by the pregnancy (Musarandega et al., 2022; WHO, 2019).

When a woman passes away from either direct or indirect obstetric causes longer than 42 days but less than a year after the pregnancy was terminated, it is referred to as a late maternal death. Because more contemporary life-sustaining therapies and technology are available, it is thought that certain pregnancy and delivery difficulties may cause death before the six-week (42-day) postpartum period.

In addition to delaying certain fatalities past that postpartum time, these can help women survive the unfavorable effects of pregnancy and delivery (WHO, 2019). While late maternal mortality does occur, it should be noted that only maternal fatalities that occur up to 42 days postpartum are taken into account for international reporting and when the WHO calculates maternal mortality rates and ratios. The number of maternal fatalities in a specific time period per 100,000 live births during the same time period is known as the maternal mortality ratio, or MMR (WHO, 2019).

Maternal Morbidity Definition

Any health issue that negatively affects a woman's well-being during pregnancy and childbirth and is linked to or made worse by these experiences is known as maternal morbidity (WHO, 2019). This definition examines health issues a woman may have that are associated with or result from her pregnancy and delivery procedure.

According to research, women who have high levels of maternal morbidity are at a higher risk of experiencing severe pregnancy, delivery, and postpartum complications. These complications can include heavy bleeding, cardiac arrest, organ failure, stroke, and other health issues that could necessitate lengthy hospital stays, significant surgery, hysterectomy, or other major medical interventions (Geller et al., 2018). Obstetric bleeding, eclampsia and its consequences, liver or renal failure, pulmonary edema, acute respiratory distress, coma, cerebrovascular event, anaphylactic shock, septicemic shock, anesthetic issue, massive pulmonary embolism, hysterectomy, and fistulas, both vesico-vaginal and recto-vaginal, are among the common examples of maternal morbidity (Geller et al., 2018).

Definitions of Neonatal Mortality and Morbidity

Neonatal mortality is described as "number of deaths during the first 28 completed days of life per 1000 live births in a given year or other period" by the World Health Organization in 2022. This definition includes all newborn deaths that take place in the first 28 days of life, but it makes no mention of the causes of death, including issues relating to pregnancy or childbirth. Any medical issue that results in an observational stay, return to the hospital after birth, or death during the first 28 days of life is referred to as neonatal morbidity (WHO, 2022). These morbidities include, but are not limited to, necrotizing enterocolitis (NEC), visual and hearing impairment, grade 3 and 4 intraventricular hemorrhage associated with cerebral palsy, and chronic lung disease (CLD), also known as bronchopulmonary dysplasia (BPD).

Statistics of Maternal Mortality Rates

Maternal mortality has been used extensively over the world for a long time as a gauge of maternal health and the standard of care provided to mothers. Thankfully, higher income countries are experiencing a decline in maternal mortality, the most catastrophic unfavorable result, with lower rates being reported in recent decades. However, it is still recognized globally that one of the top priority in sexual and reproductive health is lowering the number of avoidable maternal deaths (Leitao et al., 2022).

Maternal death rates are unacceptable everywhere, ranging from 3 to 1360 per 100,000 births, with rates greater in low- and middle-income nations than in high-income areas (Semrau et al., 2017). It is currently estimated that difficulties associated to pregnancy and childbirth claim the lives of 830 women per day worldwide. Additionally, it is estimated that pregnancy and childbirth-related mortality account for 303,000 maternal deaths worldwide each year. The

intrapartum period accounts for almost 40% of maternal mortality, with 45% occurring within 24 hours (Ihomba et al., 2020; Kaplan et al., 2021; Seidu et al., 2020).

From 3 to 1360 deaths per 100,000 births, maternal mortality rates are unacceptable world over; in low- and middle-income countries, rates are higher than in high-income areas (Semrau et al., 2017). It is currently estimated that 830 women worldwide lose their lives every day as a result of complications related to pregnancy and childbirth. Furthermore, it's projected that 303,000 maternal deaths occur globally year due to causes associated to pregnancy and childbirth. Nearly 40% of maternal deaths occur during the intrapartum period, with 45% happening in less than a day (Ihomba et al., 2020; Kaplan et al., 2021; Seidu et al., 2020).

In 2020, there were 23.8 fatalities per 100,000 live births, which is a higher rate than the 20.1 rate in 2019 (Hoyert, 2022; Mudhune et al., 2017; Onambele et al., 2022). These results demonstrate that in wealthy nations, maternal mortality is still a major concern.

According to research, 99% of maternal deaths still occur in low- and middle-income countries (LMICs), with sub-Saharan Africa accounting for the majority of these deaths. According to Onambele et al., (2022), only the North African region is approaching the maternal mortality SDGs set by the UN; the Sub-Saharan African regions are still far from meeting these targets. The maternal death ratio in Sub-Saharan Africa exceeds the worldwide objective of 70/100,000 live births, which is unusually high (Mudhune et al., 2017).

Olarewaju, (2021) reported that difficulties related to pregnancy and childbirth cause around 265,000 maternal fatalities and 1,208,000 neonatal deaths annually in sub-Saharan Africa. His research also revealed that the estimated maternal mortality ratio for 2021 was 800 fatalities for every 100,000 live births.

In 2017, Zambia had a maternal mortality rate of 458 per 100,000 live births, compared to 917 in Nigeria, 524 in Tanzania, 401 in Ethiopia, and 119 in South Africa, according to data from the UN Maternal Mortality Estimation Inter-agency Group (MMEIG) (Musarandega et al., 2022). Kenya's Maternal Mortality Ratio (MMR) is currently 510 deaths per 100,000 live births, significantly higher than the objective of 70 deaths per 100,000 live births set by the SDGs (Ihomba et al., 2020). These horrifyingly high statistics point to deficiencies in the region's prenatal and maternal healthcare system.

Maternal mortality in Eastern Uganda's Busoga Sub Region is predicted to be 448 per 100,000 live births, significantly higher than the national average (Waiswa et al., 2021). By 2030, the SDGs aim to ensure that no nation's MMR exceeds 140, which is twice the global target. To lower national MMR levels and lower the global MMR to less than 70 by 2030, all nations must take action (Namagembe at al., 2022).

Neonatal Mortality Statistics

An estimated 2.5 million children worldwide pass away in their first month of life. This explains why 7000 newborns die every day. According to Kaplan et al., (2021), there are about 600,000 intrapartum-related stillbirths worldwide each year. Within the first 48 hours of life, neonates can die in as many as 90% of cases. Studies reveal that if actions are not taken to improve maternity and neonatal care, 27.8 million newborns will perish globally between 2018 and 2030 (Al-Sheyab et al., 2020). According to reports, around 73 000 newborns perished in China in 2018, making up 3.0% of all newborn deaths globally. In contrast, Sub-Saharan Africa (SSA; 41%) and South Asia (38%) accounted for nearly 80% of all newborn deaths globally (Liu et al., 2021; Tiruneh et al., 2021).

In sub-Saharan Africa, 1 in 36 children die in the first month of birth, compared to 1 in 333 in high-income nations, according to reports from the United Nations (UN) in 2017 (Tiruneh et al., 2021). According to a UNICEF report from 2020, 27 out of 1000 live births were caused by neonatal mortality in South Asia and sub-Saharan Africa. According to Andegiorgish et al. (2020), the survey also showed that a child from this region had a nine times higher risk of dying in the first month of life than a child from a high-income nation. The susceptibility of newborn death is ten times higher in Sub-Saharan Africa (SSA) than in wealthy nations, according to findings of a systematic review and meta-analysis study conducted in Eastern Africa in 2021. It also showed that the NM rate is not evenly distributed throughout Sub-Saharan Africa (SSA) because to variations in healthcare quality, with the burden being unacceptably high in Eastern African nations. Nearly half of all newborn mortality in Sub-Saharan Africa occurs in Eastern African nations (Tiruneh et al., 2021).

The UDHS (2023) showed the neonatal mortality rate in Uganda to be 41.958% per 100,000 live births, up from 20 per 1000 live births in 2018, which translated to 32,296 deaths. For more than ten years, the nation's neonatal death rate is said to have dropped from 27/1000 to 19/1000 live births. The 2030 Sustainable Development Goal of 12/1000 live births is less than the current rate of infant death (19/1000). (Babughirana et al., 2020; Medvedev et al 2020; Uganda Bureau of Statistics., 2023; Waiswa et al., 2021). An estimated 32,300 neonatal fatalities occur annually in Uganda due to the low quality of care provided during pregnancy, labor, and the postnatal period (Waiswa et al., 2021). This leads to the high prevalence of newborn mortality. According to Waiswa et al., (2021), the maternal and newborn death rates in the Busoga Sub Region of Eastern Uganda are projected to be 448/100,000 and 54/1000 live births,

respectively, which is higher than the national rates. These results show inadequate quality of care for mothers during pregnancy, labor, and puberty as well as for newborn babies, and they are all higher than the SDGs' proposed aim.

Effects of Maternal and Neonatal Mortality and Morbidity

The effects of maternal and neonatal mortality and morbidity are devastating worldwide and they effect the economic development of different nations where these mortality and morbidity occur. These effects are more devastating to the immediate family members and more so the affected mother in case of morbidity psychologically, socially and financially. Literature on these effects is presented on three headings which include effects of maternal mortality, effects of maternal morbidity and effects of both neonatal mortality and morbidity.

Effects of Maternal Mortality

Any nation's ability to achieve the intended levels of economic development and growth depends in large part on its human capital. A nation's per capita income is highly influenced by its citizens' state of health. Maternal and newborn mortality rates determine a nation's overall health status and are important indicators of a nation's socioeconomic standing, poverty, and healthcare quality. Economic benefits accrue to entire families as well as society when mothers are in good health. Despite a sharp decline in maternal mortality globally, poor maternal health, and particularly maternal fatalities, continue to be major issues in many developing nations (Hall et al., 2021).

The most evident response to a mother's death in the West is sadness, which carries with it the terrifying emotional and psychological costs of losing a loved one. Most people consider a mother's death to be a personal tragedy that will get easier to handle with time. However, in

many developing nations, a mother's passing causes far more than just an emotional shock; it frequently triggers long-term social and economic collapse, affecting not only her immediate family but also the larger society.

A price too high to bear study conducted in Kenya in 2014 revealed that when a woman passes away from pregnancy- or childbirth-related causes, her illness and death start a cascade of losses that impair her children's health, education, and prospects in life; increase household poverty; cause disruptions in her family's life; and cause her loved ones to be devastated by grief (High, 2014). The study also demonstrated that the human and financial consequences of maternal mortality are actually too great to be borne. Occasionally, children who survive are compelled to drop out of school or withdraw due to financial difficulties that prevent them from paying for their education. This frequently has a detrimental impact on their grief and new domestic duties. When a mother passes away, her surviving spouse, mother, and mother-in-law are suddenly faced with more duties and responsibilities (High, 2014).

Pregnancy and childbirth problems that result in death carry a significant financial impact. Families experiencing a maternal mortality reported using around one-third of their yearly consumption expenditures, irrespective of family wealth, to obtain prenatal and postpartum care in three to six times more than households where a woman gave birth safely. This comes close to what the World Health Organization refers to as a "catastrophic" cost (i.e., 40% of disposable income) and implies that some families may choose to forego or postpone emergency care due to inability to pay for services and transportation. Families that need to pay for maternity care must search outside the home for funding in over half of the cases. This puts the affected families in debts and in the long run, they end up losing their property (High, 2014).

Hard evidence that a mother's loss can completely destroy the livelihoods, quality of life, and survival chances of those she leaves behind was found in a 2015 study on the economic and social repercussions of maternal death conducted in Ethiopia, Kenya, Malawi, and South Africa (Miller & Belizan, 2015).The study also demonstrated that a mother's passing could lead to unstable finances. This is due to the fact that mothers not only provide for their families at home but also make a sizable financial contribution. Losing that money might seriously impair a family's capacity to get needs like food, housing, and medical care. The expense of funerals alone can bankrupt a household. The loss of a mother can cause early marriage and motherhood for females, as well as the loss of the children's education within the family. These often perpetuate the poverty cycle for the following generation. Because of inadequate treatment, maternal mortality also raises the death rate among children (Miller & Belizan, 2015).

According to research by Knight and Yamin, (2015), infants whose moms pass away after childbirth have a significantly lower chance of living to see their first birthday than infants whose mothers survive or die for other reasons. Men and living offspring frequently find it difficult to shoulder the numerous responsibilities handled by a single woman. Children may be sent to live with other families in order to lessen the caregiving load, which can further erode family unity (Hall et al., 2021; Knight & Yamin, 2015; Miller & Belizán, 2015; Pande, 2015).

Effects of Maternal Morbidity

Maternal morbidity has an impact on social and economic well-being in addition to physical and psychological health. Ninety percent of pregnant women in Sri Lanka reported experiencing at least one episode of perceived ill health during their pregnancy, and twenty-six percent of them said they needed someone else to replace them in their daily duties due to their

illness. Maternal morbidity has an effect on each affected woman's ability to operate in relation to her health, according to a comprehensive evaluation of 137 publications on the subject (Machiyama et al., 2017). There is a strong and consistent correlation between severe maternal morbidity (SMM) and unfavorable perinatal outcomes in women with singleton pregnancies in high income countries (HICs), according to the findings of a systematic review and meta-analysis conducted by Mengistu et al., in 2020 on the impact of SMM on perinatal outcomes in HICs. It was also noted that women with SMM had a markedly increased risk of preterm birth, low birth weight (LBW) and small for gestation (SGA) children, low 5-min Apgar score, admission to the neonatal intensive care unit (NICU), stillbirth, neonatal mortality, and overall perinatal death.

Effects of Neonatal Mortality and Morbidity

A traumatic event, perinatal death (PD) affects families in a physical, psychological, and social way. According to Fernandez-Sola et al., (2020), perinatal death has an impact on family dynamics since it has an effect on the parents and siblings who share a home. Each member of the family is affected differently by the prenatal death. Following the baby's death, they all experience grief. The older children in the household are typically overlooked by the care system, along with the parents. They suffer the same effects of their parents' grief during the grieving process and receive no support; no one pays them any attention or determines whether they require assistance to process the loss of a brother or sister (Fernandez-Sola et al., 2020).

According to research, families who attempted to conceive after losing a child encountered significant difficulties. It was discovered that dread, medicalization, stress, and anxiety about the potential of losing another baby dominated the pregnancies of moms who had

previously lost babies. This is due to the fact that the family's thoughts and feelings from the previous experience arose with fears, and rather than bringing happiness, the new pregnancy overwhelmed them. As a result, they began to abuse emergency services excessively and medicalize the pregnancy in an attempt to prevent another loss. According to certain research, some couples choose not to become pregnant again out of fear of going through the same traumatic experience again (Avila et al., 2020; Fernandez-Sola et al., 2020).

Parents who have lost a baby acknowledge that they would like another child or that being pregnant again could be beneficial, but they are so afraid of experiencing the same thing again that they refuse to even consider it. One spouse who experienced PD stated that although he would have preferred to have another child, he could not bear to watch his wife go through the heartbreak of losing another one. Moreover, women with PD admitted that while they would be open to getting pregnant again, they are afraid of losing their children in the same way (Fernandez-Sola et al., 2020). Maternal and perinatal mortality as well as morbidity have detrimental repercussions on individuals, families, communities, countries, and the global society. To stop the worrying trend, further work is required, particularly in sub-Saharan Africa where there is a widespread issue (Avla et al., 2020; Fernandez-Sola et al., 2020).

