IMPLEMENTATION OF TARGETED POSTNATAL CARE AND ITS ASSOCIATED FACTORS AMONG MIDWIVES IN SELECTED HEALTH FACILITIES IN KAKAMEGA COUNTY, KENYA

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A Thesis Submitted in Partial fulfillment of the Requirements for the Award of the Degree of Masters of Science in Advanced Nursing Practice (Midwifery) of Masinde Muliro University of Science and Technology

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DECLARATION

This research thesis is my original work prepared with no other than the indicated sources and support and has not been presented elsewhere for a degree or any other award.

Signature…….. Date: ……

Ruth Shitabule

HNR/G/01-53493/2019

CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance of Masinde Muliro University of Science and Technology a proposal entitled **"Implementation of Targeted Postnatal Care and Its associated factors among Midwives in Selected Health Facilities in Kakamega County, Kenya."**

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DEDICATION

My dedication is to all midwives for their nobility, selflessness and commitments. A midst all the challenges both at personal and facility level you forge a head to provide care.

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I am equally great full to my family for the great and loving support throughout the process. To my parents Jackson and Ann Shitabule, my children Patience, Peggy and Prosper, my sister Elizabeth, thanks for the encouraging words always and just being there whenever I reached out. May God be with you.

ABSTRACT

Postnatal care (PNC) is essential in improving maternal health and reducing maternal mortality, especially in low-resource settings yet studies show its largely neglected. Targeted Postnatal Care (TPNC) is an approach to postnatal care for mothers and newborns involving a set of assessments and interventions given in four scheduled visits from birth to 6 months after delivery. The goal of TPNC is to improve outcomes for these mothers and babies by implementing 100 percent of the recommended TPNC interventions. The study aimed to assess the implementation of targeted postnatal care and its associated factors among midwives at selected public health facilities in Kakamega County, Kenya. The specific objectives were to assess implementation level of TPNC, examine midwife factors, determine maternal factors, and assess facility factors influencing implementation of TPNC. This was a cross-sectional study conducted in maternity and the Maternal and Child Health (MCH) units of selected public health facilities in Kakamega County, Kenya. A cross-sectional analytic method approach was adopted in this study using interviewer administered questionnaire. The study employed multistage sampling, facilities were clustered according to KEPH levels and level four facilities selected due to high workload. KCGH was purposively selected being the only level five facility in the county. Through proportionate sampling N=1695 (Kakamega county average monthly deliveries) the calculated mothers sample size was 325 across the selected facilities. Midwives were selected through census sampling n=160. Statistical package for social sciences (SPSS) version 25 was used for data entry. Data collected was descriptively analyzed, where the mean, median, and standard deviation were computed and compared across the visits. Analysis of variance (ANOVA) was used to measure the significance of the variations in implementation across the various visits. Across the various scheduled visits, implementation level was sub-optimal and even decreased further as the mother progressed through the period. Maternal targeted postnatal care interventions declining from (66.62%) at 48hour visit to (50%) at4-6 months visit. Similarly, newborn targeted postnatal care interventions declined from (59.55%) at 48hour visit to (57.5%) at the 4-6 months. Midwife related factors like age, sex, Emergency Obstetric Newborn care (EMONC) trained, years of experience, and level of training were not significantly associated with TPNC implementation as they all were greater than the thresh hold of $p \leq 0.05$. Maternal related factors like period after delivery($p<0.0001$), Mother came back for review as per scheduled visit ($p<0.0001$), cultural beliefs ($p <0.012$) and feedback on baby's health($p<0.012$) were significantly associated with implementation of TPNC. Facility factors like equipment's ($p<0.026$), Laboratory tests ($p<0.014$), number of midwives implementing TPNC ($p< 0.001$), support supervision ($p<0.003$) were significantly associated with implementation of TPNC. The study concluded that maternal and facility factors significantly influenced implementation of TPNC. The study recommended that community midwifery be emphasized through level one of care to ensure that mothers do not miss out on these important interventions especially the second visit. Advocacy on hospital delivery through level one of care, at facilities and media is key as this significantly impacts the initiation and continuity of TPNC. Further research on midwife factors influencing implementation of TPNC.

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LIST OF ABBREVIATIONS AND ACRONYMS

ANC	-	Antenatal care
AOR	-	Adjusted Odds Ratio
ART	-	Antiretroviral Treatment
BEmONC	-	Basic Emergency Obstetric Neonatal Care
C I	-	Confidence Interval
CEmONC	-	Comprehensive Emergency Obstetric Care
EmONC	-	Emergency Obstetric Neonatal Care
FGD	-	Focus Group Discussion
HB	-	Hemoglobin
HIV	-	Human Immunodeficiency Virus
KCTRH	-	Kakamega County Teaching and Referral Hospital
KDHS	-	Kenya Demographic Health Survey
KHIS	-	Kenya Health Information System
KNBS	-	Kenya National Beareu of Statistics
LMIC	-	Low- and Middle-Income Countries
MOH	-	Ministry of Health
NACOSTI	-	National Commission for Science Technology and Innovations
OR	-	Odds Ratio
PNC	-	Postnatal Care
PPS	-	Proportionate Population Size
QOC	-	Quality of Care
SDG	-	Sustainable Development Goals
SPSS	-	Statistical Package of Social Sciences
STI	-	Sexually Transmitted Infections
TPNC	-	Targeted Postnatal Care
UNFPA	-	United Nations Population Fund
US	-	United States
WHO	-	World Health Organization

OPERATIONALIZATION OF KEY TERMS

Antenatal care: A planned program of observation, education and medical management of pregnant women directed towards making pregnancy and delivery a safe and satisfying experience

Follow up visits: Covers from 24 hours to six months after delivery of baby.

Health facility capacity: Facility with enough infrastructure, supplies, equipment, drugs, all cadre staff, blood products.

Health: A state of complete physical mental and social well-being and not merely the absence of disease and infirmity.

Immediate postnatal period: Covers the first 24 hours

Implementation: The step that involves action or doing and the actual carrying out of nursing interventions outline in the plan of care.

Level: Conformation to the ministry of health guidelines

Midwife interventions: These are the actions a midwife takes to implement their patient care plan including any treatment, procedures or teaching moments intended to improve the patient's comfort and health.

Midwife: A person who has successfully completed a midwifery education program that is based on the ICM essential competencies for basic midwifery practice and the framework of the ICM global standards for midwifery education and is recognized in the country where it is located, who has acquired the requisite qualifications to be registered and legally licensed to practice midwifery and use the title midwife and who demonstrates competence in the practice of midwifery

Near miss: A woman who nearly died but survived a complication that occurred during pregnancy, childbirth or within 42 days of termination of pregnancy.

Postnatal care: The care given to the mother and her newborn baby immediately after the birth of placenta and the first six weeks of life.

Quality of care: The degree to which maternal health services increase the likelihood of timely, appropriate care for the purpose of achieving desired outcomes that are both consistent with the current professional knowledge and take into account the preferences and aspirations of individual women and their families.

Targeted postnatal care: This describes comprehensive postnatal care interventions provided to mothers and their babies on each of the four visits at the facility or assessments after birth to at least 6 months postnatal. It is goal oriented and timely. It focuses on supporting and maintaining maternal and newborn wellbeing throughout the postnatal period.

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter presents the background to the study, statement of the problem, objectives of the study, research questions, justification of the study, limitation of the study and the conceptual framework.

1.2 Background to the Study

Maternal mortality is a global health concern worse in low- and middle-income countries. (WHO 2023). In Kenya the rate is increasingly high and currently at 530/100000 live births with majority of this deaths occurring at postnatal period (Nuna T,2023). Postnatal period begins immediately after delivery of the placenta through the first six months after childbirth (WHO, 2022).

Postnatal care services are a key component on the continuum of maternal and newborn care with a purpose of maintaining and promoting the health of the woman and her baby, equally, fostering an environment that help and support the extended family (WHO, 2022) This period in particular will determine the long-term health and well-being of mothers and neonates however, this period is neglected by many midwives and is rarely given attention (Kabede et al 2021).

Close direct or indirect supervision by a skilled attendant is required in this period so that if problems arise, they can be identified promptly and appropriate intervention or referral can take place. This is affirmed in a study by Sacks et al, (2022) who reported that postnatal care identifies those at risk, has prevention and promotion measures, health education, management or referral of the complicated cases. Poor targeted postnatal care uptake is due to failure of midwives' performance of postnatal care guidelines and poor postpartum counseling (Kabede et al 2021).

WHO guidelines recommend targeted postnatal care (TPNC), which is, a comprehensive postnatal package comprising of four focused and personalized assessments from birth to at least 6 months (within 24 hours, 10-14 days, 4-6 weeks and 4-6 months). The specific recommended interventions of care are to be delivered to the mother and her newborn at every respective visit (WHO, 2022). In Kenya, the visits are scheduled within 48 hours after birth, 1-2 weeks, 4-6 weeks, and 4-6 months, WHO adopted Kenya Ministry of Health PNC guidelines (2017).

A scoping review on measures to asses quality of postnatal care by Galla et al, (2023) reported that postnatal care is recommended by the proportion of women and newborns receiving TPNC interventions the first 48 hours. Equally the interventions should be in accordance to WHO guidelines i.e. the percentage of women who received danger signs counselling, full examination, breastfeeding support, immunization of the newborn and provision of postpartum family planning services. Studies on performed interventions of postnatal care reported that the proportion of women receiving specific interventions that prevent maternal and neonatal mortalities during postnatal period was low on majority examinations. Adams *et al.,* (2020), revealed that only 41.81% received breast exam, 39.72% had vaginal discharge checked, 55.56% for counseling on danger signs and 16.95% for all interventions yet these interventions are intended to improve the maternal and newborn outcomes post-delivery. In Kenya according to KDHS (2022), only 35% of women had their blood pressure checked, 33% assessed for vaginal bleeding, 29% counselled on family planning with an overall content of postnatal check at 25%. Thus, it is imperative to measure this gap to help in planning for quality improvement. Kakamega had an overall PNC check of only 60.8% for both mother and newborn with very low reported specific interventions as per the guidelines

(KDHS, 2022). As further explained by Kawuki et al (2020), despite the number of visits, providing a comprehensive postnatal care package in conformity to WHO guidelines is absolutely essential in minimizing avoidable deaths in the postnatal period. Quality maternal and newborn care is further influenced by factors related to the healthcare system like physical infrastructure, human resources, knowledge, and capacity to deal with both normal pregnancies and complications that require prompt, life-saving interventions. (WHO 2022). This is not always the case in many set ups, studies report a lot of health system challenges in provision of quality health services in which TPNC is enshrined.

1.3 Statement of the Problem

Globally, more than 60% of all maternal deaths occur during postnatal period, 45% of these deaths occur within 1 day of delivery, approximately 65% occur within 1 week and about 80 % occur within 2 weeks either due to hemorrhage, eclampsia and sepsis (Perera *et al.,* (2021). More than 75 % of newborn deaths are reported within the first week after delivery either due to Low-birth-weight complications, asphyxia, and infections (Muriuki *et al.,* 2022). In the US 52% of maternal deaths occur in the postnatal period, 19% within 6 days, 21% within 6 weeks, and 12% within 6 months (Tikkanen *et al.,* 2020).

In Africa, 34% of women and 38% of infants' deaths is associated with substandard postnatal care (Nyagah*et al.,* 2020). Given the increase in facility delivery in Low middle income countries, postnatal care still remains below 50% (Muriuki *et al.,* 2022). This attributes to high maternal and perinatal morbidities and mortalities.

During the TPNC visit, having more attention on the interventions of care given in conformity to WHO recommended guidelines should be addressed. The care should, be specific, follow guidelines, culturally sensitive, mother and baby dyad integrated

and patient centered (Sacks *et al.,*2022). Delivery of the right postnatal care interventions in totality as per the guidelines ensures better health outcomes for mother and baby (Yevoo et al 2020).

SDG goal 3 targets to reduce maternal mortality rate (MMR) and neonatal mortality rate (NMR) to 70/100000 and 12/1000 respectively by the year 2030, yet Kenya is at an increasing trend currently at an MMR rate of 530/100000 livebirths and an NMR of 32/1000 livebirths (WHO 2023).

Kakamega county is among the high burdened counties in the country with high maternal and neonatal mortalities at 98.9% (NCPD 2015). Kakamega county teaching and referral hospital the main facility in the county reported 483/100000 live births of maternal mortality out which 92% occurred during postnatal period and 65.5/1000 live birth of neonatal mortality, (KHIS 2022) evidence enough that they are far from attaining the WHO third SDG goal on maternal and neonatal mortality ratios. Kakamega county still records high maternal and newborn mortalities with insufficient literature to ascertain midwife's implementation of the TPNC interventions.

In order to attain the third SDG goal both access to and quality of services must be addressed around the maternal and newborn continuum of care. To reduce mortality and enhance the health and survival of mothers and babies, a targeted high quality and effective PNC with essential interventions is critical. These interventions include, immediate examination of mother and baby, breastfeeding, danger signs awareness, immunizations and other services (Zhao et al 2023).

It is impossible to achieve the goal of reduction of maternal and neonatal mortality without the midwives' offering the recommended WHO TPNC interventions to

mother and her newborn. Therefore, this study aimed to investigate the midwives' implementation of TPNC interventions and its associated factors at selected facilities, Kakamega county, Kenya.

1.4 Main Objective

The main objective was to investigate implementation of targeted postnatal care and its associated factors among midwives in selected health facilities in Kakamega County, Kenya

1.4.1 Specific Objectives

i. To assess the implementation level of targeted postnatal care in selected health facilities in Kakamega county, Kenya.
ii. To examine the midwives' factors influencing implementation of targeted postnatal care in selected facilities in Kakamega county, Kenya.
iii. To determine the maternal factors influencing implementation of targeted postnatal care in selected facilities in Kakamega county, Kenya.
iv. To asses facility factors influencing implementation of targeted postnatal care in selected health facilities in Kakamega county, Kenya.

1.4.2 Research Questions

i. What is the implementation level of targeted postnatal care in selected health facilities in Kakamega county, Kenya?
ii. What midwife factors influence implementation of targeted postnatal care in selected public health at Kakamega county, Kenya?
iii. What maternal factors influence implementation of targeted postnatal care in selected public health facilities at Kakamega county Kenya?
iv. What facility factors influence implementation of targeted postnatal care in selected public health facilities at Kakamega county, Kenya?

1.5 Justification of the Study

As explained in the WHO (2022) postnatal guidelines, all women who deliver must receive 100% of the postnatal interventions. Postnatal care coverage is still very low in Kakamega County, in 2021, the estimated deliveries were 63127 yet the PNC coverage was at 55.6 % within 48 hours and at 48.4% within 3 days to 6 weeks (KHIS 2021) with unexplained content of interventions for mother and baby. Kakamega County has the highest population in the western region of Kenya with approximately 1,867,579 people. It covers a larger geographical area of approximately 3,033.8 km square with only one referral facility which is far to reach by some facilities as it serves the entire western region of the country. Kakamega County is ranked fifth amongst the fifteen counties with worst reproductive maternal and neonatal health statistics in Kenya, Nimako *et al.,* (2021), slowing it to attain third SDG goal of 70/100000 maternal mortality and 12/1000 neonatal mortality. Kakamega county has sparse literature about studies done on the content offered at postnatal care as still 47% of maternal deaths occur in the postnatal period either due to hemorrhage, eclampsia or Sepsis (KHIS 2022). Little was known about the content of interventions delivered to mothers and their newborns at TPNC visits the critical moment for both mother and baby. Although several studies had been undertaken on postnatal care in western region, there is no study specific to targeted postnatal care. Kakamega County still needed a comprehensive assessment on the content of interventions given at each specific PNC visit, to understand the specific interventions provided as the county strives to attain the third SDG goal of 70/100000 maternal mortality and 12/1000 neonatal mortality. The study aimed to present evidence-based implementation of targeted postnatal care that is safe, effective, timely, efficient, equitable and patient-centered with relevant aspects that a

midwife should know. The study explicitly articulated the need to strengthen the facility by availability of recommended resources and also the need to adhere to the WHO recommendations at every visit which serves as a framework for provision of postnatal care. The findings from the study plays a big role in helping the MOH and academicians to use as a basis for further research. Information obtained is key in developing programs to enhance training of both staff and students. The study makes a significant contribution to nursing science by generating insight potentially useful to other developing country contexts. No other study on implementation of targeted postnatal care at selected public health facilities had been done in the study area and this justifies why the study had to be done.

1.6 Limitations of the Study

This was a cross-sectional study design which may not have made it possible to generalize the causal relationship between implementation of targeted postnatal care and the hypothesized research questions as the study answers reflect on a single moment in time. This may not be generalizable over time fluctuations on implementation. Self-reported questionnaire was used which may have led to recall bias and Hawthorne effect. The study population for midwives was small which may affect study findings on midwives' factors influencing TPNC performance. Moreover, there was no enough literature specific to the targeted postnatal care focused visits to compare the results with and this made it difficult to discuss in detail.

1.7 Conceptual frame work

The research adopted the Donabedian's quality of care (QOC) framework. Donabedian's (1980) QOC framework identifies three domains relevant to high-quality client care: structure, process, and outcome. According to Donabedian, an

established structure is a prerequisite to effective process, and effective processes are a prerequisite for high-quality outcomes (LoPorto *et al.,* 2020). Structure are factors that affect the context in which care is provided and includes infrastructure, equipment, supplies and human resources. Process looks at the sum of all actions that make up health care in provision of desired outcome. This has three major themes which are technical processes (assessment, diagnosis, planning, implementation and evaluation of care), interpersonal development (opportunity to attend workshops and seminars for capacity building) and nurse patient relationship (patient follow ups). Outcome looks at the effects of healthcare on patients' health status, behavior change, patient satisfaction and health related quality of life (Donabedian, 2005). PNC services are a combination of preventive care, practices and assessments aimed at recognizing and handling complications for both the mother and the newborn (WHO, 2022).) Quality in healthcare is influenced by factors related to the healthcare system like physical infrastructure, human resources, knowledge, skills and capacity to deal with both normal pregnancies and complications that require prompt, life-saving interventions. (WHO 2022)**.** The conceptual framework followed the causal factors of independent variables potentially associated with the performance of WHO recommended targeted postnatal care which were midwife factors, patient factors and facility factors and the nurse patient relationships. The independent variables included variables identified in the structure and process themes in the Donabedian Model. The relationship between the WHO recommended targeted postnatal care performed (the outcome) dependent variable and the independent variables were mediated by postnatal service utilization factors.