The Causes of Both Maternal and Neonatal Mortality and Morbidity are Known

For many years, the world has tried to find out the causes of both maternal and neonatal morbidity and mortality. Understanding the causes will help in designing interventions that will be specific to the different causes and thus the world may achieve great reduction in both maternal and neonatal deaths.

Causes of Maternal Morbidity and Mortality

Severe maternal morbidity is a global health concern that frequently leads to maternal death and affects mothers in both the short and long term (Geller et al., 2018). Understanding the causes of severe maternal morbidity, also known as maternal near miss, is crucial to addressing the issue of maternal mortality. The greatest burden of severe maternal morbidity (SMM) occurs in Sub-Saharan Africa, where estimates of SMM can reach 198 per 1000 live births, according to a systematic review by Geller et al., (2018) on a global perspective on SMM. Furthermore, it was stated that the primary causes of SMM worldwide were hypertensive diseases and bleeding. In lower-middle-income nations, bleeding (45%) and hypertensive disorders (38%), according to reports, were the primary causes of severe maternal morbidity. In a different systematic study conducted in established, middle-income, and developing nations, Heitkamp et al., (2021) found that the rates of severe maternal morbidity are greater in developing and middle-income nations than in developed nations. The two most common causes of severe maternal morbidity or near misses globally were obstetric hemorrhage and hypertensive disorders during pregnancy. In lower-middle-income nations, hemorrhage accounted for 45% of the documented causes of severe maternal morbidity, whereas hypertensive disorders accounted for 38%. Pregnancy-related hypertensive disorders were found to be the most common cause of severe maternal morbidity in upper-middle-income countries, accounting for 52% of cases. Obstetric hemorrhage came in second place with 29% of cases, while other causes, such as sepsis, accounted for 19% of maternal deaths. Research conducted across Asia over the course of two decades on patterns in the causes of maternal mortality revealed that pregnancy-induced hypertension and obstetric

hemorrhage accounted for the majority of maternal deaths at the national and subnational levels (Meh et al., 2022; Zalvand et al., 2019).

According to a comprehensive analysis by Musarandega et al., (2022) on the causes of maternal mortality outcomes, direct obstetric reasons such bleeding, hypertensive disorders, and sepsis accounted for 73% of maternal deaths. Additionally, it was shown that between the onset of labor and the first 24 hours following delivery, 40% to 45% of maternal fatalities take place. In comparison to the late postpartum period, the first 24 hours after birth carried a much higher chance of women dying during the postpartum period. Obstetric hemorrhage, sepsis, and hypertensive disorders during pregnancy were identified as the main causes of maternal mortality in numerous researches on the causes of maternal mortality in Africa (Musarandega et al., 2021; Musarandega et al., 2022; Onambele et al., 2022).

Although direct reasons are thought to account for the majority of maternal deaths in Uganda, there are also indirect causes mentioned (Dantas et al., 2020; Namagembe et al., 2022). Results of a study conducted at a teaching hospital in Northern Uganda showed that direct obstetric causes of death accounted for a higher percentage of deaths among women than indirect causes. According to reports, hemorrhage was the main cause of maternal deaths, followed by sepsis, hypertensive diseases, and difficulties during an abortion. According to the same study, puerperal infection and hemorrhage were the two main causes of maternal death at a teaching hospital in western Uganda (Alobo, et al., 2022). A thorough analysis of maternal deaths that occurred at a busy tertiary urban hospital in Kampala, Uganda, between 2016 and 2018 revealed that the three main causes of death were infection (27%), hypertensive disorders of pregnancy

(25%) and obstetric hemorrhage (45%). The analysis also showed that 84% of maternal fatalities were thought to be avoidable (Dantas et al., 2020; Namagembe et al., 2022).

From the global perspective, there are both direct and indirect causes of maternal death and morbidity, although the direct causes account for the majority of cases in Africa, Sub-Saharan Africa, and Uganda. Pregnancy-related infections, hypertensive diseases, and obstetric hemorrhage are the main direct causes of maternal death.

Causes of Neonatal Mortality and Morbidity

Worldwide, neonatal mortality is a major public health concern, but it is particularly so in low- and middle-income nations. The majority of the 2.9 million newborn deaths that occur worldwide each year take place in low- and middle-income nations in Africa and South Asia. According to reports, Africa accounts for about 25% of all newborn deaths (Asefa et al., 2022; Lemma et al., 2022).

Over the past three decades, there has been progress made worldwide in lowering newborn mortality; however, additional efforts are required to meet the 2030 SDG target (Andegiorgish et al., 2020; Al-Sheyab et al., 2020). The Every Newborn Action Plan (ENAP), created by UNICEF in 2014 under the direction of WHO, aims to lower the neonatal mortality rate (NMR) to 12 or less per 1,000 live births and the stillbirth rate to 12 or less per 1,000 births worldwide by 2030. It is critical to comprehend the primary causes of newborn morbidity and mortality in order to develop evidence-based therapies that can enhance neonatal care. According to a study, the majority of newborn fatalities in Africa take place in low- and middle-income nations without an apparent cause of death. Although there are numerous variables that are consistently connected to the precise underlying cause of newborn mortality, the causes are

typically classified as either fetal or maternal conditions (Al-Sheyab et al., 2020). This makes it challenging to determine the cause.

Preterm problems (36%), intrapartum associated events (23%), congenital abnormalities (9.8%), infections (16.4%), birth traumas (0.7%), tetanus (0.3%), and other causes (5.5%) are the leading causes of infant mortality worldwide (Lemma et al., 2022; Perin et al., 2022; WHO, 2022). Fetal death rates in high-income nations are 3.8 per 1000 live births. It was observed that fetal growth limitation, preterm birth, and congenital defects are the main causal factors that complicate pregnancy and result in perinatal morbidity and mortality. According to reports, perinatal illnesses and congenital malformations were linked to about 66% of late newborn fatalities and 99% of all early neonatal deaths in the United States (Al-Sheyab et al., 2020). With 27 deaths per 1,000 live births, middle-low-income countries in the SSA were reported to have the highest newborn mortality rates globally in 2019 (Asefa et al., 2022). Nearly half (42%) of the annual newborn fatalities worldwide occur in this region. Prematurity (35%), asphyxia (24%), infections (23%), and congenital malformations (11%) were shown to be the main causes of infant mortality (Asefa et al., 2022; Brambilla et al., 2022).

According to reports, birth asphyxia accounts for 28.9% of neonatal deaths in Uganda, making it the main cause of mortality. The World Health Organization (WHO) defines birth asphyxia as a newborn's inability to start and maintain breathing upon birth. A five-minute Apgar score of less than seven can also be used to characterize it (Ayebare et al., 2022). This is attributed to intrapartum difficulties, particularly during labor; the majority of these disorders are preventable if detected early and treated effectively to avoid hypoxia at birth. Neonatal infections account for 24.5% of neonatal deaths, with prematurity accounting for 27% of these cases.

Numerous studies have shown preterm to be the second most common cause of neonatal mortality, behind birth asphyxia. This clearly shows that, if pregnant women and newborn babies receive evidence-based essential birth services as advised by the World Health Organization (WHO), 80.4% of all causes of neonatal deaths can be avoided (Ayebare et al., 2022; Medvedev et al., 2020; Ministry of Health Uganda, 2022; UNICEF, 2020).

While the causes of maternal and newborn mortality and morbidity are the same around the globe, the percentages of each vary because of variations in the standard of care offered across continents. It is significant to highlight that inadequate access and subpar quality of services for mothers and newborns, particularly during labor and the early stages of postpartum care, are the main causes of immediate causes of death for mothers and newborns (Ayebare et al., 2022). Since the majority of the causes of these deaths are preventable, initiatives aimed at improving care during and immediately after delivery can lower mortality and morbidity (Al-Sheyab et al., 2020). The majority of these deaths occur during labor and shortly after delivery.

Strategies to Prevent and Reduce Maternal and Neonatal Mortality and Morbidity have been Tried with Success

For a long time, maternal and newborn mortality as well as morbidity have been global problems. In order to ensure that the majority of women who are essentially healthy receive supportive primary and preventive care and can have planned, straightforward pregnancies and deliveries, the World Health Organization (2015) recommends that effective program design be wellness-focused and population-based. Planning for programs must guarantee that high-risk pregnancies and their consequences are identified early on, and that interventions are carried out appropriately and promptly when necessary. The framework of availability, accessibility,

acceptability, and quality of services must thus be emphasized in care. Numerous approaches to lower the above-mentioned mortalities and morbidities have been studied by the WHO and other health agencies. These tactics are widely employed and have had a significant positive impact on lowering maternal and newborn mortality as well as overall mortality in many nations. Although these methods are used during pregnancy, labor, and the puerperium, the majority of these fatalities take place during childbirth or soon after giving birth. Evidence-based therapies have had a significant role in reducing maternal and newborn mortality and morbidity in developed countries. Numerous approaches have been implemented in law and middle income countries however, the rates of maternal and newborn mortality and morbidities have remained high.

With five main strategic goals aimed at preventing avoidable maternal and neonatal deaths, the WHO launched the Ending Preventable Maternal Mortality (EPMM) initiative in 2015. The worldwide strategic goals of EPMM are:

- Enhance metrics, measurement systems, and data quality in order to address disparities in access to and the caliber of sexual, reproductive, maternal, and newborn health care; guarantee that all maternal and newborn deaths are tallied; and prioritize sufficient resources and efficient health care financing.
- To guarantee universal access to comprehensive maternity, infant, sexual, and reproductive health care, and lastly, make sure that accountability is maintained to raise the standard of treatment and promote fairness by strengthening health systems to better meet the needs and priorities of women and girls.

Strategies That Have Been Used to Reduce Maternal Mortality and Morbidity

Maternal mortality initiatives have placed a strong emphasis on worldwide enhancing the standardization and comparability of surveillance data in accordance with the EPMM guidelines. According to a systematic study by Ahn et al., (2020), the United States and a number of other nations have been incorporating the conclusions from their reviews into the formulation of policies aimed at preventing maternal fatalities. The mother Mortality Review Information Application data system was created by the Centers for Disease Control (CDC) and Modified Medical Research Councils to enable consistent review of mother fatalities in MMRCs (Jolivet et al., 2021). The CDC's enhanced reviews and surveillance to eliminate maternal mortality by identifying and reviewing maternal deaths and developing recommendations to prevent future deaths.

Telehealth is an additional tactic to lower maternal mortality (Ahn et al., 2020). Several nations have implemented telehealth programs with a maternal health focus. Pregnant women with comparable due dates are brought together for the intervention to take part in group talks. Support personnel and a clinical provider lead the group discussions. By identifying mothers who are at risk, this aids in appropriate management. Women who reside in rural and medically underserved locations and have limited access to on-site prenatal care benefit from the use of remote monitoring, which increases their virtual access to high-quality care for low-income pregnant patients. Reducing maternal and perinatal mortality has also involved patient education and clinical personnel training. Numerous nations have employed their monitoring endeavors to provide insights for focused initiatives aimed at reducing maternal mortality. For instance, the Ohio Department of Health and Ohio State University's Clinical Skills and Education

Assessment Center created a simulated obstetric emergency training series for health care professionals on hemorrhage, cardiomyopathy, and preeclampsia after the US MMRC identified the need for training for obstetric emergencies (Ahn et al., 2020).

The creation of Clinical Guidelines, Protocols, and Bundles is another tactic to lower maternal and newborn mortality and morbidity, according to Ahn et al.. (2020) and Jolivet et al., (2021). WHO works to improve the standard and security of maternity care services in an effort to lower maternal morbidity and death. Maternal safety bundles are simple collections of best or evidence-based maternity care practices, and the WHO procedures help put them into effect. To assist medical personnel in addressing and preventing major factors that contribute to maternal morbidity and mortality, a range of WHO patient safety packages are available. Maternal safety bundles can be used in quality improvement projects to enhance care for women who have hemorrhage and other life-threatening diseases (Ahn et al., 2020; Jolivet et al., 2021). The construction of new hospitals to promote access, the training of more health workers, the growth in the health budget, and the implementation of WHO evidence-based procedures were among the initiatives employed in China to lower MMR. In addition, China succeeded to lower its maternal death rate and enhance their referral system (Yu, D., 2021).

Research has demonstrated that midwives can significantly lower stillbirths and maternal and newborn deaths in low- and middle-income countries. Nonetheless, midwives require an environment that is supportive as well as skills and competences that are in line with recommendations. According to research, providing care based on scientific understanding helps midwives avoid pointless interventions and motivates them to concentrate on techniques that raise the standard of care. Nurses and midwives are the front-line healthcare providers in

obstetrics in low- and middle-income nations. The ability of these medical professionals to handle obstetric emergencies is essential for raising the standard of treatment (Nishimwe et al., 2022). Global health organizations have identified strengthening midwives' ability to provide high-quality maternal and newborn health services as a priority. A significant increase in the coverage of midwife-delivered interventions could prevent maternal deaths, neonatal deaths, and stillbirths, saving 43 million lives annually by 2035, according to a study on the potential impact of midwives in preventing and reducing these outcomes. According to midwives' self-reflection in a Rwandan study, they acknowledged that they lacked evidence-based clinical guidelines to follow when providing care and that they were not proficient in handling obstetric emergencies (Nishimwe et al., 2022). The United Nations Population Fund (UNFPA), the International Confederation of Midwives (ICM), and the World Health Organization (WHO) published a report on the third global State of the World's Midwifery in May 2021. The report noted that investing in midwives can clearly yield important returns, which lead to more positive birth experiences, improved health outcomes, and equitable economic growth. This was attributed to the evidence-based midwifery interventions, which emphasize woman-centered, preventive, curative, and supportive care interventions during the labor process. They adopt a life-course approach (Nove et al., 2021).

Namwaya et al., (2020) conducted a study in Uganda and found some deficiencies in the midwifery practices of a national referral hospital. Just 27.3% of midwives who provided the service said they always took a blood pressure reading every four hours, and only 20.0% said they always took a temperature every four hours. Just 35.6% of midwives consistently provided health education and counseling after delivery, and only 36.8% of them always utilized a

partograph during labor. In certain places, there were also problems with the midwives' level of knowledge. Less than half (44.4%) of midwives correctly identified the two first-line medications used to treat postpartum hemorrhage, and less than one-third (30.2%) said they diagnose and treat obstructed labor using a partograph. The majority of midwives did not report utilizing interventions like antibiotics, health education, or hand washing to prevent infections in their ward, indicating that infection prevention practices were usually subpar. A lack of supplies (77.8%), a staff shortfall (96.8%), and breakdowns in the hospital's communication system (60.3%) were factors claimed to have an impact on care on the wards. The study found that midwives' practices were not up to par in all three units, with the general labor ward having the most of the gaps. According to Namwaya et al., (2020), midwives blamed it on a lack of defined protocols to follow in the labor unit and a lack of ongoing professional development.

In Uganda, numerous approaches have been used to lower maternal and newborn mortality as well as morbidity in accordance with the EPMM WHO program. A surveillance system that can monitor the number of deaths and offer details on the cause of death, underlying contributing causes, and measures taken to address the contributing factors in order to prevent future needless deaths is an essential part of any elimination strategy. The institutionalization of Maternal and Perinatal Death Surveillance and Response (MPDSR) is one of the major steps that the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) advocate as a means of enabling a nation to use audit data to track and prevent maternal perinatal deaths. This helps organize efforts to stop avoidable deaths by providing correct information about causes of death (Kinney et al., 2021). Although more midwives have been trained and employed, emergency obstetric care (EmOC) has been expanded, sensitization has been

strengthened to encourage more deliveries at health units, numerous health facilities have been built, and essential supplies are provided, the issue still exists in Uganda (Babigumira et al., 2019).

The basic abilities for midwifery practice care during labor and delivery are highlighted by the International Confederation of Midwives (2018). These competencies are recognized as the capacity to properly assess and care for women during labor, facilitating physiological processes and a safe birth; the ability to provide newborn care immediately; the capacity to detect complications in either the mother or the child; the capacity to stabilize emergencies; and the capacity to refer when necessary. Because they remain with laboring moms throughout the entire delivery process, research indicates that midwives are crucial individuals in providing vital childbirth practices. Studies have indicated that the experience of childbirth and the result of labor are significantly impacted by the professional abilities, behaviors, and traits of the midwife, including compassion, kindness, gentleness, and composure (Babigumira et al., 2019).

According to research, poor nations still have low rates of access to basic evidence-based interventions for facility-based birthing. According to reports, the majority of women did not obtain the standard treatment for birthing that the World Health Organization recommends. The study also found that few laboring moms received the benefits of simple risk assessments, which resulted in opportunities to detect dangers being lost (Exley et al., 2020). High rates of morbidity and death related to childbirth are the result of limited use of important birth practices. The WHO recommends evidence-based critical birth practices as a means of preventing maternal death. The focus of efforts should be on interventions that are likely to improve the practices, as the important evidence-based birthing practices are known (Millogo, 2021).

In order to enhance labor management and lower mother and fetal morbidity and death, it is stated that the World Health Organization (WHO) accepted, promoted, modified, and advised the partogram's usage in labor in 1987 (Okusanya et a.l, 2020). Although partograms are used in many countries, including Uganda, research indicates that midwives do not always use them as efficiently as advised. This has an impact on the quality of intrapartum care, maternal health, and delivery outcomes by WHO (Bedada et al., 2020). In their study, Okusanya et al., (2018) examined the completion of modified WHO partographs during labor in Ethiopian public hospitals. They discovered that very few partographs were correctly completed, with standard measurements for fetal heart rate recorded at 30.7%, cervical dilatation recorded at 32%, blood pressure recorded at 18%, and uterine contractions recorded at 20.7%. According to Okusanya et al. (2018), there have been reports of poor partogram utilization in Tanzanian, Nigerian, Kenyan, and Ugandan health facilities. It is advised that more focus be placed on partogram usage in monitoring labor progress than training, as evidenced by the literature currently available. Training on partograph use enhanced midwives' understanding, but not health workers' use of partograms (Okusanya et al., 2018). Despite significant advancements in maternal and child survival, facility-based childbirth rates, and skilled birth attendance by the end of the Millennium Development Goals, many women and newborns still die during or soon after childbirth, and disparities between countries and within groups within countries still exist (Nababan et al., 2017).

Abawollo et al., (2021) and Mudhune et al., (2018), in their studies have provided evidence that routine and emergency services can either prevent or reduce maternal and neonatal mortality. They also noted that childbirth is a complex process that necessitates remembering to

provide everything necessary to ensure that the mother and newborn receive the safest care possible. Essential aids for organizing these intricate delivery processes are checklists. Studies have indicated that initiatives aimed only at enhancing the education of birth attendants and expanding the supply chain was insufficient to improve patient outcomes. Clinical practice and results have improved as a result of interventions that include job aids like case sheets, checklists, and direct in-person support (Semrau et al., 2017). Research indicates that while more women are being delivered to hospitals and more competent birth attendants won't be able to completely eradicate maternal mortality, access to high-quality maternal health care will help to minimize excess mortality (Nababan et al., 2017).

The Safe Childbirth Checklist (SCC), a 29-item quality improvement tool created by the World Health Organization (WHO) in 2008, aims to decrease adverse childbirth events by supporting frontline health workers' adherence to evidence-based essential childbirth practices. The primary causes of maternal fatalities and stillbirths related to intrapartum are covered by the items on the WHO SCC (Nababan et al., 2017). Birth attendants are intended to use the WHO SCC during four crucial stages of the delivery process which include the time of admission, right before delivery, right after delivery, and right before discharge (Mudhune et al., 2017). The safe birth checklist includes prompts to encourage vital birth practices that are necessary to give high-quality care throughout labor and after delivery (Nababan et al., 2017).

Numerous studies have demonstrated that the adoption of the WHO SCC enhances evidence-based, crucial birth practices. Research conducted in Zambia and Rwanda revealed that the implementation of the WHO SCC improved health professionals' adherence to crucial

childbirth practices, which enhanced the standard of care in nations with little resources (Abawolla et al., 2021; Mudhune et al., 2017; Tuyishime et al., 2018).

In general, the literature suggests that if the world is to meet the SDG target of less than 70/10,000 live births, maternal and newborn death and morbidity remain a worldwide challenge that requires remedial duty. It is reported that direct reasons account for 99% of these deaths, and that by providing evidence-based critical birth care, service delivery can be improved and these deaths can be avoided (Abawolla et al., 2021; Mudhune et al., 2017). The WHO Safe Childbirth Checklist program was introduced, and in many of the countries where it has been used, midwives have delivered essential safety practices with marked improvement (Tuyishime et al., 2018). Spector et al., (2012) recommended further studies of a similar nature to see if this program can be implemented on a large scale and improve health outcomes. This study aims to determine the impact of adopting WHO SCC on midwives' knowledge and practices at a health center IV in Eastern Uganda. Data on the introduction and usage of WHO SCC in Uganda are lacking.

Summary

Chapter two discussed literature related to use of WHO SCC and its effects on quality of care for mothers and newborns in the bid to reduce both maternal and neonatal morbidity and mortality. The chapter also defined the key terms used in literature, statistics of both maternal and neonatal mortality and morbidity, causes of both maternal and neonatal mortality and morbidity and their effects. It discussed the strategies that have been used to reduce both maternal and neonatal mortality rates and morbidity rates. Chapter three will discuss the methodology to be used in this study.

Chapter Three

Chapter three describes the methodology that was used in the study. This includes the method and design, study setting, the study population, sampling and sample size calculation. Chapter three also describes the procedure of data collection and data collection tools that was used in this study, data analysis plan and how ethical issues were handled.

Research Design

This study adopted Quantitative Quasi-Experimental Pretest-posttest study design. The study adopted quantitative design because it intended to quantitatively measure the outcome of the intervention as guided by the two specific objectives. Also it adopted a quantitative study designs because the researcher contemplated collecting data with the aid of a questionnaires and subsequently apply numerical data analysis techniques (Ghanad, 2023). It was quasi-experimental because there was an intervention of introducing WHO SCC and teaching of midwives but there was no control group or active manipulation of study subjects. It was pre and posttest because data was collected both before the intervention and after the intervention. The two sets of data were analyzed to establish if the intervention had any meaningful impact. This way the hypothesis was answered (Polit & Beck, 2018).

Study Population

The study population consisted of the midwives who were working in health Centre IVs in Eastern Uganda, particularly those who offered essential birth services to mothers during birth process.

Study Setting

The study took place in a health sub-district health Centre IV in Eastern Uganda which was chosen purposively. The setting was appropriate because it was a government healthcare facility that offered obstetric emergency services and basic essential maternal and neonatal services. The facility has 22 trained and qualified Midwives who offer essential birth services to pregnant mothers during labour and puerperium. The strength is that the facility has a large number of client in flow conducting on average about 150 deliveries monthly which is an advantage that the practices of midwives can easily be assessed by looking into the records of the mothers they have cared for and delivered. Also, the facility is a teaching health Centre IV that allows research. The study population who in this case are midwives underwent the same training which makes it easy to make a team since they have the same professional values which will make it easy for them to cooperate. The health centre IV is supplied by government with drugs and other essential supplies and therefore, it has the resources necessary for provision of essential childbirth services.

Study Sample

The study involved two study samples. The first study sample included all midwives who were working at a health centre IV where the study was conducted who offer essential birth services to pregnant mothers and their new born babies. The second study sample included files of mothers who had delivered from the health centre IV where the study was conducted.

Sampling Frame.

This study had two samples involved therefore two different sampling frames were used. For the sample of midwives, the researcher used consecutive sampling given the nature of the

study and its available population. Consecutive sampling allowed all the available individuals meeting the inclusion criteria to participate in the study. The health centre IV where the study was done had only 22 midwives so using consecutive sampling enabled all midwives to have equal chances of participating in the study.

The second sample involved in the study were files of mothers who had delivered at the health centre IV a month before the study and a month after implementation of the study intervention. The researcher adopted a simple random sampling to select the files needed from the available population. The researcher assigned numbers to all the 150 available files and picked randomly the sample files needed from all the available number of files. All files had equal opportunity of participating in the study.

Sample Size.

There were two samples in this study. The first sample were the midwives and the second sample were the files. The health centre IV had 22 midwives who offer essential childbirth services. The maximum sample size that could possibly be attained was 22 midwives. The desired minimum number was 21 midwives. Using the formula of Taro Yamane (1967), as cited by Umar et al (2021), the sample size was established as follows

N=N/1+N (e) 2

Where n=sample size

N=population size (22)

e=acceptable margin error (0.05)

n=22/1+22(0.05)2

n=22/ (1+22(0.05*0.05)

n=22/ (1+22*(0.0025)

n=22/ (1+0.055)

n=22/1.055

n=20.853081

n=21.

Therefore, the minimum sample for midwives was 21.

The second sample involved in this study was files of mothers who had delivered at the health centre IV a month before the study and a month after the implementation of the intervention. Averagely, the health centre IV gets 150 deliveries monthly therefore the accessible sample size for files was 150 files monthly. To determine the sample for the mothers' files, the researcher used Taro Yamane formula of 1967

N=N/1+N (e) 2

Where n=sample size

N=population size (150)

e=acceptable margin error (0.05)

n=150/1+150(0.05)2

n=150/ (1+150(0.05*0.05)

n=150/ (1+150*(0.0025)

n=150/ (1+0.375)

n=150/1.375

n=109.090909090909

n=109.

The desired sample size for mothers' files was 109.

This sample size was good representation and it allowed for numerical data collection in line with quantitative study design recommendations. Simple random sampling technique was used to select the required number of files from all the files that was available in order to reduce the bias. The researcher gave each file a number, put the numbers on papers, folded each paper and put them together in a basket shook them and randomly picked the number of papers equivalent to 109 since the desired number of files was 109. Then the researcher unfolded the papers, and each number selected was attached to a file with that number.

Inclusion Criteria.

All midwives who were working in the maternity department who are trained and licensed to care for mothers during the childbirth process were included in the study. All the midwives had equal chances of participating in the study.

Files for all mothers who had delivered in the facility one month before the study and one month after the study all had equal opportunity of being included in the study regardless of whether they had some missing data or not.

Data Collection

After permission was granted, the in-charge of the health facility helped the researcher and organize the introductory meetings. The introductory meetings were held on two different days of the week and they were four in total. Each day, the researcher had two introductory meetings one in the morning hours and another one in the afternoon to ensure that all potential participants had an opportunity to join the study while the facility kept on running its activities normally. The meetings were held at the health facility premises in the maternity building

boardroom. A memo was written and displayed on all the notice boards in the health facility and all midwives were sent meeting invitation emails. The researcher introduced the study in each meeting; clearly explaining the objectives of the study, purpose and the significance of the study to the participants. Participants were given information about the consent form, pre-intervention data collection, teaching intervention and post intervention data collection. Since the researcher was in-charge of the department where the study was conducted, after the introduction of the study in the meetings, the researcher left the room, and then the research assistants obtained the signed Informed Consent forms (Appendix A) from the participants. Participants only consented if they agreed to take part in the study. The signed consent forms were put in an envelope, sealed, handed over to the researcher and the envelope was kept in a cabinet with a lock which was in a room that has a lock and the keys tightly kept. The intervention and data collection process took two months of April and May 2024. Three weeks of intervention and one month of implementation, then post intervention data collection.

Pre-Intervention Data Collection from Midwives

Upon obtaining the signed consent forms from the participants, the research assistant started data collection using the questionnaire (Appendix B). The research assistant used a master list which was a list of all midwives' names, to give codes to each midwife. A code was a number that was written on the questionnaire and the same number was written against the midwife's name on the master list as the research assistant gave the questionnaire to the midwife. Participants were informed not to write their names on the questionnaires. Midwives were informed that the codes given will be the same codes to use on questionnaires during post-intervention data collection. The research assistant kept the master list with codes in a sealed

envelope until the post intervention questionnaires were collected, and then it was given to the researcher and stored with the signed informed consent forms.

The process of pre-intervention data collection took two days to get all the midwives even those who were not available on the first day. The research assistant used a cabinet with a locker in the maternity block where all the filled questionnaires were kept for day one. After obtaining the questionnaires for day two, the research assistant then placed all the filled questionnaires in a sealed envelope which was handed over to the researcher. The researcher kept the sealed envelope containing the pre-intervention filled questionnaires in a locked cabinet and the cabinet was locked in the room where only the researcher had the key.

Pre-Intervention Data Collection from the Files

Data collection from the mothers' files was done using the Data Audit Tool (Appendix C) that was specifically developed for this study. The process of data collection from the files began with the research assistant requesting the assistant maternity in-charge to gather all the files of mothers who had delivered from the facility in the last one month and the request was granted and files collected, given to the research assistant. Simple random sampling was used to select the 109 files desired for pretest data collection. Upon obtaining the desired files, data collection began with the aid of a checklist which involved ticking each of the practices done in the mothers file until all the practices on the checklist were covered. The data collection process from the files took three days at the health facility in maternity boardroom. The checklists used to collect data from the files each day were placed in an envelope and kept in the cabinet with a lock, and the files that remained were tied together and locked in the room where only the researcher had the key to the room.

After one month of implementation of an educational intervention, the research assistant collected post-intervention data. The post-intervention data collection process began with writing a memo and putting copies on all notice boards at the health facility informing midwives who participated in pre-test data collection on the date for post-intervention data collection. Also, all the participants who participated in pre-intervention data collection were sent emails inviting them to the post-intervention data collection. The research assistant went to the work areas of participants which was postnatal ward and maternity, invited the participants to the maternity board room and post-intervention questionnaires were administered to the participants. The research assistant checked the master list with codes and reminded the participants of their codes to be used instead of their names on the questionnaires.

Participants who weren't available on that day were called by the research assistant and given the post-test questionnaires on the agreed day of the same week. Only midwives who did the pre-intervention were given the post-intervention questionnaires. The process of post-intervention data collection took two days just like pre-intervention data collection in order to be able to get all the midwives who participated in the pre-intervention data collection.