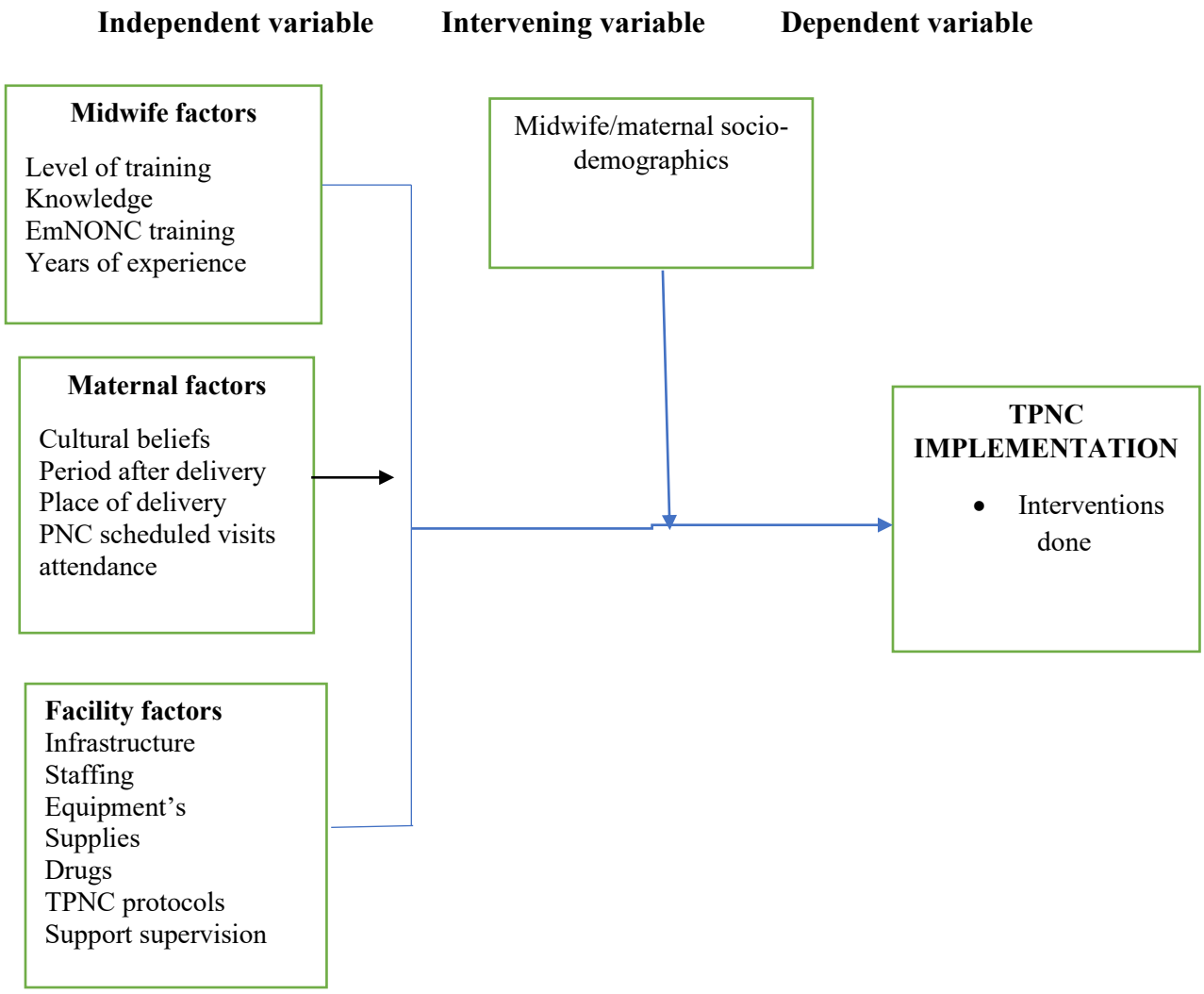

Figure 1.1 Conceptual frame work
Source: Donabedian 1980

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

The chapter presents the literature review of the study from related studies done. The content of this chapter included, midwife, maternal and facility factors influencing implementation of targeted postnatal care.

2.2 Background

2.2.1 Targeted postnatal care

Targeted postnatal care is a comprehensive postnatal package comprising of four focused and personalized assessments from birth to at least 6 months (within 24 hours, 10-14 days, 4-6 weeks and 4-6 months). The specific recommended interventions of care are to be delivered to the mother and her newborn at every respective visit (WHO, 2022). Postnatal period as defined here is a period beginning immediately after the birth of the baby and extending up to months after birth (WHO 2022). Postnatal care services are a component of continuum of care that provide a platform for care for both mother and baby after child birth. The services prevent disease, identify and manage danger signs, promote healthy practices during the first six months after birth with an aim of maintaining and promoting the health and well-being of women and children from birth (WHO 2022). For targeted postnatal care, the WHO postnatal care model places the woman–newborn dyad at the center of care with a foundation of a minimum of four postnatal care contacts, the first within 24 hours of delivery and at least three additional postnatal care contacts within the first six months after birth. The Kenya WHO adapted guideline model recommends within 48 hours and three additional contacts (Kenya MOH 2016).

2.2.2 Recommendations of Targeted postnatal care

As per the adapted WHO Kenya MOH guidelines (2016) on postnatal care, every visit has specific recommended interventions to be provided to the mother and the new born as follows; Within 48 hours, the women must be assessed for vital signs, assess vaginal bleeding if excess, uterine contraction, bladder function, Check breasts for mastitis, counseling on postnatal danger signs, family planning use, Nutrition, HIV screening and testing. For babies they should be kept warm, have full physical examination within one hour of delivery, initiate breastfeeding within one hour, kangaroo care for the pre-terms, Mothers counseled on danger signs in a newborn baby and provide immunizations. Within 10- 14 days women must be observed vital signs, assess lochia loss, if done caesarian section check, the incision site, check perineal wound healing and episiotomies, ask if experiencing any danger signs, assess for postnatal depression, if HIV positive assess ART adherence. For babies, conduct full physical examination, take vital signs, assess for breastfeeding, assess danger signs, and check immunization status.

When at 4-6 weeks women should have full physical examination, assess uterine involution and lochia loss, asked about their sexual life, encouraged to continue exclusive breast feeding and observe mothers breast feed, offered cervical cancer screening, offered FP method offered STI/ HIV screening and testing, assess their general being by asking for any danger signs. For babies the general condition of the baby should be assessed, complete physical examination should be performed, the weight and length of the baby should be measured, the baby should be assessed for developmental milestones and immunizations provided (Ministry of health guidelines 2016). All these must be recorded on the mother child booklets.

2.3 Targeted postnatal care implementation.

Several national societies of maternal medicine strongly recommend implementation of TPNC interventions as a way to streamline postnatal care and improve the outcome (Woiski *et al.,* 2016). In their review Khader, et al, (2018) on the alignment of midwives' implementation of the WHO TPNC recommendations it was noted that some midwives were not able to implement in line with the recommendations. In a cross-sectional study by Pindani, M. (2020) on conformation to set standards on postnatal care in Lilongwe district South Africa the percentages reported by midwives regarding client monitoring varied and were below the 80% threshold. Midwives did not always preform all the recommended TPNC interventions on client examination, less than 75% of midwives inspected perineal wounds, only (30.4%) checked vital signs and inspected lochia drainage. Most midwives (91.3%) never assessed the emotional state of the mother concluding that care offered by midwives was generally substandard and midwives do not always monitor, assess and counsel postnatal clients. According to Kabede *et al.,* (2021) in a study at Gondar province hospitals Ethiopia, it was indicated low implementation on postnatal care interventions. Overall, 42.4% of midwives had complete performance of postnatal care interventions. A study by Elhabashy et al,.(2019) in Egypt had the following results ,midwives were incompletely compliant with recording vital signs as (pulse and blood pressure) every 15 minutes (74.1%); putting mother in a comfortable position after delivery with avoidance of supine position(25.9%); examination of lochia for amount and consistency (77.8%); encouraging mother to evacuate urinary bladder regularly (40.7%); checking temperature every 4 hours; charting intake and output (55.6%) and initiation of breast feeding after delivery (48.1%). A study in Rwanda on WHO essential newborn care by Ndayambaje *et al.,* (2020), the TPNC

interventions were poorly done, like immunizations (10%), identification of the baby (19%), and thermal protection (25%). According Haftu et al (2018) who did a study at Mekele hospital in Ethiopia the midwives had 50% adherence to fetal head circumference and fetal length measurements. According to Muchiri *et al.,* (2015) in Kenya there is no good evidence to show whether midwives' implement their commended ministry of health PNC interventions and no audits have been done to see the effects they translate to in clinical outcomes. In their study at Pumwani maternity hospital, the situation of clinical practice was in discordance with the prescribed standards, the PNC interventions were poor leading to poor assessment of patients as the postnatal interventions were at 20%.

2.4 Midwife factors influencing TPNC Implementation

2.4.1 Socio-demographics

Midwife's demographics may influence targeted postnatal care implementation as provided for by the ministry of health guidelines. In their study, Angelina *et al.,* (2019), the findings indicated that being ≥40 years old, was a significant predictor for knowledge in TPNC implementation. In a review by Goshu *et al.,* (2018), being male was associated with achievement of higher scores in TPNC implementation. In another study by Khatri et al., (2022) a facility with female midwifes was significantly associated with more mothers (72%) accepting PNC interventions, this could be alluded to that fact that female midwives can understand the needs of mothers in postnatal period.

2.4.2 Level of Training

In their study, Angelina, *et al.,* (2019), Phiri *et al.,* (2023), being a registered nurse and having >3 years of professional training was a significant predictor for knowledge in the TPNC implementation. A study in Ethiopia by Goshu *et al.,*

(2018), reported that a low implementation score of midwives was attributed to the midwives' poor pre service education. According to Namutebi *et al.,* (2023) only 1/8 (11.9%) of the diploma holders and 5/42 (12.5%) of the enrolled midwives knew about the TPNC interventions and could explain them correctly. Khatri et al.,2022 in his study reported that the two months trained midwifes had inadequate knowledge to offer immediate PNC care significantly implying the need for proper and high-level training in midwifery to fully perform the required health interventions.

2.4.3 Emergency obstetric and newborn care (EmONC) Training

In-service training influences TPNC implementation. A study by Kebede, *et al.,* (2021) in Ethiopia reports that health care providers who received Basic emergency obstetric and newborn (BEmONC) training were 2.1 times more likely to perform better as compared to their counterparts who did not (AOR = 2.1; 95% CI: 1.2, 3.6).A report from a multi-varied analysis by Yevoo *et al.,* (2020) on LMIC indicate that knowledge gap among midwives due to lack of training or failure to upgrade their knowledge and skills needed to perform the recommended interventions, affecting implementation. In another study by Namutebi *et al.,* (2023) in Uganda, many midwives suggested that there should be some in-service trainings to aid them in understanding and implementing the recommended TPNC interventions as they reported not to have had sessions on emergency maternal and newborn care since they qualified. Ameh *et al.,* 2019, equally reports EmONC training results in significant improvements in midwives' performance.

2.4.4 Availability and knowledge on WHO PNC guidelines

The odds of implementation were 2.39 times higher among midwifes who had postnatal care guidelines in their hospital than their counterparts (AOR = 2.39; 95% CI: 1.44, 3.98). Kebede, *et al.,* (2021). In Ghana, the cause of midwifes poor

implementation of TPNC interventions was non-availability of the guidelines at the facilities leading to provision of suboptimal postnatal care (Yevoo*et al.,* 2020). A study in Uganda reported that despite the availability of both hard and soft copies of the guidelines on their phones, some midwives still lacked knowledge and were not able to articulate the key points in them with a reason of either being too busy or not like reading (Namutebi *et al.,* 2023).

2.4.5 Support supervision

Support supervision impacts generally on how well midwives offer service as gaps are identified and corrected, a support supervision report in Uganda showed that there was inadequate use of guidelines and thus suboptimal implementation of TPNC interventions at facilities but after their supervision and feedback, there was marked improvement in the use of guidelines and implementation of TPNC interventions like identification of danger signs and management of high-risk babies. **(**Kisakye, et al 2017) In Nepal it was learned that supervised staff tend to perform better unlike the unsupervised staff and Women were done for the recommended PNC interventions if they attended facilities with staff supervised by a higher authority compared to those not supervised (AOR = 1.71; 95% CI: 1.01, 2.92) (Khatri, *et al.,* 2021) In a similar study reporting on supervision by (Wulan *et al.,* 2021), p-values of $< \alpha$ were noted meaning that supervision and implementation of TPNC interventions have a significant relationship. OR values showed that midwives with low supervision have chances 6.8 times higher to have low TPNC as per the guidelines compared to those with high supervision.

2.4.6 Health facility capacity

Midwives working with assistants were 1.87 times more likely to have complete implementation of TPNC interventions as compared to those midwives without

assistants during service delivery (AOR = 1.87; 95% CI: 1.10, 9.67), (Kebede, *et al.,* (2021) A study in Ghana noted that staff shortages and increased workload influenced midwifes decisions to skip some essential TPNC interventions prescribed by the guidelines leading to delayed diagnoses and management of mothers with their babies and increased morbidities and mortalities (Yevoo *et al.,* 2020). Midwives at a hospital in Uganda expressed their concerns on staff to patient ratios at the facilities ie their numbers were not commensurate with the patient load which made it hard for them to perform the postnatal period care interventions and that within most units, the number of midwives allocated to the dayshift was more than those allocated to the evening and nightshifts .Equally the same study elaborated different aspects of the organization of the care that did not favor implementation of care using the MOH guidelines, like where several units were set up as one unit (labor ward, neonatal and the postnatal sections) led to postnatal mother not receiving the recommended interventions. The postnatal units are situated to the far end from the labor ward making it hard for midwives to frequently check on the women and babies within those sections (Namutebi *et al.,* (2023). In Kenya, Kemei *et al.,* (2021) reports that shortage of staff hindered midwifes from implementing all aspects of the procedures as expected for TPNC recommendations

2.5 Maternal factors influencing TPNC implementation.

Maternal factors can significantly influence targeted postnatal care implementation. Some may lead to significant increase in maternal morbidity and mortality if not mitigated promptly. This will include maternal socio and obstetric factors influencing targeted postnatal care.

2.5.1 Maternal sociodemographic factors.

Such factors include, Age, Marital status, Education, occupation, Exposure to media, distance to facility, danger signs awareness, sociocultural.

2.5.2 Age

Tessem et al (2020). explains that women's age increases the probability of health service experience on postnatal care, in their study, it was reported that, postnatal utilization by women of age group 25–34 and 35–49 were 1.07 and 1.15 times higher 1.07 and 1.15 as compared to women age group 15–24 respectively. In Pakistan as reported by Iqbal et al (2017) the results showed that completion of care up to the postnatal period had increased from 15% to 27% amongst women with high age. A study in Ethiopia showed that mothers giving birth while in the age category 35 to 49 years were more likely to use maternal healthcare services than adolescents and young mothers (Akibu, *et al.,*2018). Women not utilizing postnatal care were of age 25 and more (RRR = 0.76, CI = 0.62–0.94) and this was found to be lower than that of mothers aged 15–24 and this association was statistically significant (Somefun *et al.,* 2016).

2.5.3 Marital Status

A study in Ethiopia by Abuka Abebo et al (2018) on PNC utilization reported that Mothers whose husband alone is the decision maker on matters health were 3 times more likely to use PNC as compared to mothers with autonomy. In Rwanda, women with no big problem with permission to seek healthcare had smaller odds of attaining adequate PNC (AOR=0.54, 95%CI: 0.36–0.82), as reported by Kawuki et al (2020). A single mother in Ethiopia was 0.06 times less likely to use PNC service than a married one [adjusted odds ratio (AOR) = 0.06, 95% CI (0.01, 0.45)] Angore *et al.,* (2018).

2.5.4 Education

There is existence of strong relationships between mothers' education and utilization of maternal health care services where uneducated women are less likely to use maternal healthcare services (Akibu, *et al.,*2018). When women become empowered, they have information on advantages of postnatal care service and they would be encouraged to have that service. Tessem et al (2020). Level of education is a factor which is statistically significant with complete postnatal care utilization, in their study, Akibu, *et al.,* (2018), the utilization rates for mothers who had no education and mothers with primary or higher education were 7.4% and 14%, respectively same is reported by Tessem et al (2020), that women who had primary and secondary and above educational levels had 1.15 and 1.11 times more likely to utilize postnatal care than women who had no formal education.

2.5.5 Occupation

Economic dependance decreases with occupation, as a result, women would have the chance to get the postnatal care service (Tessem *et al.,*2020). Odds of postnatal care utilization among women who had occupations were increased by 4% as compared to women who had no occupation (Tessem *et al.,*2020). Completion of postnatal care had increased from 15% to 27% amongst women belonging to richest quintile, Iqbal et al (2017). At Kissii referral hospital, according to Mayieka et al (2019) Participants who were employed utilized postnatal care services (OR 2.1, 95% CI 1.1 to 4.0, P=0.022). In Rwanda working women had smaller odds (AOR= 0.73, 95%CI: 0.62–0.85) of having adequate PNC compared to nonworking counterparts reports Kawuki et al (2020) Employment status was positively associated with utilization of PNC services in Ethiopia, in this study 11% and 8.6% of employed mothers and unemployed mothers, respectively, used the PNC service. The estimated odds ratio

for unemployed mothers compared to those employed was 0.852 (95% CI: 0.698-1.039) (Akibu, *et al.,*2018).