The process of post-intervention data collection from the files began with assembling all the files of mothers who had delivered from the facility after the month of implementation following the teaching intervention. The desired files were selected using the simple random sampling method where 109 files were selected and data collection was by use of the same checklist used during pre-intervention data collection. During post-intervention data collection, the checklists used to collect data from the files were put in an envelope and locked in a room. The files that were pending data collection were tied together and locked in the room until all the

files were done. After post test data collection from the files, the checklists used were put in an envelope, sealed and kept in a cabinet with a lock and only the researcher had access to the key. The files were returned back and handed over to the responsible person.

Intervention

The researcher developed an intervention plan (Appendix D) which was followed throughout the intervention phase. The intervention was guided by Lewin's theory of planned change. The researcher used the two first steps of the theory unfreezing and moving in the intervention. The intervention was divided into five steps. The five steps included brainstorming, two days of theoretical teaching by use of a PowerPoint presentation, a week of intense practical mentorship and coaching, WHO SCC launch celebration meeting and a month of implementation and role modeling.

Brainstorming.

The intervention began with the research assistant communicating with the health facility leadership who then organized the meetings with the midwives. In each meeting, before the presentation, the researcher had to unfreeze by presenting the statistics of both maternal and neonatal mortality for the country and the region. The researcher also presented statistics about low essential child birth practices in the region. These worked as the driving forces which helped in gaining buy-in to the change idea. The researcher engaged the midwives to brainstorm what they thought were the reasons for low essential childbirth practices in the region. Brainstorming sessions identified the restraining forces to change.

Teaching

Teaching was guided by the teaching plan (Appendix E) that the researcher developed. After unfreezing, the researcher presented a power point (Appendix F) which covered the definition of WHO SCC, the overview of WHO SCC, the elements of WHO SCC, great success stories on WHO SCC in some countries where it has been used. The researcher then ended with introducing the modified WHO SCC where the midwives were taught on the selected WHO SCC essential childbirth components and practices that are believed to improve midwives' knowledge and child birth practices. There were four teaching sessions of 2 hours each. These were offered over two days to both the day and night shifts to allow for each midwife to attend one session while work continued normally. Midwives' teaching helped to bridge the knowledge and skills gap which is needed for implementation of new change. It was also noted that training reduces fear to change (Burnes, 2020; Peterson & Bredow, 2019).

Mentorship and Coaching.

Mentorship and coaching began with putting the modified WHO SCC in every labour admission file so that every mother admitted in labour was managed while using the modified WHO SCC as a reminder tool. The researcher then used the modified WHO SCC to demonstrate to the midwives how it is used practically while monitoring the mothers during the labour process. The researcher worked with the midwives one-on-one and mentored them by demonstrating each assessment and action at each pause throughout the labour and birth experience. The facility had 21 midwives who rotated on day and night shifts which made it possible for me to work with all midwives in the course of the week. Four midwives worked each day. The researcher coached and mentored three midwives per day so that in seven days, all 21 midwives were covered.

WHO SCC Use Launch Celebration Meeting.

After one week of intense practical mentorship and coaching of WHO SCC use, a celebration meeting was held with all midwives and the facility leaders. The meeting was intended to celebrate the achieved win of having all midwives successfully finish the training, mentorship and coaching. In the meeting, it was communicated officially that all midwives had independently begun using the WHO SCC on every mother admitted in labour. Lewin's theory of change recommends identification and celebration of all wins achieved during the moving step of the theory because it motivates the change agents to work more towards achieving the planned change.

Implementation and Role Modeling.

During the month of implementation, the researcher worked as role models to the rest of the midwives in order to encourage them to keep using the WHO SCC appropriately. The entire intervention took five weeks and three days.

Data Collection Tools

Two data collection tools were used to collect data both during pretest data collection and posttest data collection. The tools included a questionnaire and a checklist. A questionnaire (Appendix B) that was theoretically based and from extensive literature reviewed and WHO SCC was specifically designed for this study. Questionnaires were used because they were cost-effective, reduced the risk of interviewer bias influencing the participants and reduced inadequate responses by midwives fearing to be criticized on some sensitive questions (Saunders & Kulchitsky, 2021). Tool number two that was used to collect data from mother's files was a data audit tool (Appendix C) which was developed from WHO SCC recommended practices

selected for this study and believed to reduce both maternal and neonatal mortality and morbidity. The data audit tool was used as a guide to check if the midwives did the expected practices from the mothers' files.

Item Analysis

Questionnaire. The questionnaire (Appendix B) had three sections: demographics, knowledge questions and practices questions. Demographic section (questions 1-6) items included gender, age in years, years of midwifery experience, highest level education, and prior training in WHO SCC.

The knowledge section (questions 7-24) had 17 multiple choice questions that was used to assess knowledge of midwives on WHO SCC essential childbirth practices that are believed to reduce both maternal and neonatal mortality. The questions were derived from the WHO SCC essential childbirth practices and addressed postpartum hemorrhage, pre-eclampsia, obstructed labour and infections as the leading causes of maternal mortality in Uganda and worldwide. It also had questions that sought to address neonatal hypoglycemia, hypothermia and infections which are the leading causes of neonatal mortality. Each correct answer was scored one mark and each incorrect answer was scored zero. The researcher did a summation of each individual and got the percentage. The results were categorized as follows. Participants who scored >80% were considered to be highly knowledgeable, 70-79% good level of knowledge, 50-69% fair level of knowledge and < 49% poor knowledgeable (Fang et al., 2021; Ozcan et al., 2023).

The practice section (questions 25-46) had 22 Likert scale questions that were used to assess midwives' practices. These questions were derived from WHO SCC practices that midwives are supposed to perform during the labour process to both the mothers and their

newborn babies. The questions in this section were scored using Likert scale. The "*always do*" was coded 4, "*frequently do*" 3 "*sometimes do*" 2, "*rarely do*" 1 and "*never do*" 0 score. The questions asked in the negative voice were scored inversely. The researcher interpreted the scores by summing up the individual responses and divided them by the total number of statements. Ratings of 3.75 -4 was considered an excellent practice, 3.0-3.74 considered to be good practice, 2.0-2.9 considered to be fair practice and less than 1.9 was considered to be poor practice (Fang et al., 2021; Guyatt et al., 2011).

Data audit tool. The data audit tool (Appendix C) for collecting data on practices from the files was developed from the WHO SCC essential childbirth practices selected for this study. Different practices were selected from the four pauses making a total of 22 practices: 8 practices were for the new born babies and 14 practices were selected for the mother. Each practice performed was scored one, and a score of 20-22 was categorized as excellent practices, a score of 18-20 was categorized as very good practices. A score of 16-18 was categorized as good practices, a score of 11-16 was categorized as a fair practices and a score of 6-11 was categorized as poor practices and below 6 was very poor practices.

A codebook was created to set up the software to receive the data. The codebook contained information about the variables in the data, their labels, and their properties. This helped to ensure that the data was properly coded and analyzed accurately. Data was coded, entered, checked and then analyzed using SPSS (version 24) for further analysis.

Pilot study.

The questionnaire was piloted among 5 midwives from a different facility but with similar characteristic features of the respondents. After the pilot study, a brief meeting with the

participants was held to establish if there were any questions that were not understood, if the questionnaire was easy to read and if the time spent completing the questionnaire was reasonable. All the five midwives responded that all the questions were easy to read and understand. They also answered that the time spent completing the questionnaire was reasonable (20 minutes).

The Data Audit Tool was piloted on five files of mothers who had delivered at the health facility in the month before the study. This helped to know if the data audit tool was easy to use and if it could successfully audit the practices from the files

The researcher then adjusted the questionnaire and the data audit tool accordingly and thereafter, the results were shared with the university study supervisor for approval of the changes made in the tools.

Validity of the Questionnaire and Data Audit Tool.

The researcher reviewed the current literatures on the WHO SCC elements to ensure that the questionnaire was complete and covered all the selected essential childbirth elements for this study. The researcher worked with two faculty members who are knowledgeable in the research process during the development of data collection tools. The faculty members gave expert feedback on the questionnaire and data audit tool such that the wordings and their meanings were clear and understandable.

The researcher used two expert midwife researchers who are well versed with WHO SCC to review the questionnaire and the data audit tool before they were used to collect data. The two midwifery experts provided content validity by giving feedback on whether the questionnaire was comprehensive, thorough and relevant, covering the knowledge and practices of the

midwives (Polit & Beck., 2018, p.311). They also gave feedback on the content in the data audit tool and acknowledged that audit tool audited the midwives practice on the selected WHO SCC essential childbirth practices with ease.

Reliability.

The reliability of the tools was established from the results obtained in the pilot study and was determined using Cronbach's alpha (Polit & Beck., 2018, p. 308). To measure the internal consistency to ensure that items in the questionnaire were relevant to the study a Cronbach's alpha analysis was undertaken and it revealed a coefficient Alpha of 0.819 which confirmed that the internal consistency was adequate (p.308).

Data Analysis

Data analysis was done using IBM SPSS Statistics (Version 24). Each individual participant's pre-intervention and post-intervention answers were entered into the software according to the codebook created from the pilot study. Double checking was done to ensure that all the data entries were accurate.

Demographics.

Descriptive statistics were used to analyze the demographic data. Frequency and percentages was used to analyze age, gender, years of working experience in the labour ward and highest level of education. Frequencies and percentages were obtained for demographic data to describe the distribution in the study population.

Knowledge.

Descriptive statistical measures were used to analyze knowledge data. Each individual's overall score for both pre-intervention and post-intervention was calculated by percent and also

by category separately. An analysis for the overall group scores by looking at mean percentage and also by looking at the distribution in categories and the mean for the group categories was done. This information was put in a table.

Also, each item in the questionnaire was analyzed for its performance and to identify areas of strengths and areas of weakness. This was done by looking at the percentage score of each question and questions which were passed highly with 80% and above were considered areas of strength. Questions which were passed with percentages below 60 were considered areas of weakness. This helped in reaching a conclusion as to whether the intervention had an effect on the strengths and weaknesses.

Since this was pretest and posttest study with paired results, a paired T test analysis was done to establish if there were differences in midwife's knowledge that were statistically significant as a result of the intervention. The p-value of 0.05 or less was used to judge whether the intervention caused significant change in the midwives' knowledge and if it was greater than 0.05 then it would not have caused any significant change (Polit & Beck, 2018). These were presented in a table for easy comparison of the pre and post data results.

Practices.

Descriptive statistical measures were used to analyze practice scores. Each individual's overall score for both pre-intervention and post-intervention was calculated by mean practice and also by category separately. The overall group scores were analyzed by looking at the overall mean for the group and the distribution in categories and the mean for the categories.

Also, each item in the questionnaire was analyzed for its performance. This helped in identifying areas of strengths and areas of practices which are weak. This was done by looking at the

percentages of the practice done. The specific item of practice which performed more than 80% was considered as an area of strength while items which were less than 60% was considered as areas of weakness. Since this was a pretest and posttest study with paired results, a Wilcoxon signed-rank test analysis was done to establish if there were differences in midwives' practices that were statistically significant as a result of the intervention. The p-value of 0.05 or less, judged that the intervention caused significant change in the midwives practice and a p-value greater than 0.05 indicated the intervention did not cause significant change (Polit & Beck, 2018, p. 387). These were presented in a table for easy comparison of the pre and post data results.

Ethical Considerations

This section contains the ethical approval, description of the process and meaning of obtaining informed consent, descriptions of how the researcher fully ensured privacy and confidentiality, and the benefits and risks involved in this study. It also covers the use of incentives and the social or cultural issues that might be sensitive in this study.

Ethical Approval.

Administrative approval (Appendix G) was obtained from the health centre IV where the study was conducted. Ethical review of this proposal was then sought from the UCU Research Ethics Committee (REC). Upon approval, the researcher went to the Head of Nursing Department who wrote an introductory letter that was presented to the appropriate person at the data collection site to seek for permission to conduct the study.

Informed Consent.

Informed consent (Appendix A) was obtained from each individual before being enrolled as a participant. Participation was completely voluntary, and study participants were informed

about the right to withdraw from the study until they completed and submitted the final questionnaire. The informed consent contained the title of the study, the researcher's contact information and also included my supervisor's contacts. Given contact information of the researcher and the supervisors, participants were free to raise any concerns or issues. The consent contained the introduction and purpose of the study including information on the inclusion criteria and description of the study. It also further contained the potential benefits, risks, and how confidentiality was maintained during data collection and analysis. The form ended with an authorization statement and signature lines and dates which the participant signed before participating in the study.

Privacy.

Because the researcher is the in-charge of the department, she introduced the study and let the research assistant collect the signed consent forms and the questionnaires. The researcher ensured that the research assistant was trained and informed to keep the signed consent forms and the filled questionnaires safe. This was because if data was collected by the researcher, the midwives may have worried about completing the questionnaire truthfully with their knowledge and practices visible for me to evaluate.

The research assistant developed a master sheet and each participant was given a code as a unique identifier to use on the pretest. Using codes helped to keep participants' identities private, minimized the bias and met the purpose of the study. Codes assigned to participants for pretest were the same codes to be used for the posttest after the educational intervention. The research assistant kept the master sheet with participants' names and their codes which were placed in an envelope and sealed. The research assistant used the master list to remind the

participants of their codes. Upon completion of data collection, the research assistant gave the developed master sheet to the researcher with participant's codes and names so as to hide the identity of the participant's to the researcher.

Confidentiality.

During and after data collection and analysis, confidentiality was ensured. Completed questionnaires were kept safe under lock and key in the researchers' office in a lockable cupboard. In addition, the participants were informed of how data will be reported in aggregate form as opposed to an individual basis.

All information in SPSS containing data was pass worded to have any unauthorized access restricted to the researcher and statistician during the analysis phase or supervisor if the need arises. After data entry, the questionnaires were kept under lock and key and this will continue until the study has been published. The filled in questionnaires and consent forms will be destroyed after publishing the study.

Benefits of the Study to Participants.

It is anticipated that participating in the teaching intervention, mentorship and coaching helped midwives to gain more knowledge and skills on the selected essential childbirth practices for this study.

Risks and Discomforts.

There was minimal risk to participating in this study. It was anticipated that for the first few days of starting to use the modified WHO SCC in the management of labour process, midwives felt overworked. However, to mitigate this discomfort the researcher was available in the ward to offer support to the midwives while they participated in the study.

Remuneration.

The participants were not paid but were given a token of appreciation worth 12000shs for their time as participants after the posttest questionnaire was completed.

Social-Cultural issues.

The researcher worked in the same department with the study participants as the in-charge. In order to avoid power effect, the researcher wasn't directly involved in the data collection. The research assistant conducted this process in order to allow midwives fill the questionnaires freely. This also minimized their fear for bad reports if the researcher learned that they are not knowledgeable about essential childbirth.

The researcher was aware that midwives who were involved in this study are primarily at the certificate, diploma and graduate levels. In order to minimize any potential difficulties resulting from different education levels, it was explained to the participants that the research is for all midwives regardless of the cadre. The consent form was well explained to the participants and they signed after understanding what will be involved in the study. All midwives were able to comprehend the educational intervention since it was provided in a language they were familiar with.

Conflict of Interest.

There was no conflict of interest to this study. This study is self-sponsored, being done as a requirement for the award of master's degree in nursing science of Uganda Christian University.

Summary

This chapter summarized the research methods that were used in the course of this study, the research design, the study setting, study population, the sample and inclusion criteria for the study participants. It also summarized the data collection procedure, tools that were used for data collection and the ethical issues. The risk involved in the study, benefits, validity and reliability of data collection tools and social cultural issues were also discussed.

Chapter Four

This chapter presents the study findings about the effects of Introducing World Health Organization Safe Childbirth Checklist (WHO SCC) on midwives' knowledge and practices of selected essential birth practices at a Health Centre IV in Eastern Uganda. This chapter will first discuss the findings of the demographic data, and then the effect of an educational intervention that introduced the WHO SCC on midwives' knowledge and practice. Data analysis was done using IBM SPSS Statistics (Version 24) for the data collected both pre-intervention and post intervention.

Demographic Results

Demographic data plays an important role in understanding the nature and composition of the study population. This section presents demographic information about the respondents who participated in the study.

The demographics results in Table 1, showed that the study sample consisted 100% of female midwives. Forty-five percent of the study respondents were aged between 30 – 39 years old. Fifty percent of the midwives had 6 -15 years of work experience and 30% of the midwives had 16 – 20 years of work experience in maternity ward. Furthermore, 60% consisted of those that had attained diploma in midwifery as their highest level of education. Seventy percent reported having previous training on essential childbirth practices.

Table 1

Demographic Information

Variable	Frequency (f)	Percentage (%)
Gender		
Female	20	100
Male	0	0
Age (in years)		
20-29	5	25
30-39	9	45
40-49	4	20
50-59	2	10
Years of Experience		
1-5	4	20
6-10	5	25
11-15	5	25
16-20	1	5
21-25	3	15
26-30	1	5
31-35	1	5
Highest Level of Education		
Certificate in Midwifery	7	35
Diploma in Midwifery	12	60
Degree in Midwifery	1	5
Years Worked in Maternity Ward		
1-5	4	20
6-10	4	20
11-15	6	30
16-20	2	10
21-25	2	10
26-30	1	5
31-35	1	5
Prior Training on Essential Childbirth Practices		
Yes	14	70
No	6	30

Effects of Introducing WHO Safe Childbirth Checklist on Midwives' Knowledge

This section presents the study findings on effects of introducing WHO Safe Childbirth Checklist on midwives' knowledge. The findings are presented in different categories of descriptive, inferential and individual questions statistics about midwives' knowledge.

Descriptive Findings on Midwives Knowledge.

This section presents findings in relation to the first objective which was to identify the effects of introducing WHO Safe Childbirth Checklist on midwives' knowledge of selected essential birth practices at a health Centre IV in Eastern Uganda. Since this was an intervention study, both pre – intervention and post intervention findings will be presented in the form of raw scores, and by categories.

Comparison of Midwives Knowledge by Raw Scores. An analysis of each individual's overall score for both pre-intervention and post-intervention knowledge was calculated by percentage. Details of this analysis are attached in Appendix I and J for pre-intervention data and post-intervention data respectively. The overall mean knowledge score was approximately 59% in pre-intervention. After the intervention the overall mean score knowledge of the study respondents increased to approximately 81%. The mean knowledge change score attained is 22%.

Comparison of Midwives' Knowledge by Category. Comparison of midwives' knowledge by category was done by categorizing the knowledge scores into different levels. The levels were labeled highly knowledgeable, good, fair, and poor level of knowledge as seen in Table 2.

Table 2

Knowledge Category of Respondent's Before and After the Intervention

	Pre-Intervention		Post-Intervention	
Category of respondent's knowledge	Frequency	Percent	Frequency	Percent
Highly knowledgeable (Above 80%)	3	15	11	58
Good level of knowledge (70 - 79%)	5	25	7	37
Fair level of knowledge (50 - 69%)	4	20	1	5
Poor level of knowledge (49% and below)	8	40	0	0

Table 2 provides a comparison of the midwives' knowledge levels before and after the intervention. Before the intervention, 15% of the respondents were highly knowledgeable and this number subsequently increased to 58% post-intervention. Prior to intervention 15% of the midwives had good level of knowledge which increased to 37% after intervention. Prior to the intervention, 60% of midwives scored in either the fair or poor categories. Afterwards, that number decreased to 5% with no one scoring a poor level of knowledge.

Inferential Findings on Midwives Knowledge.

The inferential findings analysis was done using the paired t-test in order to establish any statistically significant differences in midwife's level of knowledge as a result of the intervention. A significant test is established by identifying p-values less than 0.05.

Table 3

Comparison of Mean Knowledge Scores before and After Intervention Using a Paired t-Test

	Mean (%)	SD	P- value
Before Intervention	59	0.221	
After Intervention	85	0.149	< 0.001

The introduction of the WHO Safe Childbirth Checklist significantly improved midwives' knowledge of selected essential birth practices. Prior to the intervention, the mean knowledge index score was 59% (fair level of knowledge). Following the intervention, the mean score increased to 85% (highly knowledgeable) corresponding to higher level of knowledge. This substantial increase is statistically significant, with a p-value of less than 0.001

Performance on Knowledge Questions.

In this section each item in the questionnaire was analyzed to establish its performance in order to help in identifying areas of strengths and areas of weakness. A score of 80% and above is considered areas of strength and a score below 60% is considered areas of weakness.

As exhibited in Appendix I, prior to intervention there was no item score above 80%. Seven (7) items were scored below 60%. However, at post-intervention, 15 items were scored above 80% and no item was scored below 60%. The items that scored below 60% in prior to intervention included *use of magnesium sulphate, temperature monitoring, treatment for pre-eclampsia and antibiotics use in new born babies.*

Effects of Introducing WHO Safe Childbirth Checklist on Midwives' Practice

This section presents the study findings on the effects of introducing WHO safe childbirth checklist on midwives' practices. The study findings are presented in different categories of

descriptive, inferential, individual questions and practice performance using data audit tool statistics about midwives.

Descriptive Findings on Midwives' Practice.

The descriptive findings present the study findings on the effects of an educational intervention of introducing WHO safe childbirth checklist on midwives' practices. The findings are presented by comparison of raw scores and categories.

Comparison of Midwives Practice by Raw Scores. An analysis of each individual's overall score for both pre-intervention and post-intervention was calculated using mean score. At pre-intervention (Appendix K), the overall mean practice score of the study respondents regarding the use of WHO Safe Childbirth Checklist was approximately 2.4. However, after the intervention (Appendix L), the overall mean practice score of the study respondents increased to approximately 2.8.

Comparison of Midwives Practice by Category. This section presents the analysis of practice scores regarding the use of WHO Safe Childbirth Checklist as categorized into different levels. The researcher computed the scores by summing up the individual responses and divided them by the total number of statements. Ratings of 3.75 - 4 was considered an excellent practice, 3.0-3.74 was considered a good practice, 2.0-2.9 was considered a fair practice and less than 1.9 was considered a poor practice as summarized in table 4.

The result in Table 4 indicates that prior to the intervention 5% of the midwives attained a mean score that fell within the category "excellent practice" regarding the use of World Health Organization Safe Childbirth Checklist. Before the intervention, twenty percent attained "good practice score", 45% attained the category "fair practice", and 30% fell within the category "poor

practice.” However, after the intervention 21% of the midwives attained a mean score that fell within the category “excellent practice”, 26% attained the category “good practices”, 47% attained a score that fell under the category “fair practice” and 5% remained under the category “poor practice”.

Table 4

Categories of Practices by Midwives Before and After the Intervention

Means Score Practice	Pre-Intervention		Post-Intervention		% change
	Frequency	Percent	Frequency	Percent	
Excellent (3.75 – 4.0)	1	5	4	21	19
Good (3.0 – 3.74)	4	20	5	26	6
Fair (2.0 – 2.9)	9	45	9	47	0
Poor (1.9 and less)	6	30	1	5	- 5

Inferential findings.

The inferential statistics from Wilcoxon signed-rank test was done to establish any statistically significant differences in midwives’ level of practice as a result of the intervention. Significance is established by identifying a p-value less than 0.05.

Table 5

Comparison of Mean Practice Scores Using a Wilcoxon Sign-Rank Test

	Mean (%)	SD	P- value
Before Intervention	2.4	0.992	
After Intervention	2.8	0.892	0.024

In Table 5, before the intervention, the mean practice score indicated that midwives were sometimes (2.4) performing the essential childbirth practices. However, after the intervention, the mean score indicates that the midwives were frequently (2.8) performing the essential childbirth practices. The p - value of 0.024 demonstrate that the checklist effectively enhanced midwives' adherence to essential childbirth practices. The statistical significance is further supported by the reduced standard deviation post-intervention.

Item Performance in the Questionnaire.

This section presents findings of each practice item in the questionnaire in order to help in identifying areas of strengths and areas of weakness. In the table below, a score of 80% or more is considered an area of strength and a score below 60% is considered an area of weakness.

Table 6 provides a clear comparison of the midwives' practice levels regarding the areas of strength and weaknesses on each item in the questionnaire. Before the intervention, none of the items on the questionnaire was scored under the category “area of strength”. Conversely, 72% of the midwives attained a score mark that fell under the category “areas of weakness”. In the post intervention, still none of the item on the questionnaire was scored under the category “area of strength” by the midwives; however, the proportion of midwives that attained a score mark that fell under the category “areas of weakness” reduced to 55%.

Table 6

Overall Practice Scores on Areas of Strength and Area of Weakness

	Pre-Intervention		Post-Intervention	
Category of respondent's practice	Frequency	Percent	Frequency	Percent
Above 80%	0	0%	0	0%
Below 60%	16	72	12	55

Midwives' Practice Performance Using Data Audit Tool

The data audit tool collected data on practices from record files concerning the midwives' practices on the WHO SCC essential childbirth practices. Each practice performed is scored one, a score of 20-22 is categorized as *excellent*, 17-19 is categorized as *very good*, 14-16 is categorized as *good*, 11-13 is *fair*, 6-10 is *poor* and a score below 6 is *very poor*.

The finding in Table 7 indicates that prior to intervention none of the audited files about practicing the guidelines in the WHO Safe Childbirth Checklist fell under *excellent practice* or *very good practice* categories. Approximately 84% of the practice score fell under category *poor* and *very poor* practice category. After the intervention, the proportion of those that fell under category *excellent* and *very good* practice increased to 84%. Conversely, none of the practice score remained under the category *very poor practice.*

Table 7

Data Audit Result on Nurse's Practices in Pre and Post Intervention

	Pre-Intervention		Post-Intervention		
Category	Frequency	Percent	Frequency	Percent	**%** Change
Excellent (20 – 22)	0	0	41	36.9	41
Very good (17 – 19)	0	0	54	46.6	46.6
Good (14 – 16)	2	1.7	12	10.8	9.1
Fair (11 – 13)	18	15	2	1.8	- 16
Poor (6 – 10)	46	38	2	1.8	- 36.2
Very poor (Below 6)	55	45.5	0	0	- 45.5

Summary

Chapter Four presented the findings for demographics and the two study objectives considering the effect of introducing World Health Organization Safe Childbirth Checklist on Midwives' Knowledge and Practices of Selected Essential Birth Practices. There was a significant effect on midwives' knowledge and insignificant effect on midwives' practice regarding the self-reported data and a significant effect on audit file data. Chapter Five will provide a discussion of the study's findings as well as recommendations and conclusions.

Chapter Five: Discussion, Recommendations and Conclusion

Chapter five discusses the study findings which were informed by each of the study objectives. The objectives that guided the study were to identify the effects of introducing WHO Safe Childbirth Checklist on midwives' knowledge and practice of selected essential birth practices at a health Centre IV in Eastern Uganda. In addition, chapter five describes the application of the theoretical framework, recommendations, limitations of the study, areas for further study and the conclusion section.

Demographics

The study disclosed that all the participants were female midwives. Historically midwifery is a female dominated profession (Berkery et al., 2014). The above finding is in line with the directives of Ministry of Health Uganda that stopped recruitment of male comprehensive nurses as midwives in all health units in Uganda (Oyaro & Nuwabain, 2021). Additionally, the above finding is consistent with the evidence of Kumakech et al., (2020) where majority of the study respondents in Uganda were female midwives. This study disclosed that majority of the midwives were aged between 30 – 39 years old. This is suggestive of an energetic, ambitious and fairly experienced midwives'. The above finding is consistent with Namutebi et al., (2023) where all the midwives were females aged between 20 – 49 years with a mean age of 28.8 years.

This study disclosed that half of the midwives had 6 - 15 years of work experience and most of them had 16 – 20 years of work experience in a maternity ward. The above finding is illustrative of the fact that the midwives had a considerable wealth of experience to enable them perform their work duty with maturity and confidence. The above findings are consistent with

Amadi et al., (2024) in which most of the midwives had 11 to 15 years of experience working in maternity wards. The study disclosed that the majority of the midwives had attained diploma in midwifery as their highest level of education. This implies that most of the midwives had a fairly low level of academic education. The above finding is consistent with Koome (2023) where majority the midwives were diploma holders.

Effects of Introducing WHO Safe Childbirth Checklist on Midwives' Knowledge

The study's findings disclosed that the introduction of the WHO SCC significantly improved midwives' knowledge of selected essential birth practices. Prior to the intervention, the midwives demonstrated a fair level of knowledge. However, afterward the mean score improved to higher level of knowledge. The above finding is consistent with Ameh et al., (2018) and Christiansen et al., (2023).

The study's findings indicated that there was an improvement on the midwives' knowledge after an educational intervention using the WHO Safe Childbirth Checklist (SCC). The above finding implies that the introduction of WHO SCC positively improved the midwives' understanding of several aspects of safe childbirth as enlisted in WHO SCC. The above finding is consistent with Muhorakeye et al., (2019) in which following the introduction of WHO Safe Childbirth Checklist the midwives' knowledge substantially improved. The study furthermore noted that the quality of obstetrical health care improved proportionally to the knowledge mainly in labor monitoring and chart documentation.

This study disclosed that the number of midwives who were highly knowledgeable about the content of WHO SCC substantially improved following the training intervention. Also, after intervention none of the midwives had *poor level of knowledge*. This finding supports the

intervention of introducing the WHO SCC to positively enhance the midwives' knowledge. This finding is consistent with Nababan et al., (2017) were it was disclosed that there was a significant improvement in midwives' knowledge following the introduction of WHO SCC.

Prior to intervention no item in the SCC scored above 80% which would be considered an area of strength. But 7 items were scored below 60% which indicated an area of weakness. However, at post-intervention, 15 items were scored above 80% and no item was scored below 60%. This implies that the intervention had a profoundly positive effect on the midwives' knowledge of essential birth place practices. The above finding is consistent with Christiansen et al., (2023) where there was a significant improvement in midwives' knowledge following the introduction of SCC.

Effects of Introducing WHO Safe Childbirth Checklist on Midwives' Practice

The study disclosed that at pre-intervention, the overall mean practice score of the study respondents regarding the use of WHO SCC was approximately 2.4. After the intervention, the overall mean practice score improved to approximately 2.8. The above finding indicates an improvement in safe childbirth practices by the midwives. The finding above is consistent with Kaplan et al., (2021) and Tuyishime et al., (2018) in which after the introduction of WHO SCC, midwife's essential childbirth practices as recommended on WHO SCC improved.