2.5.6 Exposure to media

Media creates awareness on complications that may arise in postnatal period and enlightens on the importance of postnatal service making women want to visit facilities to protect their health as supported by this study by Tessem et al (2020). That the likelihood of postnatal care utilization was 1.70 times higher among women who exposed to media as compared to those not exposed to media. In Rwanda as reported by Kawuki et al (2020) in a study on postnatal care and associated factors, it was found out that, utilization of PNC services was low in women not exposed to newspapers (AOR= 0.74, 95%CI: 0.61–0.89), and no radio exposure. A study done by Iqbal et al (2017) in Pakistan showed that there was an increase in utilization of PNC services to women exposed to mass media.

2.5.7 Distance to the Facility

Services closer to people improves the uptake of service as mothers have better access and are motivated to visit the facility, a study in Tigray Ethiopia by (Tiruneh et al 2020),showed that the odds of receiving PNC were significantly higher at 3o minutes' walk distance to health facility as compared to those further away from the facility (AOR : 2.28, 95% CI 1.25-4.14) According to Kikuchi *et al.,* (2018) in Cambodia, the highest discontinuation rate on the continuum of care was at the postnatal care stage (73.6%) and the most identified reason was long distance to the health center. Equally in his study, Habtel *et al.,*2021 reported that the main reason for not complying with recommended PNC visit schedules was long-distance travel to health facilities. In Rwanda, those who had no big problem with distance to a

health facility had (AOR= 1.50, 95%CI: 1.24–1.81) higher odds of attaining adequate PNC, (Kawuki *et al.,* 2020).

2.5.8 Antenatal care (ANC) attendance

Antenatal care visits would have a positive impact on postnatal healthcare service probably due to adequate counseling provided at ANC visits regarding the need to seek PNC (Tiruneh et al 2020),a study in Ethiopia by Abuka Abebo et al (2018) on PNC utilization reported that mothers who had four ANC visits were 9 times (AOR = 9.55, 95% CI = (3.46, 26.36) more likely to utilize PNC as compared to mothers who had single ANC visit. At Kissii referral hospital, according to Mayieka et al (2019) Participants who were taught about postnatal care services during the antenatal clinic equally utilized postnatal care services (OR 2.3, 95% CI 1.2 to 4.4, P=0.008). In Rwanda according to Kawuki *et al.,* (2020), women who had less than 4 times of ANC frequency had (AOR= 0.79, 95%CI: 0.62–0.85) smaller odds of having adequate PNC, as well as those with inadequate ANC quality (AOR=0.56, 95%CI: 0.46–0.68), compared to those with 4 and more ANC frequency and adequate ANC quality, respectively. A study in Ethiopia by Fekadu, *et al.,* (2018), reported that mothers who reported antenatal care use were about four times more likely to attend postnatal care service (OR 4.11, 95% CI: 3.32, 5.09).

2.5.9 Danger signs awareness

Angore *et al.,* (2018) in a study in Ethiopia reports that Mothers' knowledge has shown a significant association with utilization of PNC AOR = 0.03, 95% CI (0.00, 0.44) In Kakamega County as reported by Kiragu et al (2021) on postnatal services utilization, it was learned that 89.7% of women did not have information about postnatal care and even the schedule of the visits. Mothers not aware of postnatal danger signs were 6 times (AOR = 0.06, 95% CI = (0.01, 0.37) less likely to utilize

PNC as compared to women who aware at least one postpartum danger signs, this was according to a study in Ethiopia by Abuka Abebo *et al.,* (2018). In Indonesia as reported by Probandari, et al, (2017) there was lack of knowledge, awareness, and practice related to postnatal care, only 54.9% and 57.4% of mothers could mention at least one danger sign for both mother and newborn during postnatal period, respectively. One of the participants had this to say: "I got a lot of bleeding. I did not know whether that was normal or not. I received no information about that… I experienced bleeding after 40 days. There were bleeding spots, but I do not know whether it was normal or not." The mothers didn't equally know their needs during the postnatal period, particularly on nutrition, lactation and self-hygiene.

2.5.10 Cultural beliefs

Several myths influence postnatal care, like in this study done in Indonesia by Probandari, et al, (2017),a women who just delivered a baby could not go out far from the house as it was perceived it is a prevention of the mother and her baby to get any unseen hazard and these delayed accessing postnatal services .Mothers were not to eat food with high protein as the food were perceived to delay the episiotomy or cesarean surgery wound healing leading to lack of good nutritional intake during postnatal care. Mothers were to limit the amount of water to drink because it would make their babies have a cold. They equally embraced use of traditional medicine and drinking herbs to improve production of milk. According to Otunga et al (2017) a study in Bungoma revealed that 57.3% reported that traditions like staying indoors for specified period influenced use of postnatal services. According to Khatri et al., (2022) averagely 72 % of mothers found Care by female midwifes culturally acceptable. Sharma et al, (2016) equally reported that rituals and beliefs like rest and

seclusion, purification, nutrition and breastfeeding offer barriers to midwifes in offering the expected interventions to postnatal mothers

2.6 Maternal obstetric factors

This will include factors like, parity, mode of delivery.

2.6.1 Parity

In a cross-sectional study in Abdulaziz hospital in Saudi Arabia by Alharqi et al (2018) having two or four children is associated with highest knowledge level on postpartum exercises than primiparous. According to de Freitas et al (2019) in a cross-section study among Brazilian women pelvic floor muscle knowledge was higher among women who had previously performed pelvic floor muscle training after delivery ($p < 0.001$) unlike primiparous. Mothers of low parity had inadequate smaller odds of attaining adequate PNC compared to those with parity of 5 and above (AOR 0.67, 95% CI: 0.51–0.86). as shown in a study in Rwanda by Kawuki et al (2020) In this study by Akibu, *et al.,*2018), they report mothers having one child (primiparous) were 4.5 more likely to have full postnatal care [AOR= 2.5 95% CI 1.4 – 14.2 than multiparous women.

2.6.2 Mode of delivery

According to Tiruneh et al (2020), the odds of receiving PNC was 96% higher among women who had cesarean section (AOR:1.96;95% CI: 1.28-3.00), the women are frequently reviewed before and on discharge, unlike those who had spontaneous vaginal delivery, this makes it risky to the mothers and newborns as it is resumed all is well. Khatri et al., (2022) revealed that ceserian section mothers had high odds (aOR=4.20; 95% CI 2.29, 7.68) receiving the PNC interventions compared to vaginal deliveries. Midwifes have to counsel mothers on postnatal hygiene as reported by

Probandari et al., (2017) Mothers lack skills in performing postnatal hygiene care and are afraid to care for the episiotomy or cesarean surgery wounds,

2.6.3 Period and place of delivery

Targeted postnatal care timing is critical in prevention of maternal and neonatal morbidity and mortality. Facility deliveries enhance TPNC especially the 48-hour period of PNC. Studies by (Thapa et al., 2023, Dona et al., 2022) reported that 96.7% of women who received PNC interventions had institutional delivery. A woman within 48-hour visit received optimally quality PNC interventions at a score of 80% as reported by Khatri *et al.,* (2022).

2.6.4 TPNC Scheduled Visits Attendance

Mothers who attend PNC as scheduled are believed to be knowledgeable about PNC danger signs, have positive attitude about PNC and even demand services that they feel may not have been provided. In a study by Thapa et al., (2023) 98.1% mothers receiving TPNC interventions had at least one PNC visit and at least 34.4% reported PNC visit as per protocol.

2.7 Facility Factors Influencing Midwifes TPNC Performance

2.7.1 Overview

Strengthening health systems is crucial for improving the quality of care for mothers and neonates. To increase the responsiveness of systems and improve quality, it is essential to improve infrastructure and equipment; access to energy, water, and sanitation; and recruitment, training, and retention of health workers (Sacks et al 2016)According to (WHO 2018) health care operate most effectively within an enabling environment i.e. a well-functioning health system with good infrastructure,

well-staffed, functional equipment's and enough supplies, which is not the case in most facilities especially in low and middle income countries.

2.7.2 Infrastructure

Qualitative research finding by Weldearegay et al (2020) established that poor quality of care to mothers and newborns was related to lack of enabling working environment. A study in Ethiopia by Bala et al. (2022) established that 43.6% of the respondents indicated that there is not a separate room for postnatal care provision. Goshu et al (2018) reported that only 42.4% of the midwives reported that they had a toilet in the delivery room, 51.2% had water in the delivery room. In a study in public hospitals in Ethiopia by Kene, et al (2022), 272(75.8%) respondents answered "no" to the questions if health care facility provides them with clean bathroom, toilet & water. A study done in Nigeria on satisfaction of quality of service provided and which affects the return visits by Odetola et al (20 18) some causes of dissatisfaction included dirty hospital environment, inadequate water supply and hospital facilities. Women experienced postnatal discharges of as early as 6 hours post-delivery because of lack of beds and other resources at the hospital as demonstrated by Sakala et al (2019) in Malawi. Demonstrating inadequate facility capacity, it is very common to find incidences of bed sharing by mothers within some hospitals in Kenya, Masaba et al (2020), and as reported by Gitobu et al (2015) in their assessment of Kenya facilities, it was established that sharing of beds was highest in tier 4 health facility at 62% due to insufficient space.

2.7.3 Facility level

In Kenya there are six levels of health care facilities (level 1 to 6) level 1 to 5 are managed at county governments and the 6th is managed at National level. In these system patients /clients move from one level to another through referral whenever a

facility is incapacitated to offer a given service (Kenya's health structure., 2019) At every level of these facilities clients/patients are expected to get quality recommended services as per the facility level but this is never the case. Kruk *et al.,* (2018), reports that low resourced settings experience acute challenge on quality of care. In Uganda rural health facility readiness to provide postpartum care was sub-optimal and found to be low with a median score of 24% (IQR: 18.7, 26.7). Inconsistence availability, and use of up-to-date, policies, guidelines and written clinical protocols for identifying, monitoring, and managing postpartum care. Lack of or non-functional equipment's. Frequent stock-outs of essential drugs and supplies, and blood products, inadequate human resources inhibit the proper functioning of health facilities and impact the quality of postpartum care (Namutebi et al.,2023). A study in Nepal by Khatri, *et al.,* (2021) on client utilization of MNH services in which postnatal care is embedded concluded that Women utilized quality MNH services at facilities with better HF capacity (infrastructure, supplies, equipment's, medicines and skilled staff). Equally the study reported that women by passed peripheral HFs, preferring to attend referral hospitals for perceived better quality maternal and newborn care.

2.7.4 Staffing

Skilled health personnel supported within an enabling work environment and a fully enabled health system can deliver about 90% of essential maternal newborn health services and thus preventing 4.3 million maternal deaths, stillbirths and neonatal deaths annually by 2035 globally, yet midwives account for less than 10% of the global workforce. (Shikuku et al 2022) Kenya does not meet a minimum threshold of 22.8 skilled health professionals (midwives, nurses and doctors) per 10,000 population with about 100 nurses per 100,000 population compared to WHO

recommended minimum staffing level of 356 nurses per 100,000 population working in the public sector with about 100 nurses per 100,000 population compared to WHO recommended minimum staffing level of 356 nurses per 100,000 population (Shikuku *et al.,* 2022) In a study by Masaba et al (2020) it was established that although the World Health Organization (WHO) recommends at least 23 doctors, nurses and midwives per 10,000 people Kenya has one doctor, 12 nurses and midwives per 10,000 people . Khader, et al (2018) explains that, some hospitals had shortages of obstetrician's gynecologists, and midwives/nurses and only 3 (9.7%) hospitals participated in regular reviews of maternal deaths or "near-misses" due to lack of quorum. A study in southern Nepal by Lama et al (2020) reported that the required number of medical doctors, nurses and midwives were present in only 1 of 5 facilities. A study on improving quality of postnatal care in Malawi by Sakala *et al.,* 2019) targeting facilities where mothers with uncomplicated birth are not allocated midwives revealed that most health facilities allocate one midwife for both labor ward and postnatal ward and as a result, care is compromised because of fatigue due to overworking even worse in other facilities one midwife on night shift covers labor ward, postnatal, nursery, antenatal ward and theatre during night shift. Weldearegay et al (2020) established that poor quality of care in postnatal was related to poor motivation scheme and issues related to retention, mismatch between number of provider and facility client flow. Goshu et al (2018) reported that only 28.5% had received awards for good performance. According to Sumankuuro, *et al.,* (2018), the staffing challenges motivate the health service management at the district level to endorse community health nurse and Enrolled nurses supervised delivery as skilled birth, even if they have had no midwifery training. According to Shikuku *et al.,* (2022) there is severe shortage of skilled birth attendants in rural compared to urban

areas equally, research has shown a large variety of cadres of health-care providers proving Skilled birth are not trained to the required standard and not supported and legislated to carry out all tasks required of by a skilled birth attendant according to the international definition.

2.7.5 Equipment's

In a facility evaluation survey by Khader, et al (2018) it was documented that many hospitals had insufficient supplies of inexpensive items such as essential equipment for service delivery. Goshu et al (2018) reported that only 38.2% of the midwives reported that they had adequate equipment. In a comparative study on availability of equipment's in public health facilities both rural and urban by Igboanusi et al (2020) it was learned that; the recommended essential equipment availabilities were 26.3% way below average.

2.7.6 Supplies/Drugs

Qualitative research findings by (Weldearegay et al 2020) established that poor quality of care during delivery and immediate postpartum was related to unavailability of essential medicine and supplies. In a facility evaluation survey by Khader, et al (2018) it was documented that many hospitals had insufficient supplies of inexpensive items such as essential consumables and drugs and as equally expressed by (Okonofua et al (2019) who documented 10 birthing centers lacked injectable magnesium sulfate in their study. A study in southern Nepal by Lama et al (2020) reported that infection prevention items were lacking in more than one quarter of facilities, and widespread shortages of iron/folic acid tablets, injectable ampicillin/gentamicin, and magnesium sulfate were a major barrier to facility readiness. A facility assessment study in Nepal by Lama,et al (2020) reported a lack of Infection prevention items in more than one quarter of facilities, and widespread

shortages of iron/folic acid tablets, injectable ampicillin/gentamicin, and magnesium sulfate .A study in Madagascar on Tracer item for both Comprehensive emergency obstetric and newborn care (CEmONC) and BEmONC availability results were low at 30 %, indicating the need to strengthen supplies at basic health centers, Andriantsimietry et al (2016). According to Lama et al; (2020) in Nepal parenteral oxytocin was commonly provided with hospitals performing the seven BeMONC signal functions.

2.8 Research Gaps

Many researches have reported on factors influencing postnatal care among midwives at health facilities. From this study generally, there is corroboration that midwife, maternal and facility factors influence midwifes performance of TPNC interventions. However, these factors are inconclusive, literature is sparse on the specific interventions provided at every specific TPNC visit, and further research is needed to especially in understanding why postnatal care neglect or suboptimal care at this level on the maternal and newborn continuum of care.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This chapter includes the study design, study area, target population, inclusion and exclusion criteria, sampling procedure and determination of sample size, development of research instruments, data collection procedure, data analysis, dissemination of findings, and ethical consideration.

3.2 Study Design

This was a cross-sectional analytical study design where both qualitative and quantitative methods of data collection were used. This particular design was ideal since the research entailed collecting and comparing data at one point in time on implementation of targeted postnatal care in health facilities. The quantitative aspect was used when collecting data on maternal-factors while the qualitative aspect was used to collect data on midwives and facility factors which then were triangulated through cross verification.

3.3 Study Area

The study was conducted at selected public health facilities in Kakamega County. Kakamega county is the fourth most populous county in Kenya, with the largest rural population. Unfortunately, maternal and child mortality rates in Kakamega is unacceptably high, ranking fifth highest of fifteen counties in Kenya (Mandera, Wajir, Nairobi, Nakuru and then Kakamega). Among the five counties, through random sampling Kakamega county was picked as the study area. A Maternal and Child Health and Family Planning Bill was signed into law by the county governor in 2017 to guarantee support to vulnerable pregnant women to access essential postnatal care, but there's minimal progress into reduction of maternal and neonatal mortality. Kakamega County is found in the western region of Kenya and borders Vihiga

County to the South, Siaya County to the West, Bungoma and Trans Nzoia Counties to the North and Nandi and Uasin Gishu Counties to the East. The county has a total of 12 sub-counties administratively and covers an area of 3,033.8 km^2 and rainfall is uniformly distributed throughout the year with March and July receiving highest whereas December and February the least. According to the National census 2019, Kakamega County had a total population of 1,867,579 people, of which 897,133 are males, 970,406 being females and 40 intersex persons. There are 433,207 households with an average size of 4.3 persons per household and a population density of 618 people per square kilometer. Kakamega has different level of public facilities, one county referral hospital (Kakamega County General Teaching & Referral Hospital), 12 level four hospitals, 47 level three hospitals, 123 level two hospitals. (KNBS)The county has different staffing levels per cadre depending on the facility levels with medical doctors only at level four and five facilities. The study area serves as the referral hub that serves the lager western region.

3.4 Study Population

The research was carried out among postnatal mothers within 48 hours up to 6 months post-delivery both at the postnatal ward and MCH clinics and midwives at the selected facilities.

3.5 Inclusion and Exclusion criteria

3.5.1 Inclusion criteria

- Midwives working at the facility for the last six months who consented to participate in the study.
- Postnatal mothers who delivered within a period of six months who consented to participate in the study.
- Facility in-charges who consented to participate in the study.

3.5.2 Exclusion criteria

- Postnatal mothers and midwives who declined to participate in the study.
- Postnatal mothers who developed a complication after delivery.
- Those absent during the study period

3.6 Sampling Procedure

The study employed multistage sampling. Facilities were clustered according to KEPH levels. KCTRH was purposively selected due to the fact that it is the only level five in the county and the major referral facility, Level 4 facilities were selected due to high workload and referral facilities for levels 2 and 3. At the facility, a propriate number of postnatal mothers as per the facility average monthly deliveries were interviewed until when the sample size was achieved through Proportionate sampling. All midwifes were selected using the census sampling technique due to smaller numbers of midwifes at facilities.

Table 3.1 Proportion of sample population of the selected facilities

Facility name	**Type of facility**	**Number of midwifes**	**Average Monthly deliveries**	**Proportion on the population(N)**	**Sample size Proportion (n)**
1.Kakamega county referral hospital	5	43	450	27	86
2. Likuyanihosp	4	13	120	7	23
3.lumakanda hos	4	12	125	7	24
4.Malava hosp	4	20	250	15	48
5.Navakholo hosp	4	10	150	9	29
6.Iguhu hosp	4	11	100	6	19
7.Makunga hosp	4	9	90	5	17
8.Mumias level 4 hosp	4	10	110	6	21
9.Matungu hosp	4	14	120	7	23
10.Butere hosp	4	18	180	11	35
TOTAL		160	1695	100	325

3.7 Sample Size Determination

The sample size was determined by using Fishers et al (1963) formular

$$n = \frac{Z^2 pq}{n}$$

Where;

n= the required minimum sample size

p= estimated proportion of the target population who have the characteristics being measured

q=1-p

d=level of statistical significance sat at +or – 5% or 0.05

z=SD corresponding to 95% or Confidence level=1.96

$$n = \frac{(1.96)^2(0.64)(0.36)}{(0.5)^2}$$

$$n = 354$$

Since the Population (N) is less 10,000, then the final sample size nf was adjusted to a finite population correlation for proportion that was proportionately distributed per facility based on number of deliveries per months.

N= Sample population was 1695 (Average monthly deliveries of the selected public health facilities KHIS, 2022)

$$nf = \frac{n}{1+n/N}$$

$$nf = \frac{354}{1 + (\frac{354}{1695})}$$

$$nf = \mathbf{295}$$

10% was added for non-response:

295×0.1= 30

Therefore, the final sample size was:

n=295+30 = **325 Cases**

3.8 Recruitment and training of the research assistants

Ten nursing students were recruited as research assistants to assist in data collection. The recruitment criteria for the research assistants included having been at nursing school for one or more years. Upon recruitment, the research assistants signed confidentiality binding forms. Thereafter, the research assistants were trained on the contents of the questionnaire, the inclusion and exclusion criteria, how to complete consent forms and the ethical issues involved in this study.

3.9 Data Collection Instruments

The formulation of the tools was guided by the conceptual frame work and the study objectives. Quantitative data was collected using interviewer administered questionnaire and specifically identifying the facility factors and quality of care provided at the facility. Questionnaires were based on m-Health platform tool called Kobo collect (Poloju et al 2022) which was used to collect data and exported to SPSS version, 25.

3.10 Validity and Reliability of data Collection tools

The instruments were developed through review of literature of studies done on the related topic. The data collection tool pre-test was done at Bungoma county because of its similar characteristics related to the study area. The pre-test was to ensure that data collection tool was both valid and reliable and could identify errors and how easy the questions could be answered. The researcher thoroughly examined the questionnaire to ensure that all variables to be measured were included, irrelevant questions were removed and the other questions modified to meet the study

objectives. The researcher had sought professional advice from supervisors from the school of Nursing, Midwifery and Paramedial Sciences at Masinde Muliro University of Science and Technology in Kakamega (MMUST).

3.11 Data Collection Procedure

The questionnaire was administered by trained assistants to collect information from midwifes and postnatal mothers who qualified to participate in the study.

3.12 Data Analysis

All collected data was checked for quality and completeness before analysis. Quantitative data was cleaned, coded and analyzed using the Statistical Package for Social Sciences (SPSS version 25) under the supervision of a data analysist. Cross tabulation was used to measure association between the study variables. 95% confidence interval (C.I) was calculated to assess the relationship between independent and dependent variables under study. P-values of less than 0.05 was considered statistically significant. Quantitative method of analysis was used to analyze data. Descriptive statistics namely frequencies, percentages and means were used. Results were presented inform of bar graphs tables frequencies and percentages.

3.13 Ethical Considerations

Ethical considerations were duly followed to avoid ethical dilemmas. Clearance was sought from Institutional Ethical Review Committee of Masinde Muliro University of science and Technology. The researcher obtained a research permit from the National Commission for Science, Technology and Innovations (NACOSTI) as required by law in Kenya. Permission to conduct the study was sought from Kakamega county referral and teaching hospital and the other selected facilities within the county.

Respondents to participate in the study gave consent after being informed the purpose of the study, the instrument that were used and the information to be collected. Only those willing to participate were engaged and no person was coerced to participate in the study. The study participants were informed of the freedom to withdraw from the participation at any stage. The findings are to be disseminated to MMUST, Ministry of Health, Kakamega County Department of Health, facility in-charges where the study was conducted through forums and conferences.

3.13.1 Beneficence

This ensured that participants were free from harm psychologically, physically, socially and economically which was minimized by, carefully phrasing questions in a sensitive and non-judgmental manner. Respondents were informed that they were free to withdraw when uncomfortable and the interviews would be rescheduled if possible and freedom from exploitation was ensured. The study procedure was clearly explained to the respondent before the interview. The respondents were informed that their participation in the study would not have direct benefits but would provide information that would help in reduction of maternal mortality.

3.13.2 Respect for Human Dignity

In the study, participants had the right to decide voluntarily whether to participate in the study without risking any penalty. They had the right to make informed, voluntary decisions about study participation, which required full disclosure. Participants' dignity was observed by allowing anonymity and questions asked in a socially and culturally sensitive manner.

3.13.3 Justice

This principle applies to the right to fair treatment and right to privacy. There was non-discriminatory selection of participants, adherence to procedures outlined, right to privacy was achieved through anonymity by ensuring that the names of the respondents were not written on the questionnaire instead codes were used and only the principal investigator accessed the information. The research findings are to be disseminated transparently irrespective of the outcomes and that all the stakeholders are to benefit from the research findings.

3.13.4 Confidentiality

Respondents were protected by keeping their information confidential. This study ensured the information collected remained anonymous. Identification numbers were attached to each participant rather than names or other identifiers. All research assistants who had contact with the research information signed a pledge of confidentiality. Only the principal investigator, the interviewers and reviewers of data collected had access to the information and was not shared with any other person without their permission.

3.13.5 Informed Consent

The elements of informed consent were applied in this study which included voluntary participation and the right to withdraw at any stage without prejudice, disclosure of essential information to the participants; ensure participants understood the information.

CHAPTER FOUR

RESULTS

4.1 Overview

The study was carried out by use of quantitative methods of data collection. The sample size was 325 postnatal mothers and 160 midwifes with 100% response rate. Data analysis and reporting start from general findings about sample characteristics, then targeted postnatal care implementation. Midwife, maternal and facility factors influencing targeted postnatal care implementation sums up the section.

4.2 Characteristics of the study participants

Descriptive analysis was done on postnatal mothers and midwives sociodemographic characteristics as represented in the following sections.

4.2.1 Sociodemographic characteristics of the midwives

The midwives' mean ages were 36.76±7.64 years, 23.75% were male, while 76.25% were female. Majority midwives 71.25% held a diploma level of training, 62.50% of midwifes were trained in Emergency Obstetric and Newborn Care (EmONC) with 35.63% having worked over 10 years. A descriptive analysis is as shown in the Table 4.1.

Table 4.1: Sociodemographic characteristics of the midwives

Characteristics		Frequency	Percent
Age (Years)	Up to 35	79	49.38
	> 35	81	50.63
Sex	Male	38	23.75
	Female	122	76.25
Level of training	Certificate	8	5.00
	Diploma	114	71.25
	Degree	35	21.87
	Masters	3	1.88
Is EmONC trained	Yes	100	62.50
	No	60	37.50
Years worked (10.71±8.65)	Up to 10	103	64.37
	>10	57	35.63

Descriptive analysis with frequency representing the counts and percent the proportion of the counts within particular grouping characteristic

4.2.2 Socio-demographic characteristics of postnatal mothers

The mean age of clients was 26.45±6.54 years with age distribution among respondents showing an almost equal split, Majority respondents (48.62%) attained secondary education with only a few who had received university education (3.08%). Majority of participants were married (70.15%), Cohabiting and widowed participants represented smaller percentages. Predominantly (32.62%) did farming with a majority households (73.85) earning less than KES5000. Most respondents reported a distance of more than 30 minutes to the nearest health facility (80.00%). Regarding the period after delivery when postnatal care was sought, less than 48 hours period was high (31.69%) unlike the rest of the periods Most deliveries occurred in healthcare facilities (92.31%) compared to home births (7.69%). More of the descriptive analysis is as shown in Table 4.2

Table 4. 2: Sociodemographic characteristics of the client

Client Sociodemographic Characteristics		Frequency	Percent
Age	10- 25 years	164	50.46
	25 years and above	161	49.54
Level of education	None	3	0.92
	Primary	96	29.54
	Secondary	158	48.62
	College	58	17.85
	University	10	3.07
Marital status	Single	93	28.62
	Widowed	1	0.31
	Cohabiting	2	0.62
	Married	228	70.15
	Widowed	1	0.31
Occupation	Housewife	85	26.15
	Farmer	106	32.62
	Business	90	27.69
	Employed	44	13.54
Monthly household income bracket	< KES 5000	240	73.84
	KES 5000-10000	53	16.31
	KES 10000-20000	22	6.77
	> KES 20000	10	3.08
What is main source of information on PNC	Family and friends	77	23.69
	Community health promoter	86	26.46
	Mass media	28	8.62
	Health care worker	134	41.23
Distance to health facility	More than 30 minutes	260	80.00
	Less than 30 minutes	65	20.00
Number of previous births	Up to 1	203	62.46
	>1	122	37.54
Period after delivery that PNC care was sought	2-4 weeks	74	22.77
	4-6 Months	75	23.08
	4-6 Weeks	73	22.46
	Less than 48 hours	103	31.69
Mode of delivery	Normal	256	78.77
	Assisted	8	2.46
	Caesarean section	61	18.77
Place of delivery	Home	25	7.69
	Facility	300	92.31

Descriptive analysis with frequency representing the counts and percent the proportion of the counts within particular grouping characteristic

4.3 Targeted postnatal care implementation

This section is focusing on targeted postnatal care implementation, the aim is to profile the extent to which midwives follow the recommended postnatal care interventions across scheduled visits. This analysis involves breaking down the results by individual visits and subsequently examining TPNC implementation to both maternal and newborn. The approach follows a cascade, starting with an assessment on how much interventions are done to the mother and then moving on to evaluate the interventions done to the newborn for each scheduled postnatal visit.

4.3.1 Immediate maternal postpartum care

The mean percentage level of implementation of immediate PNC interventions for mothers was 65.09%, with a standard deviation of ±16.99. Approximately 56.88% reported performing uterine palpation to aid in the uterine involution and postpartum recovery with only 48.13% assessing for maternal danger signs within the first 48 hours post-delivery. A majority (61.88%) of the nurses reported assisting the mothers to initiate breastfeeding early. About only 20% of the nurses reported giving health education to the mothers on HIV testing immediately after childbirth. The descriptive analysis of 48-hour post-delivery care by midwifes is as shown in Figure 4.1.

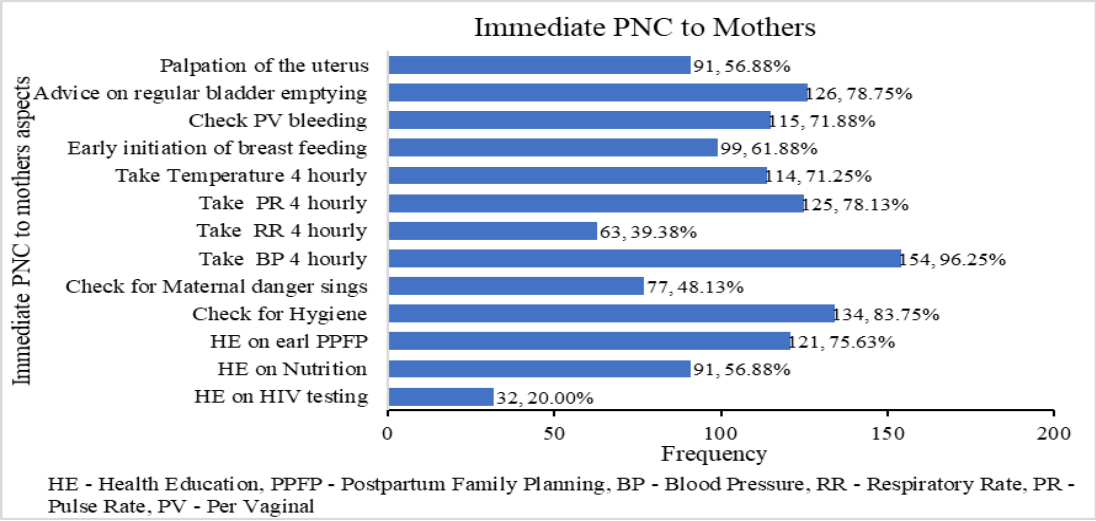

Figure 4.1: Immediate PNC to Mothers

4.3.2 Immediate newborn care in the postnatal period

The mean percentage level of implementation of TPNC interventions to newborn was calculated at 59.55%, with a standard deviation of ±20.09. Majority (85% and 80.63%) encouraged parents to keep the baby warm, and did cord care respectively. Approximately only 39.38% and 25% of midwifes reported administering immunizations to the newborn and doing complete physical examination newborn care during the immediate postnatal period.

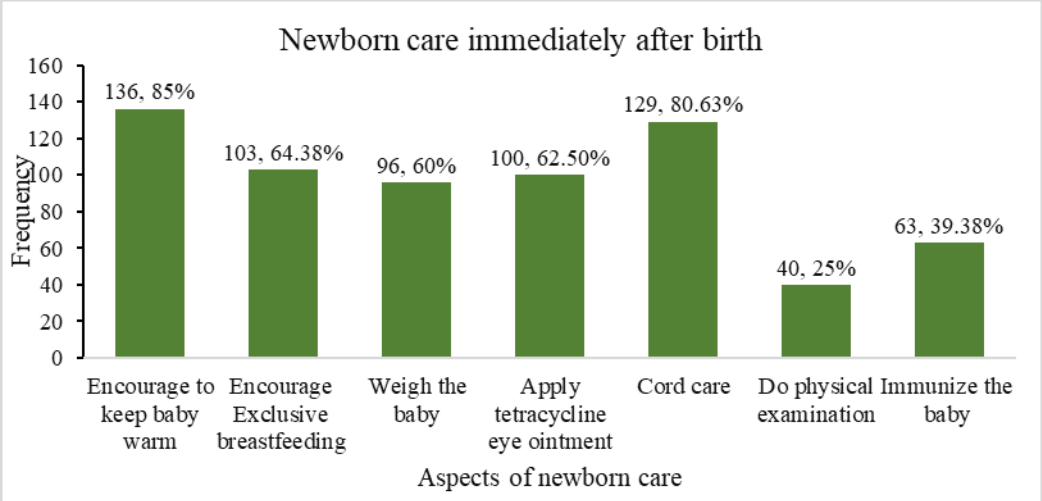

Figure 4.2: Newborn care immediately after birth

4.3.3 Postnatal care for the mother 2-4 weeks postpartum

The mean percentage level of implementation of TPNC interventions during this period was 47.38% with a standard deviation of ±16.58. Majority midwives 80.63% did vital signs with only 46.88% and 6.88% doing a complete physical exam to the mothers and mental assessment respectively, the descriptive analysis findings is as shown in Figure 4.3 .