Prior to the intervention 25% of the midwives were either *excellent* or *good* in their practice and 75% were *poor* in their practice regarding the use of World Health Organization Safe Childbirth Checklist. The above finding implies that overall there was a fair practice among the midwives. However, after the intervention 47% of the midwives were either *excellent* or *good* in their practice and 52% of the midwives were *fair* in their practice. The above findings

suggest a positive improvement which also affirms the effectiveness of the intervention in enhancing midwives' practice. Additionally, the study disclosed that prior to the intervention the midwives were *sometimes* practicing the essential childbirth practices and afterwards they were *frequently* practicing them. The statistical p - value of 0.024 demonstrated that the checklist effectively enhanced midwives' adherence to practicing essential childbirth practices. The above finding is consistent with the evidence of Abdelgadir et al., (2022), Semrau et al., (2017), Abawollo et al., (2021), and Dohbit et al., (2021) all of whom disclosed that there was a significant improvement in the practice of SCC following the intervention.

In this study, before the intervention none of the items in the questionnaire was scored as area of strength. In the post intervention, some items in the questionnaire were scored as areas of strength and the proportion of midwives that attained a score that fell under areas of weakness reduced. The above finding implies that the intervention had a positive impact on individual items in the questionnaire. This finding is different from Abdelgadir et al., (2022) in which there was insignificant improvement in midwives' practices following SCC intervention on some practice items.

The study findings disclosed that prior to intervention none of the audited files about practicing the guidelines in the WHO SCC fell under the category *excellent* and *very good* practice and 84% of the audited files had *poor* and *very poor* practices. However, following the intervention the proportion of those that fell under category *excellent* and *very good* practice increased to 84% and none of the practices were *very poor*. This implies that the intervention had a significant effect in enhancing midwives' practices regarding the WHO SCC components. Furthermore, the above finding is an indication that the midwives became serious in practicing

the guidelines in the WHO SCC that was introduced to them. This is consistent with Muhorakeye et al., (2019) where it was noted that documentation of almost all tasks significantly improved following SCC intervention.

There was a statistically significant effect on midwives' practice from the self-reported data and from audit file data. However there was a greater improvement in data audit files compared to self-report data implying that the midwives did not know how much they had improved in implementation of WHO SCC recommended practices and they still lacked confidence to self-report their practices. This finding is similar to Igaga et al., (2018). However, the greater improvement in practices from the audit file data could have been due to the fact that record data is less influenced by biases especially at the time of recording. The above finding is consistent with Kanyunyuzi et al., (2017).

Application of Theoretical Framework

This study applied the concepts and processes in Lewin's Change Management Theory. The theory emphasizes some systematic basic steps to follow in order to attain quality and improved services for hospital bedside care. The first two steps of the theory (unfreezing and moving) were used and they enabled the researcher to successfully introduce a different way of doing things from what the midwives were previously doing. The midwives embraced the teaching, coaching, mentorship and use of WHO safe childbirth checklist which subsequently led to improved level of knowledge and practice of WHO SCC elements.

Recommendations

Midwives' leaders should ensure that WHO-SCC is introduced and practiced more regularly and broadly in hospitals and health Centre's offering delivery services across the

country. This may improve midwives knowledge and essential childbirth practices which may improve adherence to essential childbirth practices, improve quality of care during the labour process and thus reduction in maternal and neonatal mortality.

Midwives' leaders should plan and introduce facility-based mentorships and coaching programs on the use of the WHO SCC. This will help in improving midwives' knowledge and practices and thus better quality of care.

The Ministry of Health should formulate a comprehensive policy framework that will encourage all health facilities to mandatory introduce use of WHO SCC which will help most midwives to improve their knowledge and essential childbirth practices through mandatory coaching and mentorship programs for midwives. This will improve midwives knowledge and practices and thus reduction in both maternal and neonatal mortality and morbidity.

Limitations

This research was undertaken in a single district and a single healthcare unit. As such, the study findings could have been influenced by environmental and circumstantial factors which may not necessarily be a similar case in healthcare units across the whole country. The principal investigator of the study happened to be working at the same health facility which could have influenced study participants. The questionnaire was researcher developed and while reviewed by experts and pretested, it was used on a small sample as such it has limited validity and reliability.

Areas for Further Study

There is need to replicate the study using a mixed method approach in order to get detailed information from midwives in a wider geographical scope of more than one health facility.

Conclusion

Over all, the study showed that an educational intervention and the introduction of WHO SCC to midwives had statistically significant effects on midwives' knowledge and on practice. The study results reveled that an educational intervention and introducing of WHO SCC greatly improved both midwives' knowledge and essential childbirth practices. There was a statistically significant effect on midwives' practice from the self-reported data and from audit file data. However there was a greater improvement in data audit files compared to self-report data implying that the midwives did not know how good they had improved in implementation of WHO SCC recommended practices and they still lacked confidence to self-report their practices. This study is very important because it dealt with critical issues that involve midwives who play an important role in providing care for expectant mothers before giving birth and to the mother and her baby immediately after giving birth. Undertaking midwives' responsibilities requires that the midwives must be soundly knowledgeable, very skillful and experienced in practicing their profession.

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Appendix A: Informed Consent

Title of Research Study: Effects of Introducing World Health Organization Safe Childbirth Checklist on Midwives' Knowledge and Practices of Selected Essential Childbirth Practices. A Pilot Study of a Health Centre IV in Eastern Uganda.

***Principle Investigator, Contact Information and Affiliation*:** I am Ahimbisibwe Esther, a student at Uganda Christian University; I am conducting this study in partial fulfillment for the requirements for award of Master's Degree of Science in Nursing of Uganda Christian University, Mukono. Tel: +256774881214/+757868736. **Email address:**

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***Introduction and purpose of study*:** Maternal and neonatal mortality and morbidity is unacceptably high globally, in Africa, and in Uganda. This study will aim at describing the effects of introducing WHO safe childbirth checklist on midwives' knowledge and practices of selected essential birth practices.

***Description of the research*:** The study will involve completing a questionnaire twice. Completing the questionnaire will take approximately 15-20 minutes. After the first data collection, there will be teaching and then one month after the teaching, there will be a second data collection.

Subject participation: You are being asked to participate in this study because you offer essential childbirth services to mothers in labour and neonates.

Potential Benefits: Taking part in this study may help you to gain more knowledge on the essential childbirth practices. There are no incentives in this study, but all midwives who will

take part in the study will be given 12000 shillings at the end of the study as an appreciation for their time.

Potential Risks and Discomforts: participating in this study will not pose any risk to you.

Confidentiality: When completing the questionnaires, you will be given codes to use instead of your name to ensure that no one will know who filled which questionnaire. Completed questionnaires will always be kept safe under key and lock.

Rights of participants: You have a right to withdrawal from the study any time you no longer wish to continue with the study until you turn in the second questionnaire and no blame will be put on you.

***Contact information for ethical concerns or to withdraw consent*:** This study has been approved by the Uganda Christian University REC. My supervisor is: Professor Grace Nakate Tel; +256-772439526; email address: gracentale@gmail.com

Authorization statement:

I have read this consent form and I agree to be a participant in this study. I have been given the opportunity to ask questions regarding the study, and I have received answers to my questions. I acknowledge that I am aware of what this study involves, that I am at least 18 years old, and that I have received a copy of this Informed Consent form.

Statement of Consent/Assent

Name……Signature……..Date ……

Witness

Name ……Signature …….Date ……

Appendix B:

Questionnaire to Assess Knowledge and Practices of Midwives on WHO SCC

Instructions

Do not write your name on this questionnaire

Write the code that you were given by the research assistant in the space provided and keep it a secret to your self

Answer all the questions

Code…….....Date…….

Demographic Questions

Please tick the relevant information

1. Gender

   a) Male

   b) Female

2. How old are you……

3. How many years of experience as a midwife do you have……

4. What is your highest level of education?

   a) certificate in midwifery

   b) diploma in midwifery

   c) degree in midwifery

   d) master in midwifery

5. How long have you worked in the maternity ward……..

6. Have you ever had training on essential childbirth practices since you left school……

Knowledge Questions

7. When do you start a partograph in labour?

a) When the cervix >3cm but before 10cm dilated

b) When the cervix > 4cm but before 10cm dilated

c) When the cervix is 10 cm dilated

d) When the cervix > 6cm but below 10cm dilated

8. The following are indications for antibiotics use in labour **EXCEPT**

a) Mother's temperature ≥38 °C

b) Big baby

c) History of foul-smelling vaginal discharge

d) Rupture of membranes >18 hrs

e) Caesarean section

9. Which of the following is the correct criterion for antihypertensive drugs use in labour and puerperium?

a) BP of ≥140/90 mmHg

b) BP ≥130/90 mmHg

c) BP ≥120/90 mmHg

d) BP ≥110/90 mmHg

10. What is the correct criterion for magnesium sulphate use in labour and puerperium?

a) Diastolic BP ≥90 mmHg

b) Diastolic BP ≥100 mmHg

c) Diastolic BP ≥110 mmHg

d) Diastolic BP ≥120 mmHg

11. The following are interventions for abnormal bleeds after delivery (PPH) a midwife can use to save the mother **EXCEPT**.

a) Massage uterus and consider more uterotonics use

b) Start IV fluids and keep mother warm

c) Give antibiotics to prevent infections

d) Treat cause: uterine atony, retained placenta/fragments, vaginal tear, uterine rupture

12. The following are the correct criterion for antibiotics use in new born babies **EXCEPT?**

a) Respiratory rate >60/min or <30/min

b) Bleeding from the cord

c) Chest in-drawing, grunting, or convulsions

d) Baby's temperature <35 °C (and not rising after warming) or baby's temperature ≥38 °C

13. Which of the following findings indicate Pre-eclampsia?

a) BP ≥160/90 mmHg at least 2 readings taken 4 hrs apart and urine protein of 2+ at 12wks gestation

b) BP ≥150/110 mmHg confirmed within 15 minutes with or without proteinuria after 20 weeks of gestation.

BP ≥140/90 mmHg confirmed within 15 minutes with or without proteinuria after 26 weeks of gestation.

c) BP ≥130/90 mmHg confirmed within 15 minutes with or without proteinuria after 32 weeks of gestation.

14. The first line treatment for pre-eclampsia with severe features used to reduce and control blood pressure is

a) Magnesium sulphate
b) Calcium gluconate
c) Hydralazine
d) Diazepam

15. The first line treatment for pre-eclampsia with severe features used to control and prevent convulsions is

a) Magnesium sulphate
b) Calcium gluconate
c) Hydralazine
d) Diazepam

16. Post-partum hemorrhage can best be defined as;

a) Bleeding from the birth canal after the birth of the baby until 6 weeks postpartum, amounting to 500 ml or more after vaginal delivery and1000 ml or more after caesarean section, or any amount that causes deterioration of the maternal condition.
b) Bleeding from the birth canal after the birth of the baby until 6 weeks postpartum, amounting to 400 ml or more after vaginal delivery and 900 ml or more after caesarean section, or any amount that causes deterioration of the maternal condition.
c) Bleeding from the birth canal after the birth of the baby until 6 weeks postpartum, amounting to 300 ml or more after vaginal delivery and 800 ml or more after caesarean section, or any amount that causes deterioration of the maternal condition.

d) Bleeding from the birth canal after the birth of the baby until 8 weeks postpartum, amounting to 500 ml or more after vaginal delivery and1000 ml or more after caesarean section, or any amount that causes deterioration of the maternal condition.

17. Which of the following is the drug of choice in prevention of PPH?

a) Ergometrin

b) Misoprostol

c) Oxytocin

d) Carboprost

18. What is the correct interval for fetal heart rate monitoring during first stage of labour?

a) Every 30 minutes

b) Every 1 hour

c) Every 2 hours

d) Every 3 hours

19. What is the correct interval for temperature monitoring during first stage of labour?

a) Every 30 minutes

b) Every1 hour

c) Every 2 hours

d) Every 3 hours

20. What is the correct interval for contractions monitoring during first stage of labour?

a) Every 30 minutes

b) Every 1 hour

c) Every 2 hours

d) Every 3 hours

21. What is the correct interval for maternal heart rate monitoring during first stage of labour?

a) Every 30 minutes

b) Every 1 hour

c) Every 2 hours

d) Every 3 hours

22. What is the correct dosage of magnesium sulphate in management of pre-eclampsia

a) 10 g given as IV 4g of 20% followed by IM 5g of 50% with 1ml of 2% lignocaine in each buttock.

b) 12 g given as IV 4g of 20% followed by IM 5g of 50% with 1ml of 2% lignocaine in each buttock.

c) 14 g given as IV 4g of 20% followed by IM 5g of 50% with 1ml of 2% lignocaine in each buttock.

d) 16 g given as IV 10g of 20% followed by IM 5g of 50% with 1ml of 2% lignocaine in each buttock.

23. What is the correct dose of oxytocin used in prevention of PPH?

a) 5IU

b) 10IU

c) 15IU

d) 20IU

24. How often should the midwife check mothers for bleeding in the first 2 hours following delivery?

a) Every 5 minutes

b) Every 10 minutes

c) Every 15 minutes

d) Every 20 minutes

Essential Childbirth Practices Questions

Please tick your level of agreement with the following statements regarding your essential child birth practices.

QN NO	**Scale**	**0**	**1**	**2**	**3**	**4**
	Statement	**Never**	**Rarely**	**Sometimes**	**Frequently**	**Always**
25	I start a partograph and monitor all mothers who are admitted in labour					
26	I do not take the temperature of mothers in labour at admission					
27	I do not monitor blood pressure of all mothers in labour at admission					
28	I administer magnesium sulphate to mothers in labour who have pre-eclampsia and eclampsia.					

QN NO	Scale	0	1	2	3	4
	Statement	**Never**	**Rarely**	**Sometimes**	**Frequently**	**Always**
29	I administer anti-hypertensive drugs to mothers in labour who have high blood pressure					
30	I don't take the temperature of mothers in second stage of labour just before pushing					
31	I do not monitor blood pressure of mothers in second stage of labour just before pushing					
32	I administer oxytocin 10Iu to every mother immediately after delivery of the baby to prevent PPH					
33	I do not put the baby skin to skin (kangaroo mother care)					

QN NO	Scale	0	1	2	3	4
	Statement	**Never**	**Rarely**	**Sometimes**	**Frequently**	**Always**
	in postnatal period before discharge of the mother					

QN NO	Scale	0	1	2	3	4
	Statement	**Never**	**Rarely**	**Sometimes**	**Frequently**	**Always**
34	I do not offer immediate postnatal family planning					
35	I don't monitor temperature of postnatal mothers					
36	I monitor mothers' blood pressure in postnatal period					
37	I don't assess postnatal mothers for bleeding every 15 minutes in the first hour of birth					
38	I assess newborn respiratory rate in the first one hour of life					
39	I assess newborn temperature in the first one hour of life					
40	I assess newborn pulse rate in the first one hour of life					
41	I initiate breast feeding in the first hour of life.					