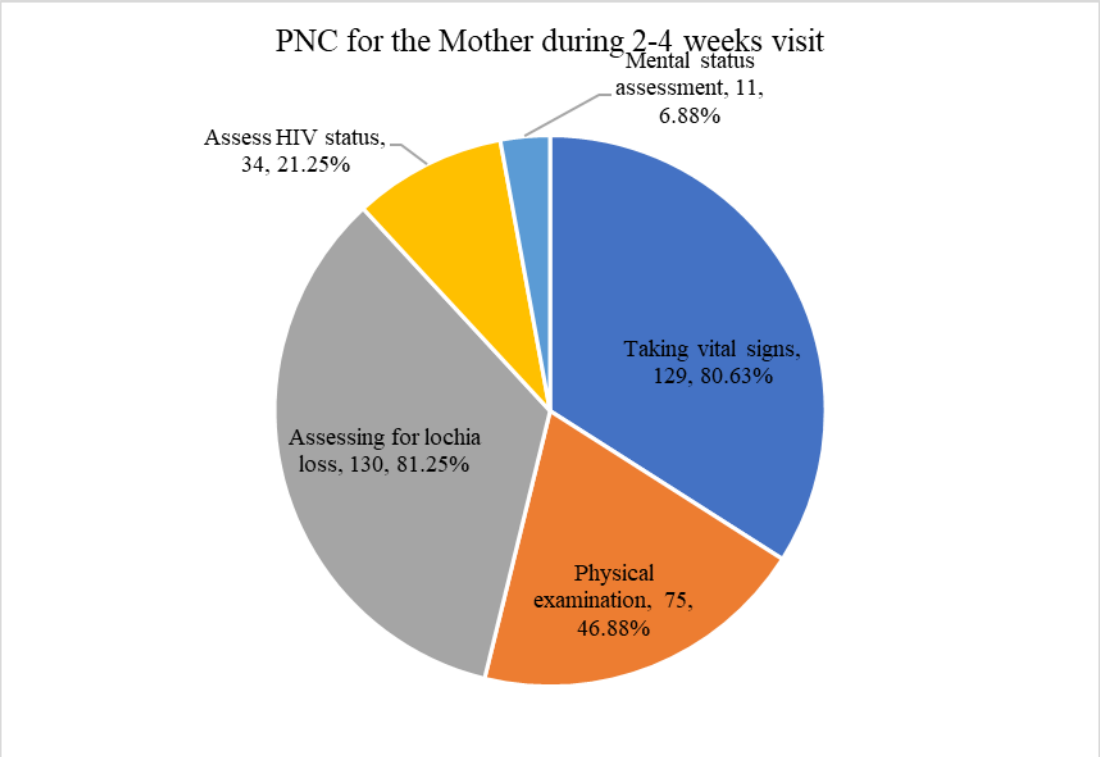

Figure 4.3: PNC for the mother during 2-4 weeks visit

4.3.4 Care for the newborn during the 2-4 weeks PNC visit

The mean percentage level of implementation of TPNC interventions during this period was 55.16% with a standard deviation of ±20.81. Only 40% reported complete physical examination with majority 66.88% reporting weighing and assessing breastfeeding, assessing for danger signs (46.88%), The descriptive analysis outputs for care provided to newborns during the 2-4 weeks postnatal care (PNC) visit is as shown in the Figure 4.4

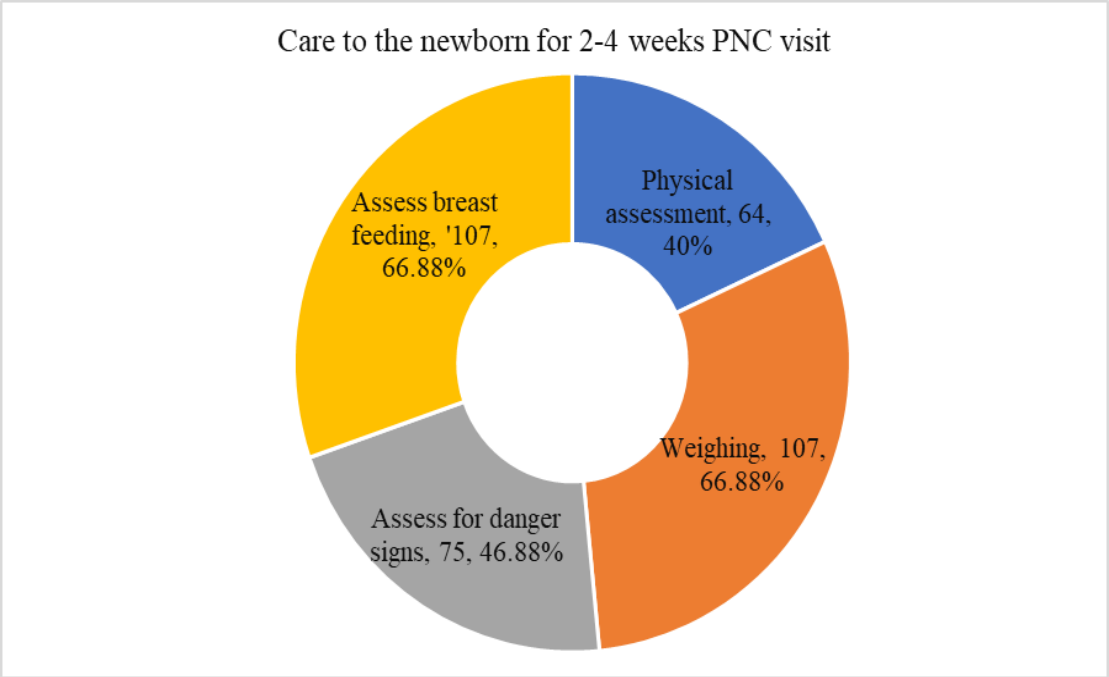

Figure 4. 4: Care to the newborn for 2-4 weeks PNC visit

4.3.5 Care for mother and neonate during 4-6 weeks PNC Visit

The mean percentage level of implementation of TPNC interventions provided to newborns during this period was determined to be 59.06% with a standard deviation of ±15.73, while for mothers was 51.98% with a standard deviation of ±16.55. Regarding newborn care, only 31.25% and 20% of midwifes reported conducting a complete physical examination and assessing milestones, while a majority of midwifes 90% and 95%did weight and height measurements and gave immunizations respectively.

In terms of care for mothers during the 4-6 weeks PNC visit only 38.13% of midwives reported conducting a complete physical examination, with a majority 91.88% reporting to offer family planning services. STI screening was very low at 10%. The descriptive analysis is as illustrated in Figure 4.5.

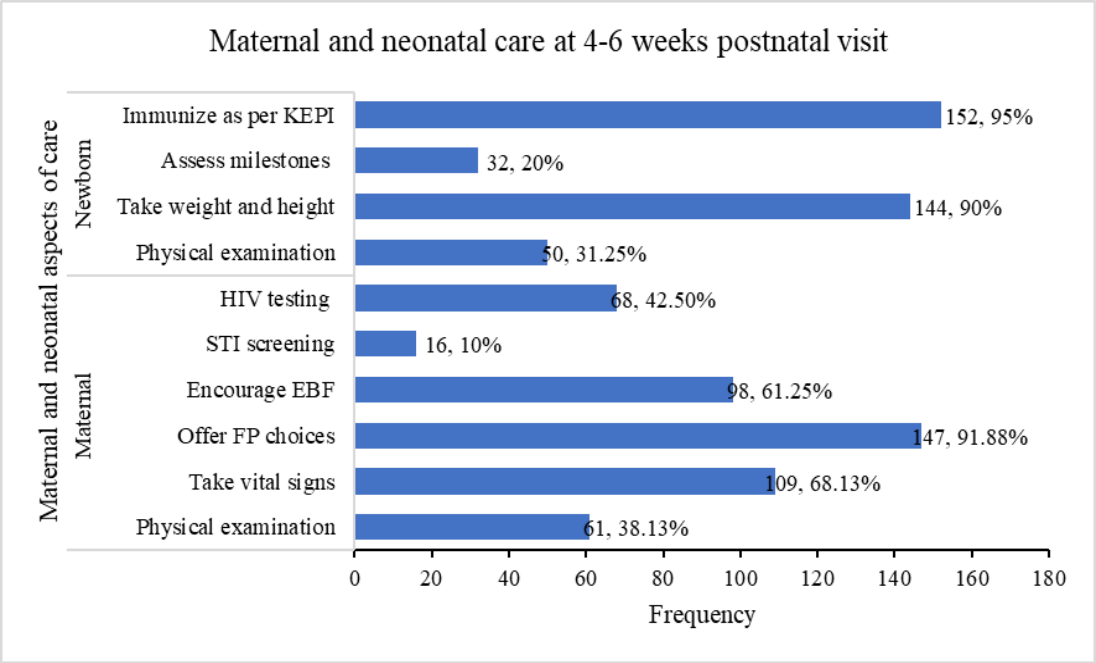

Figure 4. *5*: Care for mother and neonate during 4-6 weeks PNC Visit

4.3.6 Care for the mother and newborn at 4-6 months PNC visit

This descriptive analysis of the postnatal care rendered to both mothers and infants during the 4-6 months visit, with percentages reflecting proportions of a sample size of n=160. The mean percentage level of implementation of TPNC interventions to mothers during this period was calculated at 50.00%, with a standard deviation of ±22.09. Correspondingly, for newborns, the mean percentage level of performance of PNC interventions was 57.50%, with a standard deviation of ±19.79. At this visit only approximately 27.5% of nurses conducted complete physical examinations with 53.75% offering counselling on exclusive breastfeeding. Majority midwifes 78.13% counseled on complimentary feeding. In terms of newborn care, the immunization status was assessed by majority 95.63% of midwifes. Complete physical examinations and assessment of danger signs were performed by 24.38% and 21.88% of midwifes respectively as analytically shown in Table 4.3..

Table 4. 3: Care for the mother and newborn at 4-6 months PNC visit

Mother and newborn care during 4-6 Months PNC Visit		Frequency	Percent
Mother	Do complete physical examination	44	27.50
	Take vitals	98	61.25
	Counsel on complimentary feeding	125	78.13
	Counsel for continued exclusive breast feeding	86	53.75
Newborn	Assess general health of the mother	47	29.38
	Assess immunization status	153	95.63
	Take weight and height	141	88.13
	Do complete physical examination	39	24.38
	Assess danger signs	35	21.88

Descriptive analysis of postnatal care given to mothers during 4-6 months. Percentages are proportions of n=160. Mean percentage level of implementation of TPNC interventions to mothers 4-6 months 50.00±22.09, and that of newborns is 57.50±19.79

4.3.7 Comparison of the level of implementation of TPNC interventions for the mother and newborn during different visits

Across the various scheduled visits, maternal care shows a decline in implementation from the immediate postnatal period (66.62%) to the 2-4 weeks PNC visit (47.38%), with slight increases observed at 4-6 weeks PNC (51.98%) and 4-6 months PNC (50%). Similarly, implementations of interventions to newborns exhibits fluctuations across the scheduled visits, with the highest implementation observed at the immediate PNC visit (59.55%) followed by a slight decrease at 2-4 weeks PNC (55.16%), a subsequent increase at 4-6 weeks PNC (59.06%), and a slight decrease again at 4-6 months PNC (57.5%). Comparing maternal care with newborn care, it is evident that implementation of interventions in maternal care is only higher than that of newborn during the less than 48 hours' period, otherwise, care across the rest of the scheduled visits show newborn care taking precedence, indicating a potential disparity in attention or resource allocation between the two aspects of postnatal care. This is well illustrated in figure 4.6

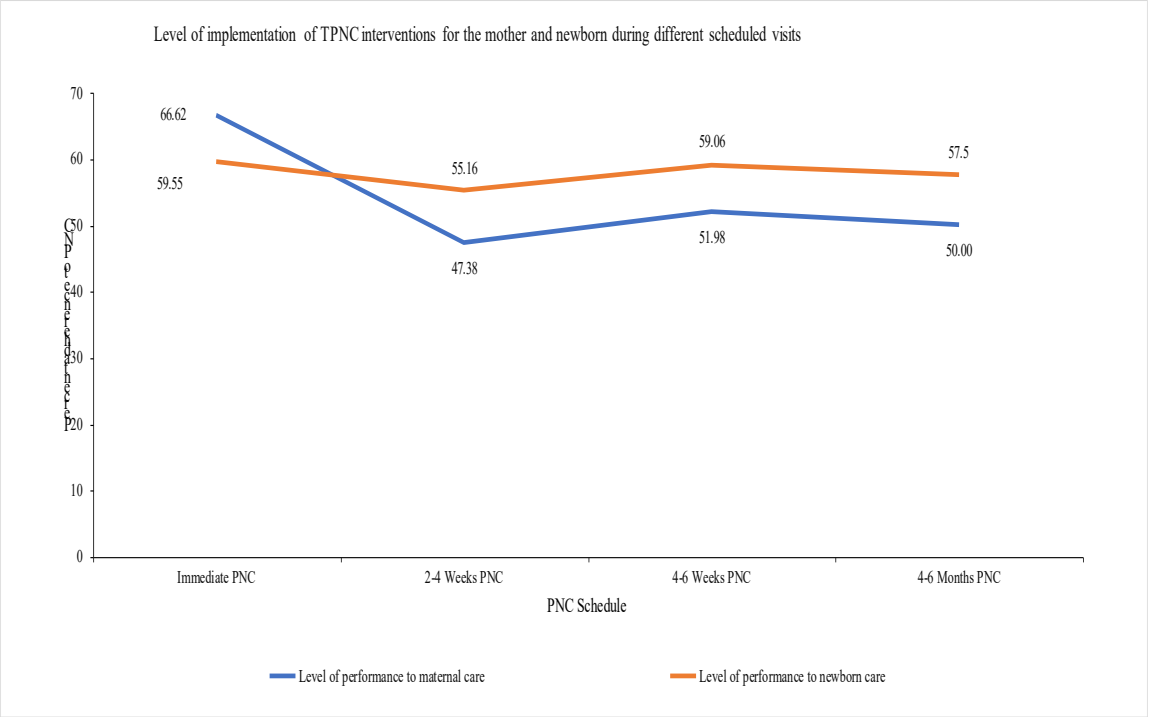

Figure 4. 6: Care for the mother and newborn at different scheduled visits

4.3.8 Analysis of variance on midwives' implementation of TPNC interventions for different TPNC periods

The analysis of variance (ANOVA) conducted involved pair wise comparisons of interventions of TPNC interventions across different postnatal care periods. The aim was to assess the variations in implementation levels between different postnatal periods and to identify any significant differences in implementation over time. By comparing implementation levels at various postnatal care visits, the study sought to provide insights into the consistency and effectiveness of targeted postnatal care delivery for both mothers and newborns across different stages of the postnatal period.

4.3.9 Comparison of Midwives Implementation of Maternal TPNC Interventions during different PNC Periods

Immediately after birth, the mean difference (MD) in implementation between the immediate postnatal period and the 2-4 weeks postnatal care (PNC) visit portrayed a significant difference in means (MD: 19.24, 95% CI: 16.78 - 21.71, P<0.0001). Similarly, significant differences are observed between the immediate postnatal period and both the 4-6 weeks PNC visit (MD: 14.64, 95% CI: 12.29 - 16.99, P <0.0001) and the 4-6 months TPNC visit (MD: 16.62, 95% CI: 13.79 - 19.45, P <0.0001). At the 2-4 weeks PNC visit, a significant mean difference in implementation is observed when compared to the 4-6 weeks PNC visit (MD: -4.6, 95% CI: -7.18 - -2.03, P= 0.001). However, no significant difference is observed when comparing implementation at the 2-4 weeks TPNC visit to the 4-6 months PNC visit P= 0.071. Similarly, no significant difference is found between implementation at the 4-6 weeks TPNC visit and the 4-6 months TPNC visit P= 0.163. This is illustrated in the Table 4.4.

Table 4.4: Pair wise comparisons of implementation package of maternal interventions during different postnatal periods

Maternal care (A)	Maternal care (B)	Mean difference (A-B)	95% CI	P Value
Immediately after birth	2-4 weeks PNC	19.24	16.78 - 21.71	**<0.0001**
	4-6 weeks PNC	14.64	12.29 - 16.99	**<0.0001**
	4-6 months PNC	16.62	13.79 - 19.45	**<0.0001**
2-4 weeks PNC	4-6 weeks PNC	-4.6	-7.18 - -2.03	**0.001**
	4-6 months PNC	-2.63	-5.47 - 0.22	0.071
4-6 weeks PNC	4-6 months PNC	1.98	-0.81 - 4.77	0.163

ANOVA for Pair wise comparison based on estimated marginal means in implementation of maternal TPNC. Mean implementation of maternal TPNC interventions immediately after birth = 66.62%, 2-4 weeks PNC = 47.38%, 4-6 weeks PNC = 51.98%, and 4-6 months PNC1 = 50.00%. $\dot{\alpha}<0.05$

4.3.10 Comparisons of Implementation of TPNC Interventions to Newborns during different PNC Periods

The analysis indicates significant variations in implementation of newborn interventions across different postnatal periods, with some periods showing significant differences in implementation compared to others. There was a significant mean difference (MD) in implementation between the immediate postnatal period and the 2-4 weeks postnatal care (PNC) visit (MD:4.40, 95% CI: 1.24 - 7.55, P= 0.007). However, no significant differences are observed between the immediate postnatal period and either the 4-6 weeks PNC visit (MD: 0.49, 95% CI: -2.35 - 3.33, P= 0.733) or the 4-6 months PNC visit (MD: 2.05, 95% CI: -0.62 - 4.72, P= 0.131). At the 2-4 weeks PNC visit, a significant mean difference in implementation is observed when compared to the 4-6 weeks PNC visit (md: -3.91, 95% CI: -6.83 - -0.98, P=0.009). No significant difference is observed between implementation at the 2-4 weeks PNC visit and the 4-6 months PNC visit P=0.124). Similarly, no significant difference is found between implementation at the 4-6 weeks PNC visit and the 4-6 months PNC visit P= 0.233. This is illustrated in Table 4.5.

Table 4. 5: Pairwise Comparisons of Implementation of Newborn Interventions during different Postnatal Periods

Newborn care (A)	Newborn care (B)	Mean difference (A-B)	95% CI	P Value
Immediately after birth	2-4 weeks PNC	4.40	1.24 - 7.55	**0.007**
	4-6 weeks PNC	0.49	-2.35 - 3.33	0.733
	4-6 months PNC	2.05	-0.62 - 4.72	0.131
2-4 weeks PNC	4-6 weeks PNC	-3.91	-6.83 - -0.98	**0.009**
	4-6 months PNC	-2.34	-5.34 - 0.65	0.124
4-6 weeks PNC	4-6 months PNC	1.56	-1.02 - 4.14	0.233

ANOVA for Pair wise comparison based on estimated marginal means. Mean implementation of Newborn interventions immediately after birth = 59.55, 2-4 weeks PNC = 55.16, 4-6 weeks PNC = 59.06-, and 4-6-months PNC = 57.50. ȧ<0.05

4.4. Midwife Factors Influencing TPNC Performance

The linear regression analysis of staff sociodemographic factors influencing the implementation of targeted postnatal care (TPNC) did not yield statistically significant results, as presented in Table 4.9. The model statistics indicated that the model was not significant (F(5,154) = 0.66, p = 0.650), with an R^2 = 0.021, suggesting that the model cannot effectively predict variations in TPNC implementation based on staff sociodemographic factors. The regression coefficients and associated statistics for each sociodemographic factor are as follows; age (Years) (B: 0.72, 95% CI: -4.51 - 5.96, t = 0.27, p = 0.785), Sex (B: -1.50, 95% CI: -6.98 - 3.97, t = -0.54, p = 0.589), being EMONC trained (B: -1.90, 95% CI: -6.99 - 3.20, t = -0.74, p = 0.463), length of practice as a nurse (Years) (B: -0.04 (95% CI: -0.35 - 0.27), t = -0.25, p = 0.802), and level of training (B: 4.33, 95% CI: -1.11 - 9.78, t = 1.57, p = 0.118). None of the sociodemographic factors showed statistically significant associations with the implementation of TPNC, as indicated by their p-values, which were all greater than the threshold of 0.05. Therefore, these factors may not be significant predictors of TPNC implementation in this context.

Table 4. 6: Midwife Factors influencing Implementation of TPNC

Staff sociodemographic aspects	B	95% CI	t	P Value
Age (Years)	0.72	-4.51 - 5.96	0.27	0.785
Sex	-1.50	-6.98 - 3.97	-0.54	0.589
EmONC trained	-1.90	-6.99 - 3.20	-0.74	0.463
Length of practice as a nurse (Years)	-0.04	-0.35 - 0.27	-0.25	0.802
Level of training	4.33	-1.11 - 9.78	1.57	0.118

Linear regression analysis of staff sociodemographic factors influencing implementation of TPNC Model statistics F(5,154)=0.66, P=0.650, R^2=0.021, P<0.05, Dependent variable is Overall PNC, EmONC – Emergency Obstetric and Newborn Care)

4.5 Maternal Factors Influencing Midwifes TPNC Performance

The model statistics (F (18,306) = 3.41, p < 0.0001) and an R2 of 0.167, showed that the model was significant and about 17% of the variance could be explained by the

model. Among the sociodemographic aspects analyzed, the period after delivery significantly influenced midwifes TPNC implementation (B = -2.89, 95% CI: -4.3 - -1.48, t = -4.02, p < 0.0001). Additionally, mothers who attended TPNC appointments as per the scheduled date showed a significant positive association with midwifes TPNC implementations (B = 11.21, 95% CI: 5.36 - 17.06, t = 3.77, p < 0.0001). Regarding cultural factors, the presence of cultural beliefs or practices around TPNC uptake had a significant negative effect on midwifes TPNC implementation (B = -4.34, 95% CI: -7.7 - -0.98, t = -2.54, p = 0.012) Other sociodemographic, obstetric, and cultural factors analyzed did not show statistically significant associations with midwifes TPNC implementations as depicted in the linear regression analysis in Table 4.7.

Table 4.7: Maternal Factors Influencing Midwifes TPNC Implementation

Maternal Characteristics		B	95% CI	T	P Value
Sociodemographic aspects	Age of the client (Years)	0.21	-0.15 - 0.57	1.16	0.246
	Level of education	1.05	-1.2 - 3.29	0.92	0.359
	Marital status	0.33	-1.06 - 1.73	0.47	0.637
	Number of previous births	2.46	-1.93 - 6.86	1.1	0.271
	Occupation	-0.23	-2.25 - 1.79	-0.23	0.819
	Main source of information on PNC	0.43	-0.98 - 1.84	0.6	0.552
	Monthly household income bracket	0.37	-2.63 - 3.36	0.24	0.810
	Distance to health facility	-0.14	-4.16 - 3.88	-0.07	0.946
Obstetric aspects	Period after delivery	-2.89	-4.3 - 1.48	-4.02	**<0.0001**
	Mother came as per the PNC scheduled	11.21	5.36 - 17.06	3.77	**<0.0001**
	Mode of delivery	0.4	-1.75 - 2.55	0.37	0.715
	Place of delivery	-1.96	-8.28 - 4.37	-0.61	0.543
	Pregnancy, labor or birth complications	-0.33	-3.86 - 3.19	-0.19	0.852
Cultural	PNC related cultural beliefs exist	-4.34	-7.7 - -0.98	-2.54	**0.012**
	Effect of cultural beliefs PNC utilization	-0.07	-1.89 - 1.75	-0.07	0.942
Perception towards midwife feedback	Feedback on baby's health	3.82	0.84 - 6.8	2.52	**0.012**
	Feedback on maternal health	-2.7	-7.62 - 2.22	-1.08	0.281

Linear regression analysis of maternal factors influencing midwifes TPNC implementations. Model statistics F(18,306)=3.41, P<0.0001, R^2=0.167, P<0.05, Dependent variable is Overall midwifes TPNC implementations

4.6 Facility Factors Influencing TPNC Implementation

Facility related factors influencing midwifes TPNC implementation were classified into, facility capacity factors, management support and staffing, these factors were fitted in a linear regression model and confounders adjusted to determine their influence on midwifes TPNC performance.

4.6.1 Facility Capacity Factors

The linear regression analysis of facility capacity factors influencing the midwifes TPNC implementation revealed some significant associations. The model statistics indicated a significance of the model, ($F(7,2) = 27.36$, $p = 0.038$) with an R2 value of 0.99, suggesting that the model can effectively predict 99% of the variations on midwives TPNC implementation based on facility capacity factors. Percentage capacity for TPNC equipment's, drugs and supplies showed a significant positive association (B: 0.58, 95% CI: 0.17 - 1.00, $t = 6.03$, $p = 0.026$), implying that higher capacity for TPNC equipment, drugs and supplies within the facility is linked to increased midwifes TPNC implementation. Likewise, capacity for essential laboratory tests showed a significant positive association (B:0.48, 95% CI: 0.23 - 0.74, $t = 8.28$, $p = 0.014$). This implies that greater capacity for essential laboratory tests correlates with higher levels of midwifes TPNC implementation. This is further detailed in Table 4.8.

Table 4.8: Facility Capacity Factors Influencing Midwifes TPNC Implementation

Facility capacity	B	95% CI	t	P Value
Workload	0.11	-0.01 - 0.23	3.95	0.058
Percentage capacity for PNC equipment, drugs, supplies	0.58	0.17 - 1.00	6.03	**0.026**
Capacity for essential laboratory tests	0.48	0.23 - 0.74	8.28	**0.014**
Level of emergency referrals	0.15	-0.05 - 0.35	3.25	0.083
Number of midwives implement TPNC	7.14	3.08 - 11.19	3.48	**0.001**
Support supervision and feedback to midwives	5.50	1.89 - 9.11	3.01	**0.003**

Linear regression analysis of facility capacity factors influencing midwifes TPNC implementation of PNC Model statistics F(7,2)=27.36, P=0.038, R^2=0.99, P<0.05, PNC=Postnatal Care

4.6.2 Facility Management Support and Staffing

The linear regression analysis of management support and staffing factors influencing the midwifes TPNC implementation revealed some significant associations. The model statistics indicated a significance of the model ($F(9,150) = 14.67$, $p < 0.0001$) with an R^2 value of 0.467, suggesting that the model can effectively predict 46.7% of the variations on midwifes TPNC implementation based on management support and staffing. Percentage total number of midwives offering service showed a significant association (B:7.14, 95% CI: 3.08 - 11.19, t=3.48, P= 0.001) thus indicating that having a higher number of midwives offering TPNC is associated with a significant increase in TPNC implementation. Support supervision and feedback to midwives significantly enhanced TPNC implementation (B:5.50, 95% CI: 1.89 - 9.11, t=3.01, P= 0.003). High workload (B:-3.42, 95% CI: -7.31 - 0.47, t=-1.74, P= 0.084) and space inadequacy (B: 2.07, 95% CI: -1.42 - 5.57, t=1.17, P= 0.243) equally had no significant influence on midwifes TPNC implementations as it is further detailed in Table 4.9.

Table 4.9: Facility Management Support and Staffing factors Influencing Midwifes TPNC Implementation

Management support and staffing	B	95% CI	t	P Value
Number of midwives implement TPNC	7.14	3.08 - 11.19	3.48	**0.001**
Support supervision and feedback to midwives	5.50	1.89 - 9.11	3.01	**0.003**
High workload	-3.42	-7.31 - 0.47	-1.74	0.084
Space inadequacy	2.07	-1.42 - 5.57	1.17	0.243

Linear regression analysis of facility management support and staffing factors influencing midwifes TPNC implementation Model statistics F(9,150)=14.67, P<0.0001, R^2=0.467, P<0.05, Dependent variable is Overall PNC, TPNC is targeted postnatal care

CHAPTER FIVE

DISCUSSIONS

5.1 Overview

The results of the study on implementation targeted postnatal care in selected public health facilities Kakamega county are discussed in this chapter. The discussion is divided into sections to include, targeted postnatal care implementation, midwives, maternal and facility factors influencing implementation of targeted postnatal care.

5.2 Targeted Postnatal Care Implementation

TPNC interventions implementation assessments were done for both maternal and newborns. General midwives' implementation of TPNC interventions were low at each specific period both for mother and baby. At 48-hour period midwifes maternal implementation of interventions was at 65.09%, newborn was at 59.55%, at 2-4 weeks maternal was at 47.38%, newborn was at 55.16%, at 4-6 weeks Maternal was at 51.98%, newborn was at 59.06%, at 4-6 months maternal was at 50%, newborn was at 57.50%. This study findings indicate that some aspects of client examinations are not always accomplished by all midwives leading to poor quality TPNC. Like in this current study only 48.13% of midwives reported counselling mothers on danger signs and only 25% of midwives reported complete physical examination for newborns at 48-hour period. Only 6.88% reported maternal mental assessment with only 46.88% reporting assessing danger signs for newborns at 2-4 weeks. Only 42.50% and 10% of midwives reported maternal HIV and STI screening respectively; and only 20% reported assessing newborns milestones at 4-6weeks. This study agrees with Pindani et al 2020 who reported that in the immediate TPNC maternal interventions were at 37.8% and neonatal at 60.9%. These findings also agree with Adams *et al.,* 2020, who noted low interventions on majority

examinations, he revealed that only 41.81% received breast exam, 39.72% had vaginal discharge checked, 82.22% had temperature check, 55.56% for counseling on danger signs and 16.95% for all interventions. The study also agreed with pandani *et al.,* 2020 who reported that only 52.2% the midwives inspected perineal wounds 66.7% checked vital signs of neonate 62.2% checked vital signs of the mother (62.2%), and 30.4% inspected lochia drainage. It also agreed with KDHS (2022), where only 35% of women had their blood pressure checked, 33% assessed for vaginal bleeding, 29% counselled on family planning with an overall content of postnatal check at 25%, yet these interventions are intended to improve the maternal and newborn outcomes post-delivery. In the current study mental assessment was performed at 6.88% which concurs with Pindani*et al.,* (2020) where 91.3% never considered maternal emotional and psychological concerns. The current study further shows that the midwives' implementation of complete physical examination both for mother and newborn were low across all the postnatal periods and this worsened as the periods graduated further, like for maternal at 2-4 weeks complete physical exam was at 46.88%, at 4-6 weeks it was at 38.13% and at 4-6 months it was at 27.50%. This might be due to the perception that as the mother progress in the postnatal periods, complete physical exam is no longer an acute determinant indicator. In this regard its strongly recommended that midwives perform all components of targeted postnatal care interventions to help reduce maternal and neonatal mortalities.

5.3 Midwife Factors Influencing Implementation of TPNC

Level of training, being EmONC trained, and length of practice in this study showed no statistically significant associations to TPNC performance, as indicated by their p-values, which were all greater than the threshold of 0.05. Therefore, these factors may not be significant predictors of TPNC performance in this context. Matsui

etal.,2021) agrees with study as he revealed in his study that training experience was not associated with midwifes scores in TPNC implementation. Pindani*et al.,* (2020) equally agrees with this as he reports no statistical significance on EmONC training, where midwives after undergoing the training, they still had serious gaps on implementation of TPNC. Munabi *et al.,* (2024) agrees with this as he reports that midwives did not view medical knowledge as dynamic and sometimes preferred old, familiar procedures, and that lack of knowledge of current recommended practice was not always viewed as problematic by midwives since they had textbook knowledge on case management. This could be attributed with poor flexibility, attitudes and beliefs about medical knowledge influencing receptivity to knew practicing knowledge. Kabede *et al.,* (2021) disagrees, he found out that EmONC training had statistical significance to TPNC as implementation improved after the training. Munabi *et al.,* (2024) equally disagrees with the findings when he affirms that Level of training significantly influences TPNC interventions implementation during postnatal care, he reports that inadequate training sometimes limited midwives' skills and their ability to perform the recommended interventions. He adds to say that midwives' basic education did not always provide them with adequate knowledge, meaning in-service trainings like EmONC were of great value to improve care. Impwii *et al.,* (2023) also disagrees, he reported that lack of training and updates had significant influence on TPNC interventions implementation by majority midwives (88.2%). This shows that TPNC implementation may be directly influenced by many more midwife variables. This necessitates for more studies to be done to evaluate midwife factors that can influence implementation of TPNC.

5.4 Maternal Factors Influencing Implementation of TPNC

This study showed that the period after delivery scored high on midwifes implementation of TPNC both for mother 65.09% and new born 59.55% probably due to the fact that mothers were still at the facility. Equally there's a lot of emphasis on care at this period given that it is the most critical period for mother and newborn. This study agrees with Khatri et al., (2022) who reported that a mother seen at 48-hour period postnatal received optimally more TPNC interventions at a score of 80%. Chowdhury et al., (2022) equally noted that more than half of the women who delivered at the facility received recommended immediate PNC interventions and that those who selected health institution for delivery had almost two times (OR: 1.934, 95%CI: 1.21–3.09) more chance of receiving recommended immediate PNC interventions. In this current study, mothers who attended PNC appointments as scheduled. equally significantly influenced midwife's implementation of TPNC as it was perceived they had prior knowledge on the importance of PNC. These findings agree with Zekele et a., (2021) who reported that women who were unaware on PNC services were 88% less likely to utilize the service. Equally Habte *et al.,* (2021) agrees with these findings, their study states that mothers with more knowledge on the benefits, danger signs for mother and newborn, the care content, timing of the visits for PNC the more likely that she will comply with the recommended PNC visits**.** Cultural beliefs around PNC significantly influenced midwifes implementation of TPNC. This agrees with a study by Zekele*et al.,* 2021 who reported in his study that traditional beliefs played a role in hindering PNC .Munabi *et al.,* (2024) also agrees with the current study as he reports that sociocultural barriers sometimes hindered mothers from receiving care in hospitals, like in instances where some women preferred not to be examined by male midwives because of cultural reasons and that some religions too do not allow some medical treatments or examinations.

Probandari, et al, (2017) agrees with the current study that several myths influence postnatal care, like in his study done in Indonesia a woman who just delivered a baby could not go out far from the house as it was perceived it is a prevention of the mother and her baby to get any unseen hazard. Mothers were not to eat food with high protein as the food were perceived to delay the episiotomy or cesarean surgery wound healing leading to lack of good nutritional intake during postnatal care. Mothers were to limit the amount of water to drink because it would make their babies have a cold. They equally embraced use of traditional medicine and drinking herbs to improve production of milk. This in turn influenced the midwives implementation of TPNC as cultures equally undid most of the recommended counselling on feeding practices. Otunga et al (2017) a study in Bungoma also reports the same, in his study 57.3% of the study population reported that after delivery a mother and her newborn were to stay indoors for specified period of time before being allowed out.

5.5 Facility Factors Influencing Midwifes TPNC Performance

This study showed that percentage capacity for PNC equipment's, drugs and supplies showed a significant positive association implying that higher capacity for PNC equipment, drugs and supplies within the facility is linked to increased midwives implementation of TPNC. This result corresponds with that of Mutabi *et al.,* 2024 which reported that lack or insufficient drugs and supplies and equipment's, had significant influence on the quality of care provided to mothers and their babies. This demotivates staff and clients too as too much time is wasted and equally becomes expensive as clients are expected either to buy whatever is missing or they are referred elsewhere for care. It also agrees with Sialubanje et al (2023), reported that stock outs of essential medicines, supplies and equipment, staffing constraints and

non-availability of functional referral services affected implementation of quality PNC interventions. Likewise in this current study it was learnt that capacity for essential laboratory tests showed a significant positive association. This implies that greater capacity for essential laboratory tests correlates with higher levels of midwives' implementation of TPNC. Percentage total number of midwives offering service showed a significant association, thus indicating that having a higher number of midwives offering TPNC is associated with a significant increase in implementation of TPNC. These findings go in line with findings from a review study in LMICs by Munabi *et al.,* (2024) where shortages of staff were seen to be a major problem by increasing workloads and interfered with midwives' implementation of TPNC interventions many clients few midwifes and therefore no much quality time is available to implement accordingly. Referring to the postnatal care guidelines was associated with a significant increase in implementation of TPNC (B:3.53, 95% CI: 1.21 - 5.85, t=3.01, P= 0.003.) Munabi *et al.,* (2024) agrees with this study he reports in his review that where guidelines and protocols were lacking or were inconsistent, maternal and newborn care and outcomes could be compromised. Support, supervision and feedback to midwives significantly enhanced implementation of TPNC as per the guidelines. This result agrees with (Khatri, *et al.,*2021), it was reported that supervised staff conform to guidelines unlike the unsupervised staff. High workload and space inadequacy had no significant influence on midwifes TPNC performance in the current study. The study disagrees with Yevoo *et al.,* (2020) where midwives expressed their concerns on staff to patient ratios that their numbers were not commensurate with the patient load which made it hard for them to provide care. Equally Munabi et al 2024 disagrees with these findings by reporting that heavy workloads compromise quality of care. During a TPNC check

all the interventions need to be performed both to mother and baby but with heavy workloads midwives have limited time for performing all the interventions and sometimes omit other aspects to examine only those suspected to have a complication. Like in the current study complete physical exam was poorly done across the visits (2-4 weeks maternal was at 46.88%, newborn at 40%, 4-6 weeks maternal was at 38.13%, newborn at 31.25%, 4-6 months maternal was at 27.50%, newborn at 24.38%). This could be associated with the issue of shortage of staff and high workload. As seen in this current study it was reported that space inadequacy had no significance influence on TPNC performance, Munabi *et al.,* (2024) disagrees as he reports that Lack of space compromised women's privacy and dignity during examinations and counselling interventions. This makes it difficult for both midwife and client, the midwife won't be able to carry out the recommended examinations like complete physical examinations and the client won't be able to share all the private information during counselling. These findings agree with WHO (2022) which emphasizes that quality in healthcare is influenced by factors related to the healthcare system like physical infrastructure, human resources, knowledge, skills and capacity to deal with both normal pregnancies and complications that require prompt, life-saving interventions.

CHAPTER SIX

CONCLUSIONS AND RECCOMENDATIONS

6.1 Overview

This chapter presents the overall conclusions of the study drawn from the findings. The chapter further proposes recommendations to enhance midwives implementation of TPNC. The strengths and contributions of the study are also outlined together with possible areas of future research in relation to implementation of TPNC.

6.2 Conclusions

The research objectives that the study sought to answer were as follows;

6.2.1 Implementation Level of TPNC

The implementation level of TPNC intervention was suboptimal across the postnatal visits, at 54%. Most interventions were done on the first visit, at 66%, while the least was done on the second, at 47%. Implementation significantly decreased between the first and second visits and increased significantly from the second to third visits. Thereafter, the differences were insignificant.