42	I do not monitor postnatal mothers temperature before discharge					
43	I monitor postnatal mothers blood pressure before discharge					
44	I monitor new born temperature before discharge					
45	I monitor new born pulse and respiration before discharge					
46	I don’t assess new born baby’s breastfeeding before discharge					

Appendix C:

Data Audit Tool

Admission number……..Date……

	Pause one On Admission		
		Response	
1	Was partograph started at >4cm	Y	N
2	Were fetal heart sounds measured?	Y	N
3	Was temperature taken?	Y	N
4	Was blood pressure taken?	Y	N
	Pause two Just Before Pushing (Or Before Caesarean)		
5	Was temperature taken?	Y	N
6	Was blood pressure taken?	Y	N
	Pause three Soon After Birth (Within 1 Hour)		
	For the mother		
7	Was oxytocin 10iu given?	Y	N
8	Was temperature taken?	Y	N
9	Was blood pressure measured?	Y	N
10	Was bleeding monitored every 15 minutes by pad count?	Y	N
	For the baby		
11	Was baby temperature taken?	Y	N
12	Was baby respiratory rate measured?	Y	N
13	Was breastfeeding initiated with in the 1st hour of birth	Y	N

14	Was baby put skin to skin on mother's chest?	Y	N
	Pause four Before Discharge		
	Mother		
15	Was temperature taken	Y	N
16	Was blood pressure measured	Y	N
17	Was mother checked for bleeding	Y	N
18	Family planning options discussed and offered to mother?	Y	N
	Baby		
19	Was baby's temperature taken	Y	N
20	Was baby breast feeding assessed	Y	N
21	Was baby's respiratory rate monitored	Y	N

Appendix D

Research Intervention Plan

	Activity	**Period**	**Remarks**
1.	PowerPoint presentation teaching	First two days	I will have two sessions each day one in the morning and another in the afternoon.
2.	Mentorship	One week	This will be in the ward where I will mentor midwives
3.	WHO SCC use Launch Meeting	1 day	This will be a one day meeting aiming at ensuring that every midwife the facility leaders are in the know that midwives have started using the WHO SCC
4.	Weekly feedback Meeting	Beginning of week 3	The meetings will be held on every Monday morning when the staffs who will

			have worked night duty have not yet left duty and the ones for the day shift have arrived.
5.	Weekly feedback Meeting	Beginning of week 4	The meetings will be held on every Monday morning when the staffs who will have worked night duty have not yet left duty and the ones for the day shift have arrived.
6.	Meeting	beginning of week 5	The meetings will be held on every Monday morning when the staffs who will have worked night duty have not yet left duty and the ones for the day shift have arrived.

Appendix E

Teaching plan

Time	Content/objective	Teachers activity	participants activity	Remarks
8:30AM-9:00AM	• Rapport building • unfreeze • brainstorm session	• Greet participants • Introduce my self • Present brief overview on high maternal and neonatal mortality rates in the region and how they are due to law essential childbirth practices. These will work as the driving forces towards change. • Brainstorming session with the midwives about the restraining forces	• Responding to greetings • Introduce themselves • Brain storm about the causes of law essential	

	with the midwives	towards essential childbirth practices. This will help me to find out the challenges towards implementation of change. • Introduce WHO SCC and show statistical evidence of different countries where it has helped in improving essential childbirth practices	childbirth practices.	
9:00AM-9:10AM	• Objectives for teaching	• Give and explain to the participants the objectives for the teaching.	• Participants listen to the objectives	
9:00AM-	Introduce the	• Define the WHO	• Listening to	

9:20AM	presentation • Definition of WH SCC • Overview of WHO SCC	SCC and give the overview of WHO SCC by presenting the PPT and explaining.	the presentation • Participants view the PPT presentation • Ask questions	
9:20AM-9:40AM	• The 29 essential childbirth practices of WHO SCC	• Present the 29 essential childbirth practices of the WHO SCC	• View and listen to the presentation on the elements of WHO SCC	
9:40AM-10:00AM	• Four pauses of WHO SCC • WHO SCC essential birth	• Explain the four pauses of WHO SCC • Mention the WHO SCC essential childbirth practices done at each pause • Present a scenario of	• View and listen to the presentation on the four pauses of WHO SCC and the essential	

	practices on each pause • scenario	a mother on admission, divide participants into two groups and ask each group to mention the assessment needed plus the actions done on admission	childbirth practices at each pause • View the scenario, give answers to the questions asked in their groups	
10:00AM-10:05AM	Break	Break	Break	
10:05AM-10:25AM	• Introduction of modified WHO SCC to midwives	• Introducing the modified WHO SCC to the midwives	• View and listen to the presentation on the modified WHO SCC	
10:25AM-10:30	• Scenario	• Present a scenario and ask participants to mention the selected essential	• View the scenario • Mentions the selected	

		birth practices for the mother just before pushing and the actions done	essential birth practices considered and their actions just before pushing.	
10:30AM-10:40AM	• How WHO SCC is used	• Explain different ways through which the WHO SCC can be used in the labour process as a reminder tool	• Participants View and listen to the presentation	
10:30AM-10:50AM	Review the lesson	Ask participants questions and answer students questions	Participants answer questions and ask questions	
10:50AM-11:00AM	Summary of the selected essential childbirth	Make a summary of the selected essential childbirth practices	View and listen to the summary of	

	practices for this study on each pause of modified WHO SCC	for the study at each pause	the selected essential childbirth practices	

Appendix F: Unfreezing PowerPoint

Maternal and Neonatal mortality Statistics

Alambiubwe Esther MNS UCU

Background

- Globally, MMR rate is 1360 per 100,000 births
- NMR rate range from 0.95 to 40.6 per 1000 live births
- low-income and middle-income countries have higher rates than those in high-income regions. (Semrau et al., 2017).

Background continues

- Yearly, approximately 600 000 intrapartum-related stillbirths' occur worldwide, 300 000 mothers die during pregnancy or labor.
- up to 90% of deaths among neonates occur within the first 48 hours of life.
- For maternal deaths, more than 40% occur in the intrapartum period and 45% within 24 hours (Kaplan et al., 2021).

Uganda Maternal And Neonatal Mortality Rate

- MMR IS estimated at 189/100,000 live (UBOS,2023) from 360/100,000 live birth far from the SDGs target (Waiswa et al., 2021).
- NMR has stagnated at 27/1,000 live births for over a decade (Waiswa et al., 2021).
- NMR was reported at 42% per 100,000 live births (Uganda Bureau of Statistics., 2020; Babughirana et al., 2020).

Continuation

- High MMR & NMR in Uganda reflect poor quality of care during pregnancy, labor, and postnatal periods.
- It is estimated that 6,000 maternal deaths occur yearly in Uganda
- 32,300 neonatal deaths occur yearly.

Brainstorming Questions

- What can we do as midwives to reduce both maternal and neonatal mortality?

Continuation

- Most of these deaths can be prevented through the provision of high-quality care around the time of birth by offering evidence based essential childbirth practices as recommended by WHO (Waiswa et al., 2021).
- In Busoga Sub region, MMR & NMR is estimated at 448/100,000 and 54/1000 live births respectively which are higher than the national rates (WHO, 202l).

Continuation

- Childbirth is a complex process that requires remembering to provide everything that is needed to ensure both the mother and newborn receive the safest care possible (Abawollo et al., 2021)
- Checklists are essential tools that organize such complex and important processes (Abawollo et al., 2021)

Continuation

- In order to improve essential child birth practices, in 2010, based on the experience of the Safe Surgical Checklist, WHO designed a Safe Childbirth Check (Dohbit et al, 2019). WHO recommends use of WHO SCC by all skilled birth attendants

WHO SCC has Shown to Improve Essential childbirth practices in area where it was used

- In Zambia introduction of WHO SCC improved childbirth practices from 57% to 77% (Mudhune et al., 2020).
- In Rwanda, it improved compliance to essential childbirth practices from 46% to 56% (Tuyishime et al., 2018)

Continuation

- In Luapula province of Zambia it increased essential childbirth practices from 10 to 25 (Abawola et al., 2021)
- In Uganda and Kenya, use of WHO SCC improved essential childbirth practices (Achola et al., 2022).

Continuation

- I have come with good news that may help use to improve our essential childbirth practices as recommended by WHO.
- Now I will present the WHO SCC essential childbirth practices and explain more about the who it is used to improve essential childbirth services.

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Appendix G: Teaching PowerPoint

World Health Organization Safe Childbirth Checklist (WHO SCC) and Essential Childbirth Practices

By: Ahimbisibwe Esther
MNS student at UCU

Objectives of this Presentation

- To define World Health Organization Safe Child Birth Checklist (WHO SCC) and give the overview of WHO SCC and its elements
- To explain the four pauses of WHO SCC and the essential childbirth practices on each pause selected for this study
- To introduce the modified WHO SCC to the midwives'
- To explain how the WHO SCC is used in the labour process as a reminder tool

WHO SCC and Essential Childbirth Practices

- **Definition**: This is a facility-based reminder tool developed to support facility-based health workers to perform essential childbirth practices during intrapartum and immediate post-partum period (WHO, 2015).
- It focuses on PET, PPH, infections, obstructed labour, birth asphyxia, Hypothermia and hypoglycemia

WHO SCC Overview con't

- The WHO Safe Childbirth Checklist helps health-care workers ensure that essential birth practices are performed at critical moments during childbirth for every delivery, every time.
- In designing the Checklist, routine flow of events were considered and essential birth practices were streamlined into four sections.
- It contains 29 elements divided over the four sections

WHO SCC Overview cont'n

- It has four sections/pauses.
- The four pause points, are specific points in time when birth attendants should "check" that they have completed essential birth practices.
- The pause points allow birth attendants to make their "checks" at times when they can protect the mother and newborn against dangerous complications.

WHO SCC Right Moments To Pause And Check

- On Admission
- Just Before Pushing (Or Before Caesarean)
- Soon After Birth (Within One Hour)
- Before Discharge

On Admission (1-8)

1. Assess mother's need for referral
2. Start partograph
3. Assess mother for criteria to start antibiotics
4. Assess mother for signs of pre-eclampsia/eclampsia or the need to administer magnesium sulphate and antihypertensive treatment
5. Encourage birth companion to be present

at birth.

On admission cont'n

6. Ensure availability of supplies to clean hands and wear gloves for each vaginal exam
7. Encourage birth companion to be present at birth
8. Confirm that mother or companion will call for help during labour if needed

Just before pushing or S/C (9-12)

9. Assess mother for criteria to start antibiotics
10. Confirm essential supplies for mother at bedside
11. Confirm essential supplies for baby bedside
12. Identify assistant and confirm readiness to help at birth if needed

Soon after birth within 1 h (12-18)

13. Assess mother for abnormal bleeding
14. Assess mother for criteria to start antibiotics
15. Assess mother for signs of pre-eclampsia/eclampsia or the need to administer magnesium sulphate and antihypertensive treatment

Soon after birth with in one hour

16. Assess baby's need for referral
17. Assess baby for criteria to start antibiotics
18. Assess baby's needs for special care/monitoring

Soon After Birth

19. Initiate skin-to-skin contact and breastfeeding (if mother and baby are well)
20. Confirm that mother/companion will call for help if danger signs present

Before discharge (21-29)

21. Confirm stay at facility for 24 h after delivery
22. Assess mother for criteria to start antibiotics
23. Assess mother's blood pressure
24. Assess mother for abnormal bleeding
25. Assess baby for criteria to start antibiotics

Before discharge cont'n

26. Establish good breastfeeding practices before discharge
27. Discuss and offer family planning options to mother
28. Arrange follow-up and confirm mother/companion will seek help if danger signs are present after discharge
29.

7 Selected Essential Childbirth Practices for this Study

- For purposes of this study, I have selected some key essential childbirth practices from the 29 and the actions at each pause in the following slides.

7 selected essential childbirth practices for this study

- Monitoring labour using a partograms
- Assess mother for criteria to start antibiotics
- Assess mother for signs of pre-eclampsia/eclampsia or the need to administer magnesium sulphate and antihypertensive treatment

Cont'n of the 7 selected essential childbirth practices for this study

- Assess mother for abnormal bleeding
- Assess Baby for criteria to start antibiotics
- Placing baby in skin-to-skin contact
- Discuss and offer family planning options to mother before discharge.

On Admission

1. Start Partograph

Examine the mother and start plotting on the partograph when cervix ≥4 cm, then cervix should dilate ≥1 cm/hr

- Every 30 min: plot HR, contractions, fetal HR
- Every 2 hrs: plot temperature
- Every 4 hrs: plot BP

On Admission

2. Assess mother for criteria to start antibiotics.

Give antibiotics to mother if any of:

- Mother's temperature ≥38°C
- History of foul-smelling vaginal discharge
- Rupture of membranes >18 hrs

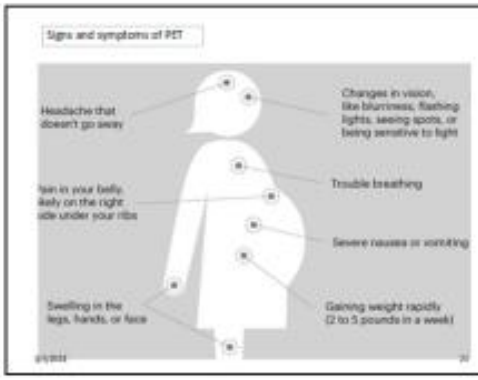
On Admission

3. Assess mother for signs of pre-eclampsia/eclampsia or the need to administer magnesium sulphate and antihypertensive treatment.

Give magnesium sulfate to mother if any of:

- Diastolic BP ≥110 mmHg and 3+ proteinuria
- Diastolic BP ≥90 mmHg, 2+ proteinuria,

and any: severe headache, visual disturbance, epigastric pain.



On Admission

Cont'n of action 3

Give antihypertensive medication to mother if systolic BP >160 mmHg

- Goal: To keep BP <150/100 mmHg

Just Before Pushing (Or Before Caesarean)

1. Assess mother for signs of pre-eclampsia/eclampsia or the need to administer magnesium sulphate and antihypertensive treatment

- Action as on slide 20 & 2

Just Before Pushing (Or Before Caesarean)

2. Confirm essential supplies for mother at bedside.

Prepare to care for mother immediately after birth:

- Confirm single baby only (not multiple birth)
- Give oxytocin within 1 minute after birth
- Deliver placenta 1-3 minutes after birth
- Massage uterus after placenta is delivered
- Confirm uterus is contracted

Just Before Pushing (Or Before Caesarean)

3. Assess mother for criteria to start antibiotics.

Actions

Manage as on slide 22

Soon After Birth (Within One Hour)

4. Initiate skin-to-skin contact and breastfeeding (if mother and baby are well)

If both the baby and the mother are well, initiate skin to skin in the immediate postnatal period to prevent hypothermia and promote bonding.

Soon After Birth (Within One Hour)

1. Assess mother for signs of pre-eclampsia/eclampsia or the need to administer magnesium sulphate and antihypertensive treatment.

- Actions as on slide 20 & 21

Soon After Birth (Within One Hour)

2. Give baby antibiotics if antibiotics given to mother for treatment of maternal infection during childbirth or if baby has any of:

- Respiratory rate >60/min or <30/min
- Chest in-drawing, grunting, or convulsions
- Poor movement on stimulation
- Baby's temperature <35 °C (and not rising after warming) or baby's temperature ≥38 °C

Soon After Birth (Within One Hour)

3. Check mother for bleeding every after 15 minutes and if pulse >110 beats per minute and blood pressure <90 mmHg

- Start IV and keep mother warm
- Treat cause (hypovolemic shock)

Before Discharge

1. Assess mother for criteria to start antibiotics.

Give antibiotics if:

- Mother's temperature ≥38 °C
- Foul-smelling vaginal discharge

Before Discharge

2. Assess mother for signs of pre-eclampsia/eclampsia or the need to administer magnesium sulphate and antihypertensive treatment

Actions :Refer to slides 20 & 21

Before Discharge

3. Assess baby for criteria to start antibiotics. Take baby's temperature and examine the baby. Give antibiotics to baby if any of:

- Respiratory rate >60/min or <30/min
- Chest in-drawing, grunting, or convulsions

Before Discharge

- Poor movement on stimulation
- Baby's temperature <35°C (and not rising after warming) or baby's temperature ≥38°C
- Stopped breastfeeding well
- Umbilicus redness extending to skin or draining pus

Before Discharge

4. Check if baby is breast feeding well and if not,

- Establish good breastfeeding practices and delay discharge.
- Discuss and offer family planning options to mother.