6.2.2 Midwife Factors

On midwife factors influencing implementation of TPNC, the study found no significant influence as indicated by their p-values, which were all greater than the threshold of 0.05. Therefore, these factors may not be significant predictors of TPNC implementation in this context.

6.2.3 Maternal Factors

Maternal related factors like period after delivery($p<0.0001$), Mother coming back for review as per scheduled visit ($p<0.0001$), cultural beliefs ($p <0.012$) and feedback on baby's health($p<0.012$) significantly influence implementation of TPNC.

6.2.4 Facility Factors

Facility factors like equipment's ($p<0.026$), Laboratory tests ($p<0.014$), number of midwives implementing TPNC ($p< 0.001$), support supervision ($p<0.003$) significantly influence implementation of TPNC

6.3 Recommendations

- Ministry of health to make considerations to make all the four visits convenient for mothers. Implementation of TPNC interventions is well initiated and continued after a skilled delivery in the facility and thus need to encourage hospital delivery. Equally embrace community midwifery especially for second visit to ensure that mothers do not miss on these important interventions. The third and fourth visit could be more comprehensive if a room and staff could be allocated to postnatal care and not assumed as a family planning room.
- There is need for further research on midwife factors influencing Implementation of TPNC on a wider scope to conclusively understand their associations with a bigger sample size.
- Mothers' ought to be given health talks on the importance of TPNC across the all the four visits right from community to facility levels. They should be encouraged to discuss issues like cultural beliefs, expectations, fears that could hinder them from accessing and accepting care
- For implementation to be more comprehensive, postnatal care must be given priority on resource allocation to mitigate health facility challenges.

6.4 Proposal for future Research

From this study there is need is to include up-to level 2 facilities as majority of postnatal mothers after delivery are referred for further care at these facilities.

REFERENCES

Abuka Abebo, T., Jember Tesfaye, D.(2018) Postnatal care utilization and associated factors among women of reproductive age Group in HalabaKulito Town, Southern Ethiopia. *Arch Public Health* **76**, 9.

Adams, Y. J., & Ray, H. E. (2020). Knowledge of postpartum care and post birth warning signs among midwives in Ghana. *Birth*, *47*(4), 357-364.

Akibu, M., Tsegaye, W., Megersa, T., &Nurgi, S. (2018). Prevalence and determinants of complete postnatal care service utilization in northern Shoa, Ethiopia. *Journal of pregnancy*.

Alharqi, H. M., &Albattawi, J. A. (2018). Assessment of knowledge and attitude of women towards postpartum exercise. *IOSR Journal of Nursing and Health Science*, *7*(1), 16-20.

Ameh, C. A., Mdegela, M., White, S., & van den Broek, N. (2019). The effectiveness of training in emergency obstetric care: a systematic literature review. *Health policy and planning*, *34*(4), 257-270.

Andriantsimietry, S. H., Rakotovao, J. P., Ramiandrison, E., Razakariasy, M. E. R., Rakotomanga, R., Favero, R., ... & Bazant, E. (2016). Service availability and readiness assessment of maternal, newborn and child health services at public health facilities in Madagascar. *African journal of reproductive health*, *20*(3), 149-158.

Angelina, J. A., Kibusi, S. M., &Mwampagatwa, I. (2019). Factors influencing nurses' knowledge and skills in the prevention and management of postpartum haemorrhage. *African Journal of Midwifery and Women's Health*, *13*(4).

Angore, B. N., Tufa, E. G., &Bisetegen, F. S. (2018). Determinants of postnatal care utilization in urban community among women in Debre Birhan Town, NorthernShewa, Ethiopia. *Journal of Health, Population and Nutrition*, *37*, 1-9.

Bala, E. T., & Roets, L. (2022). Challenges in postnatal care provision in Ethiopia. *Frontiers in Public Health*, *10*.

Chowdhury, A. I., Habib, M. A., & Rahman, T. (2022). Factors Influencing the Utilization of Antenatal Care, Institutional Delivery, and Postnatal Care Services Among Women in Bangladesh. *Makara Journal of Health Research*, *26*(3), 1.

de Freitas, L. M., Bø, K., Fernandes, A. C. N. L., Uechi, N., Duarte, T. B., & Ferreira, C. H. J. (2019). Pelvic floor muscle knowledge and relationship with muscle strength in Brazilian women: a cross-sectional study. *International urogynecology journal*, *30*(11), 1903-1909.

Dona A, Tulicha T, Arsicha A, Dabaro D.(2022). Factors influencing utilization of early postnatal care services among postpartum women in Yirgalem town, Sidama Regional State, Ethiopia. SAGE Open Med.Mar 21;10:20503121221088098. doi: 10.1177/20503121221088098. PMID: 35342635; PMCID: PMC8943538.

Elhabashy, M. M. I., & Hafez, S. K (2019) Nurses' compliance with guidelines for the reduction of postpartum hemorrhage.

factors among women of reproductive age Group in HalabaKulito Town, Southern Ethiopia. *Arch Public Health* **76**, 9.

Fekadu, G. A., Kassa, G. M., Berhe, A. K., Muche, A. A., &Katiso, N. A. (2018). Theeffect of antenatal care on use of institutional delivery service and postnatal care in Ethiopia: a systematic review and meta-analysis. *BMC health services research*, *18*(1), 1-11.

Gitobu, C. M., Gichangi, P. B., & Mwanda, W. O. (2018). The effect of Kenya's free maternal health care policy on the utilization of health facility delivery services and maternal and neonatal mortality in public health facilities. *BMC pregnancy and childbirth*, *18*, 1-11.

Goshu, M, Godefay, H, Bihonegn, F, Ayalew, F, Haileselassie D, Kebede, A, (2018). Assessing the competence of midwives to provide care during labor, childbirth and the immediate postpartum period– A cross-sectional study in Tigray region, Ethiopia. PLoSONE 13(10):e0206414.

Habte, A., Gebiremeskel, F., Shewangizaw, M., Dessu, S., &Glagn, M. (2021). Uptake of complete postnatal care services and its determinants among rural women in Southern Ethiopia: Community-based cross-sectional study based on the current WHO recommendation. *PloS one*, *16*(2), e0246243.

Haftu, A., Hagos, H., & Mehari, M. A. (2018). Health care providers' adherence to immediate postpartum care guideline and associated factors among women who gave birth in Mekele public teaching hospitals, Tigray 2018. *BMC Research Notes*, *11*(1), 1-5.

Igboanusi, C. J. C., Sabitu, K., Nmadu, A. G., Joshua, I. A., & Gobir, A. A. (2020). A comparative study on the availability of postnatal care services in primary health-care facilities in urban and rural settlements in Kaduna State, Nigeria. *Nigerian Journal of Experimental and Clinical Biosciences*, *8*(1), 44-51.

Impwii, D. K., Kivuti-Bitok, L., & Karani, A. (2023). Adherence to labor and delivery care quality standards and associated factors among nurse-midwives in two public teaching and referral hospitals in Kenya: a cross-sectional survey. *The Pan African Medical Journal*, *45*.

Iqbal, S., Maqsood, S., Zakar, R., Zakar, M. Z., & Fischer, F. (2017). Continuum of care in maternal, newborn and child health in Pakistan: analysis of trends and determinants from 2006 to 2012. *BMC health services research*, *17*(1), 1-15.

Kawuki J, Gatasi G, Sserwanja Q. Prevalence of adequate postnatal care and associated factors in Rwanda: evidence from the Rwanda demographic health survey 2020. Arch Public Health. 2022 Sep 16;80(1):208. doi: 10.1186/s13690-022-00964-6. PMID: 36114556; PMCID: PMC9482265.

Kebede AA, Taye BT, Wondie KY, Tiguh AE, Eriku GA, Mihret MS (2021) Healthcare provider's adherence to immediate postpartum care guidelines in Gondar province hospitals, northwest Ethiopia: A multicenter study. PLoS ONE 16(10): e0259263.

Kemei, J., &Etowa, J. (2021). 'it Is Beyond Our Reach': Policies and Infrastructure Influencing Postpartum Care in Rural Kenya.

Kene, C., Tekalegn, Y., Dibaba, D., Abdella, M., Fikadu, G., Atlaw, D., ... &Tasew, A. (2022). Level of Women-friendly Care Provision Among Mothers in Immediate Post-delivery Period at Public Hospitals of Southeast Ethiopia: a Cross-sectional Study.

Kenya health Information System (KHIS, 2021). Maternal and newborn indicators.

Kenya Health Information System (KHIS, 2022). Maternal and newborn Indicators.

Kenya National Bureau of Statistics (2019) Kenya National Census Report. Nairobi Kenya.

Kenya National Bureau of Statistics. (2022). Kenya Demographic and Health Survey. Key Indicators Report. Nairobi, Kenya. Available at: https://dhsprogram.com/pubs/pdf/PR143/PR143.pdf.

Khader, Y. S., Alyahya, M. S., Al-Sheyab, N. A., Shattnawi, K. K., Saqer, H. R., & Batieha, A. (2018). Evaluation of maternal and newborn health services in Jordan. *Journal of multidisciplinary healthcare*, *11*, 439.

Khatri RB, Durham J, Karkee R, Assefa Y (2022). High coverage but low quality of maternal and newborn health services in the coverage cascade: who is benefitted and left behind in accessing better quality health services in Nepal? Reprod Health.Jul 19;19(1):163. doi: 10.1186/s12978-022-01465-z. PMID: 35854265; PMCID: PMC9297647

Khatri, R. B., Durham, J., & Assefa, Y. (2021). Utilisation of quality antenatal, delivery and postnatal care services in Nepal: An analysis of Service Provision Assessment. *Globalization and Health*, *17*(1), 1-16.

Kikuchi K, Yasuoka J, Nanishi K, Ahmed A, Nohara Y, Nishikitani M, et al. (2018) Postnatal care could be the key to improving the continuum of care in maternal and child health in Ratanakiri, Cambodia. PLoS ONE 13(6): e0198829. https://doi.org/10.1371/journal.pone.0198829

Kiragu, C., Osero, J. S., &Wanyoro, A. K. (2021). Factors influencing women's knowledge at scheduled postnatal visits: a multi-centre study in Kakamega, Kenya. *African Journal of Midwifery and Women's Health*, *15*(4), 1-8.

Kisakye, A. N., Muhumuza Kananura, R., Ekirapa-Kiracho, E., Bua, J., Akulume, M., Namazzi, G., & Namusoke Kiwanuka, S. (2017). Effect of support supervision on maternal and newborn health services and practices in Rural Eastern Uganda. *Global health action*, *10*(sup4), 13454

Kruk, M. E., Gage, A. D., Joseph, N. T., Danaei, G., García-Saisó, S., & Salomon, J. A. (2018). Mortality due to low-quality health systems in the universal health coverage era: a systematic analysis of amenable deaths in 137 countries. *The Lancet*, *392*(10160), 2203-2212.

Lama, T. P., Munos, M. K., Katz, J., Khatry, S. K., LeClerq, S. C., & Mullany, L. C. (2020). Assessment of facility and health worker readiness to provide quality antenatal, intrapartum and postpartum care in rural Southern Nepal. *BMC health services research*, *20*(1), 1-12.

LoPorto, J. (2020). Application of the Donabedian quality-of-care model to New York state direct support professional core competencies: How structure, process, and outcomes impacts disability services. *Journal of Social Change*, *12*(1), 5.

Masaba, B. B., & Mmusi-Phetoe, R. M. (2020). Free maternal health care policy in Kenya; level of utilization and barriers. *International Journal of Africa Nursing Sciences*, *13*, 100234.

Matsui M, Saito Y, Po R, Taing B, Nhek C, Tung R, Masaki Y, Iwamoto A. Knowledge on intrapartum care practices among skilled birth attendants in Cambodia-a cross-sectional study. Reprod Health. 2021 Jun 9;18(1):115. doi: 10.1186/s12978-021-01166-z. PMID: 34108001; PMCID: PMC8191061.

Mayieka, N. O. (2019). *Factors Influencing Utilization of Postnatal Care Services among Women of reproductive Age Attending Child Welfare Clinic at Kisii Teaching and Referral Hospital-Kenya* (Doctoral dissertation, JKUAT-COHES).

Ministry of Health, Republic of Kenya (2016). Healthy mothers and newborns: Guidelines for postnatal care. Division of Family https://familyhealth.go.ke/wp Health. Available at: content/uploads/2018/02/Guidelines-for-postnatal-care-tomothers-and-newborns-2016-18-12-2016B.pdf

Muchiri, D. W. (2015). *Adherence to ministry of health guidelines in management of severe preeclampsia at Pumwani maternity Hospital, Nairobi, Kenya* (Doctoral dissertation, University of Nairobi).

Munabi-Babigumira, S., Glenton, C., Lewin, S., Fretheim, A., &Nabudere, H. (2017). Factors that influence the provision of intrapartum and postnatal care by skilled birth attendants in low-and middle-income countries: a qualitative evidence synthesis. *Cochrane Database of Systematic Reviews*, (11).

Muriuki, A., Yahner, M., Kiragu, M., de Graft-Johnson, J., &Izulla, P. (2022). On the road to universal coverage of postnatal care: considerations for a targeted postnatal care approach for at-risk mother–baby dyads in low-income and middle-income countries informed by a consultation with global experts. *BMJ open*, *12*(6), e058408.

Namutebi, M., Nalwadda, G. K., Kasasa, S., Muwanguzi, P. A., Ndikuno, C. K., & Kaye, D. K. (2023). Readiness of rural health facilities to provide immediate postpartum care in Uganda. *BMC Health Services Research*, *23*(1), 1-16.

Ndayambaje, A., Wong, R., Logan, J., & Kirk, C. (2020). Assessing Adherence to the World Health Organization's Essential Newborn Care Guidelines amongst the Midwives in a District Hospital in Rwanda: A Descriptive study. *Rwanda Medical Journal*, *77*(3), 33-38.

Nimako K, Gage A, Benski C, Roder-DeWan S, Ali K, Kandie C, Mohamed A, Odeny H, Oloo M, Otieno JTB, Wanzala M, Okumu R, Kruk ME. Health System Redesign to Shift to Hospital Delivery for Maternal and Newborn Survival: Feasibility Assessment in Kakamega County, Kenya. Glob Health Sci Pract. 2021 Dec 21;9(4):1000-1010. doi: 10.9745/GHSP-D-20-00684. PMID: 34933993; PMCID: PMC8691889.

Nuna T. (2023) Addressing maternal mortality and morbidity in Kenya, NAYA

Nyagah, A. N. (2020). *Quality of Postnatal Care Among Mothers Within 24-48 Hours of Delivery in Postnatal Wards at Machakos County Referral Hospital, Kenya* (Doctoral dissertation, University of Nairobi).

Odetola, T. D., &Fakorede, E. O. (2018). Assessment of perinatal care satisfaction amongst mothers attending postnatal care in Ibadan, Nigeria. *Annals of global health*, *84*(1), 36.

Okonofua, F., Ntoimo, L. F. C., Ogu, R., Galadanci, H., Gana, M., Adetoye, D., ... & Omo- Omorodion, B. I. (2019). Assessing the knowledge and skills on emergency obstetric care among health providers: Implications for health systems strengthening in Nigeria. *PLoS One*, *14*(4), e0213719.

Otunga, C. L., Mathenge, S. G., &Ongecha, F. A. O. (2017). Assessment of utilization of postpartum care services among women in Webuye West, Bungoma County, Kenya. *East African Medical Journal*, *94*(10), 826-845.

Perera UAP, Assefa Y, Amilani U. Postnatal care coverage and its determinants in Sri Lanka: analysis of the 2016 demographic and health survey. BMC PregnancyChildbirth. 2021 Apr 13;21(1):299. doi:10.1186/s12884-021-03770-0.

Phiri, T., & Bhengu, B. R. (2023). The knowledge and practice of nurse midwives concerning the provision of postnatal care at primary health care facilities in Lilongwe District, Malawi. *African Journal for Physical Activity and Health Sciences (AJPHES)*, *29*(2), 160-175.

Pindani, M., Phiri, C., Chikazinga, W., Chilinda, I., Botha, J., &Chorwe-Sungani, G. (2020). Assessing the quality of postnatal care offered to mothers and babies by midwives in Lilongwe District. *South African Family Practice*, *62*(3).

Poloju, Kiran & Naidu, Vikas Rao &Rollakanti, Chiranjeevi &Manchiryal, Ram & Joe, Adams. (2022). New Method Of Data Collection Using The Kobo Toolbox 1. *The Journal of Positive Psychology*. 6. 1527-1535.

Probandari, A., Arcita, A., Kothijah, K., &Pamungkasari, E. P. (2017). Barriers to utilization of postnatal care at village level in Klaten district, central Java Province, Indonesia. *BMC health services research*, *17*(1), 1-9.

Sacks E, Finlayson K, Brizuela V, Crossland N, Ziegler D, Sauve´ C, et al. (2022) Factors that influence uptake of routine postnatal care: Findings on women's perspectives from a qualitative evidence synthesis. PLoS ONE 17(8): e0270264. https://doi.org/10.1371/journal. pone.0270264

Sacks, E., & Langlois, É. V. (2016). Postnatal care: increasing coverage, equity, and quality. *The Lancet Global Health*, *4*(7), e442-e443. centers in Addis Ababa, Ethiopia, 2016. *Prevalence*, *26*.

Sakala, B. (2019). An evidence-based policy brief: improving the quality of postnatal care in mothers 48 hours after childbirth. *Malawi Medical Journal*, *31*(2), 164- 168.

Shikuku, D. N., Nyaoke, I., Maina, O., Eyinda, M., Gichuru, S., Nyaga, L., ... & Ameh, C. (2022). The determinants of staff retention after Emergency Obstetrics and Newborn Care training in Kenya: a cross-sectional study. *BMC Health Services Research*, *22*(1), 1-10.