How To Use The WHO SCC

- Checklists can commonly be used in two ways:

Read-Do: you first read the item on the Checklist, then complete the task and document.

Do-Confirm: you complete the task then read the item and document.

Note : I recommend read do because it is the easiest way to use the WHO SCC.

Original WHO SCC

- WHO SCC.pdf

Modified WHO SCC for this Study

- WHO SCC.doc

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Appendix H: Administrative Clearance

Uganda Christian University
P.O.BOX 4,
Mukono-Uganda
28th th March 2024

The In-Charge Kiyunga HCIV
Luuka District Local Government

Dear Sir,

Re: **Administative clearance for data Collection**

I here by request for administrative clearance for research data collection at Kiyungahealth center IV. I am persuing a Master's Dgree in Nursing Science at Uganda Christian University, Reg. No: RM21M11/O22. My research topic is**: Effects of Introducing World Health Organization Safe Childbirth Checklist on Midwives' Knowledge and Practices of Selected Essential Birth Practices. A Pilot study of a Health Centre IV in Eastern Uganda**

This is one university requirement for their students to get administrative clearance from sites where they hope to collect research data from before final approval by University research Ethics Committee (REC). Once my research proposal is approved by the University REC, I will come back to the health centre IV for data collection. I will be greatfull if my request is granted.

Yours faithfully,

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Appendix I:

Pre-Intervention Knowledge Scores on Selected Essential Birth Practices at A Health Centre IV In Eastern Uganda.

S/N	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Raw Scores	% Scores
1	0	1	1	0	0	0	0	0	1	1	0	1	0	1	1	1	1	0	9	50.0
2	1	1	0	0	0	0	0	1	1	1	1	1	1	1	0	0	1	0	10	55.6
3	1	1	1	0	1	0	0	0	0	1	1	0	0	0	0	0	1	1	8	44.4
4	1	0	1	1	1	0	0	1	1	1	1	1	1	0	1	0	1	1	13	72.2
5	1	0	1	0	1	0	1	0	1	0	0	1	0	0	0	0	1	1	8	44.4
6	1	1	1	0	1	1	0	0	0	1	1	1	1	1	1	1	1	1	14	77.8
7	0	1	0	0	0	0	0	1	1	1	0	1	0	0	0	1	1	0	7	38.9
8	1	1	1	1	1	1	0	0	1	0	0	1	0	1	1	0	0	0	10	55.6
9	1	1	1	0	1	1	0	1	1	0	1	1	0	1	1	1	1	1	14	77.8
10	1	0	1	0	1	1	1	0	1	1	0	1	0	0	0	0	0	0	8	44.4
11	1	0	1	0	1	0	0	1	1	1	1	1	0	1	1	0	0	1	11	61.1
12	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	1	0	4	22.2
13	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	4	22.2
14	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	1	1	7	38.9
15	1	1	0	0	1	1	0	1	1	1	1	1	0	1	1	1	1	1	14	77.8
16	0	1	1	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1	13	72.2
17	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	16	88.9
18	1	1	1	1	1	0	0	0	0	1	0	0	1	1	0	1	1	0	8	44.4
19	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17	94.4
20	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	17	94.4
Mean %	75	65	65	25	65	45	25	50	70	75	65	80	32	65	65	50	85	51	59	58.9

In the table above, Q1 to Q18 denotes to question 7 to 24 on knowledge section as reflected in appendix B. Code 1 = correct knowledge, code 0 = incorrect knowledge.

As seen in the table 2 above, at pretest, out of the 20 respondents, the distribution of their knowledge levels is as follows: 3 respondents (15%) scored above 80%, thus are considered highly knowledgeable. 5 respondents (25%) scored between 70-79%, indicating a good level of knowledge. 4 respondents (20%) scored between 50-69%, reflecting a fair level of knowledge. The remaining 8 respondents (40%) scored below 49%, indicating a less knowledgeable status. The mean percentage score across all respondents is approximately 58.9%, which suggests an overall fair level of knowledge among the group.

Appendix: J

Post-Intervention knowledge on selected essential birth practices at a health Centre IV in Eastern Uganda

S/N	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Raw Scores	% Scores
1	1	1	0	0	1	1	0	1	1	1	1	1	1	1	0	0	1	1	13	72.2
2	1	1	1	0	1	1	0	0	0	1	1	1	1	1	1	1	1	1	14	77.8
3	1	1	0	0	1	1	0	1	1	1	1	1	1	1	0	0	1	1	13	72.2
4	1	0	1	1	0	0	0	0	1	0	0	0	1	1	0	1	0	1	8	44.4
5	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	15	83.3
6	1	1	1	0	1	1	0	1	1	1	0	1	0	1	1	1	1	1	14	77.8
7	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	17	94.4
8	1	1	1	0	1	1	0	1	1	0	1	1	1	1	1	1	1	1	15	83.3
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	100
10	1	1	0	0	1	1	0	1	1	1	1	1	1	1	0	0	1	1	13	72.2
11	0	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	14	77.8
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17	94.4
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16	88.9
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13	72.2
15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	100
16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	100
17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	100
18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	100
19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	100
Mean %	89.5	89.5	84	68	89.5	89.5	63	89.5	95	89.5	84	95	95	100	79	84	89.5	89.5		80.6

In the table above, Q1 to Q18 denotes to question 7 to 24 on knowledge section as reflected in appendix B the questionnaire. Code 1 = correct knowledge, code 0 = incorrect knowledge.

Based on the practice ratings of the participants seen in table 3 above, the percentage scores indicate that 11(58%) respondents scored higher than 80%, demonstrating a high level of knowledge. 7 (37%) respondents scored between 70-79%, indicating a good level of knowledge. Lastly, 1 (5%) respondent scored below 49%, reflecting a lower level of knowledge. The overall mean percentage score across all participants is 80.6%, indicating a generally high level of knowledge among the group.

Appendix K

Midwives' knowledge of selected essential birth practices at a health Centre IV in Eastern Uganda.

	Pre-Intervention		Post-Intervention		
Knowledge Indicator	Correct n(%)	Incorrect n(%)	Correct n(%)	Incorrect n(%)	Overall "% (+/-) Change"
When do you start a partograph in labor	15 (75.0%)	5 (25.0%)	17 (89.5%)	2 (10.5%)	Correct: +14.5% Incorrect: -14.5%
Below are indicators for antibiotics use in labor EXCEPT	13 (65.0%)	7 (35.0%)	16 (84.2%)	3 (15.8%)	Correct: +19.2% Incorrect: -19.2%
Correct criterion for antihypertensive drug use in labor	12 (60.0%)	8 (40.0%)	15 (78.9%)	4 (21.1%)	Correct: +18.9% Incorrect: -18.9%
Correct criterion for magnesium sulphate use in labor	5 (25.0%)	15 (75.0%)	11 (57.9%)	8 (42.1%)	Correct: +32.9% Incorrect: -32.9%
Intervention for abnormal bleeding after delivery	12 (60.0%)	8 (40.0%)	16 (84.2%)	3 (15.8%)	Correct: +24.2% Incorrect: -24.2%
Correct criterion for antibiotics use in newborn babies	9 (45.0%)	11 (55.0%)	16 (84.2%)	3 (15.8%)	Correct: +39.2% Incorrect: -39.2%
Findings that indicate pre-eclampsia	5 (25.0%)	15 (75.0%)	12 (63.2%)	7 (36.8%)	Correct: +38.2% Incorrect: -38.2%
The first line treatment for pre-eclampsia with severe features (BP control)	10 (50.0%)	10 (50.0%)	17 (89.5%)	2 (10.5%)	Correct: +39.5% Incorrect: -39.5%
The first line treatment for pre-eclampsia with severe features (convulsion)	14 (70.0%)	6 (30.0%)	17 (89.5%)	2 (10.5%)	Correct: +19.5% Incorrect: -19.5%

The best definition of post-partum	15 (75.0%)	5 (25.0%)	17 (89.5%)	2 (10.5%)	Correct: +14.5% Incorrect: -14.5%
Drug of choice in prevention of PPH	13 (65.0%)	7 (35.0%)	16 (84.2%)	3 (15.8%)	Correct: +19.2% Incorrect: -19.2%
Correct interval for fetal heart rate monitoring during first stage of labour	16 (80.0%)	4 (20.0%)	18 (94.7%)	1 (5.3%)	Correct: +14.7% Incorrect: -14.7%
Correct interval for temperature monitoring during first stage of labour	8 (40.0%)	12 (60.0%)	18 (94.7%)	1 (5.3%)	Correct: +54.7% Incorrect: -54.7%
Correct interval for contractions monitoring during first stage of labour	13 (65.0%)	7 (35.0%)	19 (100.0%)	0 (0.0%)	Correct: +35.0% Incorrect: -35.0%
Correct interval for maternal heart rate monitoring during first stage of labour	13 (65.0%)	7 (35.0%)	14 (73.7%)	5 (26.3%)	Correct: +8.7% Incorrect: -8.7%
Correct dosage for magnesium sulphate in management of pre-eclampsia	10 (50.0%)	10 (50.0%)	16 (84.2%)	3 (15.8%)	Correct: +34.2% Incorrect: -34.2%
Correct dosage of oxytocin used in prevention of PPH	17 (85.0%)	3 (15.0%)	17 (89.5%)	2 (10.5%)	Correct: +4.5% Incorrect: -4.5%
Frequency a midwife should check mothers for bleeding in the first 2 hours after delivery	12 (60.0%)	8 (40.0%)	18 (94.7%)	1 (5.3%)	Correct: +34.7% Incorrect: -34.7%

From the table above, midwives' adherence to starting a partograph and monitoring all mothers admitted in labour significantly improved, with the mean score moving from "frequently" (3) to "sometimes" (0.5789). The mean difference of 2.42105, t-value of 6.195, and p-value < .001 indicate a substantial increase in compliance with essential birth practices.

Midwives' practice of taking temperatures of mothers in labour at admission significantly improved, with the mean score moving from "rarely" (1.7) to "frequently" (3.1053). The mean difference of -1.40526, t-value of -3.356, and p-value of 0.002 suggest enhanced adherence to this essential practice.

While there was a trend towards improvement in monitoring blood pressure of mothers in labour at admission, it did not reach statistical significance. The mean score changed from "rarely" (1.9) to "frequently" (3), with a mean difference of -1.1, t-value of -1.966, and p-value of 0.057, suggesting some progress but not a significant change.

The practice of administering magnesium sulphate to mothers with preeclampsia and eclampsia did not show a significant change, with the mean score moving from "frequently" (3.15) to "frequently" (3.6842). The mean difference of -0.53421, t-value of -1.524, and p-value of 0.136 indicate no substantial improvement in this practice.

There was no significant change in administering antihypertensive drugs to mothers with high blood pressure during labour, with the mean score moving from "frequently" (3.3) to "frequently" (3.7895). The mean difference of -0.48947, t-value of -1.422, and p-value of 0.164 suggest this practice remained largely unchanged.

There was no significant change in taking temperatures of mothers in the second stage of labour just before pushing, with the mean score moving from "sometimes" (2.15) to "frequently" (2.8947). The mean difference of -0.74474, t-value of -1.415, and p-value of 0.165 indicate this practice remained consistent.

The practice of monitoring blood pressure in the second stage of labour just before pushing did not show a significant change, with the mean score moving from "sometimes" (2.15)

to "frequently" (2.7778). The mean difference of -0.62778, t-value of -1.159, and p-value of 0.254 suggest no notable improvement in this practice.

There was no significant change in administering oxytocin immediately after delivery to prevent post-partum hemorrhage, with the mean score moving from "frequently" (3.3) to "frequently" (3.5789). The mean difference of -0.27895, t-value of -0.632, and p-value of 0.531 suggest this practice remained largely unchanged.

There was no significant change in placing the baby skin-to-skin with the mother in the postnatal period before discharge, with the mean score moving from "sometimes" (2.2) to "frequently" (3). The mean difference of -0.8, t-value of -1.576, and p-value of 0.123 indicate this practice remained consistent. There was no significant change in offering immediate postnatal family planning, with the mean score moving from "rarely" (1.85) to "sometimes" (2.2105). The mean difference of -0.36053, t-value of -0.830, and p-value of 0.412 suggest this practice remained largely unchanged.

Midwives' practice of monitoring the temperature of postnatal mothers significantly improved, with the mean score moving from "rarely" (1.5) to "frequently" (3.2105). The mean difference of -1.71053, t-value of -4.713, and p-value < .001 indicate a substantial increase in adherence to this essential practice.

The practice of monitoring the blood pressure of postnatal mothers showed significant improvement, with the mean score moving from "sometimes" (2.4) to "frequently" (3.6667). The mean difference of -1.26667, t-value of -3.869, and p-value of 0.001 suggest a notable enhancement in adherence to this essential practice.

There was no significant change in assessing postnatal mothers for bleeding every 15 minutes in the first hour, with the mean score moving from "sometimes" (2.45) to "frequently" (3.1579). The mean difference of -0.70789, t-value of -1.439, and p-value of 0.159 suggest this practice remained largely unchanged.

The practice of assessing newborn respiratory rate in the first hour of life did not show a significant change, with the mean score moving from "sometimes" (2.5789) to "frequently" (3.1765). The mean difference of -0.59752, t-value of -1.244, and p-value of 0.222 suggest no substantial improvement in this practice.

The practice of assessing newborn temperature in the first hour of life significantly improved, with the mean score moving from "sometimes" (2.2105) to "frequently" (3.2105). The mean difference of -1, t-value of -2.343, and p-value of 0.025 indicate an enhancement in adherence to this essential practice.

The practice of assessing newborn pulse rate in the first hour of life did not show a significant change, with the mean score moving from "rarely" (2.0526) to "sometimes" (2.4737). The mean difference of -0.42105, t-value of -0.841, and p-value of 0.406 suggest no notable improvement in this practice. There was a significant improvement in initiating breastfeeding within the first hour of life, with the mean score moving from "always" (4) to "frequently" (3.3158). The mean difference of 0.68421, t-value of 2.106, and p-value of 0.05 suggest an increase in adherence to this essential practice.

There was a significant improvement in monitoring postnatal mothers' temperature before discharge, with the mean score moving from "rarely" (1.85) to "frequently" (3.5789). The mean difference of -1.72895, t-value of -4.480, and p-value < .001 indicate a substantial improvement

in adherence to this essential practice. The practice of monitoring postnatal mothers' blood pressure before discharge showed significant improvement, with the mean score moving from "rarely" (2.2) to "frequently" (3.2105). The mean difference of -1.01053, t-value of -2.519, and p-value of 0.016 suggest a notable enhancement in adherence to this essential practice.