Sialubanje, C., Kaiser, J. L., Ngoma, T., Mwananyanda, L., Fong, R. M., Hamer, D. H., & Scott, N. A. (2023). Postnatal care services in rural Zambia: a qualitative exploration of user, provider, and community perspectives on quality of care. *BMC Pregnancy and Childbirth*, *23*(1), 39.

Somefun, O. D., &Ibisomi, L. (2016). Determinants of postnatal care non-utilization among women in Nigeria. *BMC research notes*, *9*, 1-11.

Sumankuuro, J., Crockett, J., & Wang, S. (2018). Perceived barriers to maternal and newborn health services delivery: a qualitative study of health workers and community members in low and middle-income settings. *BMJ open*, *8*(11), e021223.

Tessema, Z. T., Yazachew, L., Tesema, G. A., &Teshale, A. B. (2020). Determinants of postnatal care utilization in sub-Saharan Africa: a meta and multilevel analysis of data from 36 sub-Saharan countries. *Italian journal of pediatrics*, *46*(1), 1-11.

Thapa S, Choudhary P, Adhikari R, Thapa K. Factors Associated with Utilization of Postnatal Care Services. J Nepal Health Res Counc. 2023 Jul 20;20(4):886-892. doi: 10.33314/jnhrc.v20i4.4236. PMID: 37489672.

Tikkanen, R., Gunja, M. Z., FitzGerald, M., & Zephyrin, L. (2020). Maternal mortality and maternity care in the United States compared to 10 other developed countries. *The Commonwealth Fund*, *10*.

Tiruneh GT, Worku A, Berhane Y, Betemariam W, Demissie M. Determinants of postnatal care utilization in Ethiopia: a multilevel analysis. BMC Pregnancy Childbirth. 2020 Sep 21;20(1):549.

Weldearegay, H. G., Kahsay, A. B., Medhanyie, A. A., Godefay, H., &Petrucka, P. (2020). Quality of and barriers to routine childbirth care signal functions in primary level facilities of Tigray, Northern Ethiopia: Mixed method study. *PloS one*, *15*(6), e0234318.

Woiski, M. D., van Vugt, H. C., Dijkman, A., Grol, R. P., Marcus, A., Middeldorp, J. M., ... & Hermens, R. P. (2016). From postpartum haemorrhage guideline to local protocol: a study of protocol quality. *Maternal and child health journal*, *20*(10), 2160-2168.

World health organization (2016). Standard for improving quality of maternal and newborn care in health facilities.

World Health Organization. (2022). *WHO recommendations on maternal and newborn care for a positive postnatal experience*. World Health Organization.

World health organization. (2023) Maternal mortality.

Wulan R., (2021. The Affecting Factors of Implementation of Expanding Maternal and Neonatal Survival Program by the Ministry of Health of the Republic of Indonesia in Determining Midwifery in Kebumen, Central Java, Indonesia.BIS-HSS EAI DOI: 10.4108/eai.18-11-2020.2311621

Yevoo, L. L., Agyepong, I. A., Gerrits, T., & van Dijk, H. (2020). Improvisation and harm avoidance: an ethnographic study of adherence to postnatal care protocols in two hospitals in Southern Ghana. *Midwifery*, *82*, 102576.

Zeleke, L. B., Wondie, A. T., Tibebu, M. A., Alemu, A. A., Tessema, M. T., Shita, N. G., &Khajehei, M. (2021). Postnatal care service utilization and its determinants in East Gojjam Zone, Northwest Ethiopia: A mixed-method study. *Plos one*, *16*(8), e0256176.

Zhao, S., Zhang, Y., Xiao, A. Y., He, Q., & Tang, K. (2023). Key factors associated with quality of postnatal care: A pooled analysis of 23 countries. *EClinicalMedicine*, *62*.

APPENDICES

Appendix I: Informed Consent Form

The title of the study: IMPLEMENTATION OF TARGETED POSTNATAL CARE AND ITS ASSOCIATED FACTORS AMONG MIDWIVES IN SELECTED HEALTH FACILITIES IN KAKAMEGA COUNTY, KENYA

Name of Principal Investigator: Ruth Shitabuleemail address: rushim2005@yahoo.com Phone number: +254723 373 475

The purpose of the Study: I am a student at Masinde Muliro University of Science and Technology (MMUST) doing a Master of Advanced Nursing Practice. I am conducting a study on the above title in partial fulfillment of a Degree in Master of Science in Advanced Nursing Practice (Midwifery)

Procedure: You will be requested to fill the questionnaire given to you as honest as you can. You are required to relax and feel free to ask any clarifications on the questions.

Risks: There are no risks involved for participating in this study

Benefits: There are no direct benefits from this study since it is purely for academic purposes. However, the findings will be shared to MMUST, Ministry of Health, Kisii County Department of health and to the community of health professionals to inform policy changes regarding to patient safety in ORs.

Confidentiality: Information on personal identifies will be avoided and the information will be limited to the study only

Voluntary participation: You have been chosen to participate in this study, your participation and honest information in the study will be most appreciated. Your participation will be purely voluntary and you are allowed to withdraw your consent at any point of the study. Equal rights and opportunity will be given to those who consent to participate in the study.

Participant acknowledgement: I hereby consent to be a participant in the aforementioned research survey. All the details I have read is well understood.

Participant Signature: …… Date: …….

Investigator Signature: …… Date: …….

Thank you for agreeing to participate in this study

Appendix II: Midwife Questionnaire

No	Questions	Answer	Codes
	Personal and Demographic information		
1	How old are you	----------	
2	Gender	Male Female	1 2
3	Level of training	Certificate Diploma Degree Masters PhD	1 2 3 4 5
4	Have you had EmONC training	Yes No	1 2
5	Years worked as a midwife	Years….. Months…….	
	Performance of TPNC interventions (Tick the responses)		
6	What advice does the midwife need to give the mother immediately after delivery	Often palpate the uterus Keep emptying the bladder Report excess bleeding Keep baby on breast No right response	1 2 3 4 5
7	What are the key vitals taken and their frequency taken immediately after delivery	Temperature 4hrly Pulse 4 hrly Respiration 4hrly BP 4hrly No right response	1 2 3 4 5
8	What key health messages are given to postnatal mother.	Maternal danger signs Newborn danger signs Hygiene PPFP Nutrition HIV testing No right response	1 2 3 4 5 6 7
9	What care is given to the newborn immediately after births	Keep baby warm Put baby on breast Take weigh Apply TEO Apply CHX Do full physical examination Give immunizations No right response	1 2 3 4 5 6 7 8
10	What key messages are given to	EBF	1

	the mother on newborn care	Keep baby warm Cord care No right response	2 3 4
11	What nursing care is given to the mother by 2-4 weeks PNC visit	Taking vital signs Complete physical examination Assessing for lochia loss Ask HIV status Offer FP choices Do mental status assessment No right response	1 2 3 4 5 6 7
12	What nursing care is given to infant during the 2-4weeks PNC visit	Do complete physical examination Take weight Assess danger signs Asses and observe baby breastfeed No right response	1 2 3 4 5
13	What nursing care is given to mother during 4-6 weeks PNC visit	Do complete physical examination Take vital signs Offer FP choices Encourage EBF Offer cancer of the cervix/STI screening Repeat HIV testing for previously HIV neg Clients No right response	1 2 3 4 5 6 7
14	What nursing care is given to infant during the 4-6 weeks PNC visit	Do complete physical exam Take weight and height Assess milestones development Give immunizations No right response	1 2 3 4 5
15	What nursing care is given to mother at 4-6 months PNC visit	Do complete physical examination Take vitals Counsel on complimentary feeding Counsel to continue BF Asses general health of the mother No right response	1 2 4 5 6

16	What nursing care is given to the infant at 4-6 months PNV visit	Assess immunization status Take weight and height Do complete physical examination Asses danger signs No right response	1 2 3 4
17	Referral to PNC protocols is necessary when offering service (1 = strongly agree, 5 = strongly disagree)	Strongly agree Agree Neutral Disagree Strongly disagree	1 2 3 4 5
	Midwifes perception of facility factors		
18	How is the adequacy/frequency and real time feed of the support supervision (1 = excellent 4=Poor)	Excellent Good Fair Poor	1 2 3 4
19	How is the availability of all that is needed to enable midwives perform TPNC interventions at the facility (1 = excellent 4=Poor)	Excellent Good Fair Poor	1 2 3 4
20	As per the TPNC services at this facility what are the patients /client's outcome (1 = excellent 4=Poor)	Excellent Good Fair Poor	1 2 3 4
21	What are the challenges for TPNC service provision at this facility	Staff shortage Supplies shortage Equipment inadequacy High workload Space	1 2 3 4 5

SECTION 2. CLIENT EXIT QUESTIONNAIRE

No	Questions	Answers	
	Personal/Demographic information		
	Date of interview	----------	
	How old are you	----------	
	Level of education	Primary Secondary College University None	1 2 3 4
	Marital status	Single Married Widowed	1 2 3

		Cohabiting	4
	Number of previous births	----------	
	Date of delivery	----------	
	Mode of delivery	Normal Assisted Caesarian section	1 2 3
	Place of delivery	Facility Home	1 2
	Period after delivery	Less than 48 hours 2-4 Weeks 4-6 weeks 4-6 months	1 2 3 4
	Has the mother come as per the scheduled PNC visit	Yes No	1 2
	Occupation	Employed Business Farmer Housewife None	1 2 3 4 5
	What is the main source of information on PNC	Radio TV Newspaper Health worker Family and friend CHP	1 2 3 4 5 6
	Distance to health facility	Less than 30 minutes More than 30 minutes	1 2
	Monthly household income bracket	Less than KES 5,000 KES 5000-10000 KES 10,000-20,0000 More than 20,0000	1 2 3 4
	On scale of 1-5. How confident are you I your ability to understand and follow postnatal care instructions? (1= not confident, 5 =very confident)	Not confident Somewhat not confident Neutral Somewhat confident Very confident	1 2 3 4 5
	Are there any cultural beliefs or practices that influence your decision regarding PNC	Yes No	1 2
	On scale of 1 to 5 , how do cultural beliefs/practices affect	Strongly Negative Impact Somewhat negative impact Neutral	1 2 3

	you're ability to utilize PNC	Somewhat positive impact Strongly positive impact	4 5
	TPNC interventions received at 48 hr Check		2
	Did the midwife keep checking your uterus by palpating the abdomen	Yes No	1 2
	Were you told to keep emptying bladder and report excess bleeding	Yes No	1 2
	Were your vitals taken, if yes select all that were taken	Temperature Pulse Respiration BP None	1 2 3 4 5
	Were you explained to PNC maternal danger signs	Yes No	1 2
	Were you explained to PNC newborn dangers signs	Yes No	1 2
	What advice were you given on newborn care	Checking for danger signs and report. Keeping baby warm Breast feeding Maintaining hygiene HIV testing None	1 2 3 4 5 6 7
	What interventions were done for the newborn	Weighing Exposed and examined CHX put on cord TEO put in eyes Temperature checks None	1 2 3 4 5 6
	TPNC interventions received at MCH PNC clinic		
	Respond to all that apply concerning the PNC intervention you received during the current visit	Consent for examination Done complete Physical examination (Breast examination Taught self-breast examination Abdominal palpation Pelvic examination) Vitals taken Offered FP options Given information on	1 2 3 4 5

		hygiene Given information on nutrition Given information on BF Given information on breast attachment.	6 7 8
	Respond to all that apply concerning The PNC interventions given to your baby during the current visit	Complete physical examination Vitals taken Heith taken Weight taken Immunizations given	1 2 3 4 5
	On scale of 1-5 rate the feedback you were given during the current visit on your health (1 = very satisfied, 6 =very dissatisfied)	Very satisfied satisfied Somewhat satisfied Somewhat dissatisfied Dissatisfied Very dissatisfied	1 2 3 4 5 6
	On scale of 1-5 rate the feedback you were given during the current visit on your baby's health (1 = very satisfied, 6 =very dissatisfied)	Very satisfied satisfied Somewhat satisfied Somewhat dissatisfied Dissatisfied Very dissatisfied	1 2 3 4 5 6
	Rate how important you think PNC is	Not important Slightly important Moderately important Very important Extremely important	1 2 3 4 5
	How satisfied are you with the availability of TPNC services at this your facility	Very satisfied Somewhat satisfied Neutral Somewhat dissatisfied Very dissatisfied	1 2 3 4 5

Appendix III: KII Questionnaire

No.	Question	Codes variables	
1	What is your position in management	Med Supt Facility In-charge Maternity In-charge MCH In-charge	1 2 3 4
2	How many midwifes are available for PNC services(maternity/MCH)	----------	
3	How many postnatal clients do you receive at this facility per day	----------	
4	Is there a dedicated budget allocated for postnatal services at this facility	Yes No	1 2
5	Are there current MOH PNC protocols at service delivery points	Yes No	1 2
6	To what extend do healthcare providers adhere to the protocols	Poor Fair Neutral Good Excellent	1 2 3 4 5
7	How would you rate the readiness of the facility to handle postnatal complications promptly (1 =Ready, 5 =Highly ready)	Not ready Somewhat not ready Neutral Somewhat ready Highly ready	1 2 3 4 5
8	Are midwifes offered ongoing training and professional development opportunities for PNC	Yes No	1 2
9	How often do health providers attend training or updates related to PNC	Regularly Occasionally Rarely	1 2 3

Medicine, Supplies and equipment's

No.	Question	Codes	
		Y	N
1	The health facility has functioning essential equipment and supplies for the detection of complications • Thermometers, • Sphygmomanometers, • Fetal stethoscopes, • Urine dipsticks, • Pulse oximeter		

2	The health facility has sufficient supplies of • Antihypertensive agents • Magnesium sulfate • Uterotonic drugs • Syringes and needles, • Infusion sets, • Intravenous fluid solutions • Blood		
4	The health facility has essential laboratory supplies and tests • Blood glucose, • Hemoglobin or packed cell volume, • Blood group and cross-matching, • Urine protein, • Full blood count,		
5	The health facility has • Delivery beds, • Vacuum forceps, • Incubators, • Weighing machine, • Sterile and clean gloves		
6	The health facility has supplies and functioning equipment for the emergency care and resuscitation of women • Well-stocked resuscitation trolley, • Suction device, • Pulse oximeter, • Airways, • Laryngoscope, • Endotracheal tubes, • Adult bag valve masks,		
7	The health facility has • A safe, uninterrupted oxygen source • Nasal prongs, • Catheters and masks		
8	The health facility has an on-site pharmacy and a medicine and supplies stock management system managed by a trained pharmacist or dispenser		
9	The health facility has a dedicated budget for essential medicines, equipment (and its maintenance) and medical supplies for maternal and newborn care.		
10	The facility has a well-coordinated and responsive referral mechanisms		

Appendix IV: Approval Letter from DPS

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

Tel: 056-30870
Fax: 056-30153
E-mail: directordps@mmust.ac.ke
Website: www.mmust.ac.ke

P.O Box 190
Kakamega – 50100
Kenya

Directorate of Postgraduate Studies

Ref: MMU/COR: 509099

7TH September 2023

Ruth Shitabule
MMUST
P.O. Box 190-50100,
KAKAMEGA.

Dear Ms. Shitabule

RE: APPROVAL OF PROPOSAL

I am pleased to inform you that the Directorate of Postgraduate Studies has considered and approved your Masters Proposal entitled: ***"Implementation of Targeted Postnatal Care in Selected Health Facilities in Kakamega County, Kenya "*** and appointed the following as supervisors:

1. Prof. Lt.Col(Rtd) John M. Okoth - MMUST
2. Dr. Everlyne Morema - MMUST

You are required to submit through your supervisor(s) progress reports every three months to the Director of Postgraduate Studies. Such reports should be copied to the following: Chairman, School of Nursing & Midwifery Graduate Studies Committee and Chairman, Department of Reproductive Health, Midwifery and Child Health, Education and Management and Graduate Studies Committee. Kindly adhere to research ethics consideration in conducting research.

It is the policy and regulations of the University that you observe a deadline of two years from the date of registration to complete your Master's thesis. Do not hesitate to consult this office in case of any problem encountered in the course of your work.

We wish you the best in your research and hope the study will make original contribution to knowledge.

Yours Sincerely,

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY DIRECTORATE OF POSTGRADUATE STUDIES P.O. Box 190-50100, KAKAMEGA (K)

Date..... Signature.....

Prof. Stephen O. Odebero, PhD, FIEEP
DIRECTOR, DIRECTORATE OF POSTGRADUATE STUDIES

Appendix V: Approval Letter from IERC

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY

Tel: 056-31375
Fax: 056-30153
E-mail: ierc@mmust.ac.ke
Website: www.mmust.ac.ke

P. O. Box 190,
50100.
Kakamega,
KENYA

Institutional Scientific and Ethics Review Committee (ISERC)

REF: MMU/COR: 403012 Vol 6 (01)

Date: September 06th, 2023

To: Ms. Ruth Shitabule,

Dear Ms.

RE IMPLEMENTATION OF TARGETED POSTNATAL CARE IN SELECTED HEALTH FACILITIES IN KAKAMEGA COUNTY, KENYA.

This is to inform you that the ***Masinde Muliro University of Science and Technology Institutional Scientific and Ethics Review Committee (MMUST-ISERC)*** has reviewed and approved your above research proposal. Your application approval number is **MMUST/IERC/183/2023.** The approval covers for the period ***September*** 06th, ***2023 to September*** 06th, ***2024.***

This approval is subject to compliance with the following requirements;

i. Only approved documents including informed consents, study instruments, MTA will be used.
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by ***MMUST-ISERC.***
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to ***MMUST-ISERC*** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to ***MMUST-ISERC*** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to ***MMUST-ISERC.***

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke and also obtain other clearances needed

Yours Sincerely,

Prof. Gordon Nguka (PhD)
Chairperson, Institutional Scientific and Ethics Review Committee

Copy to:
- The Secretary, National Bio-Ethics Committee
- Vice Chancellor
- DVC (PR&I)

Appendix VI: Nacosti Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **439389**

Date of Issue: **21/September/2023**

RESEARCH LICENSE



This is to Certify that Ms.. RUTH MAENDE SHITABULE of Masinde Muliro University of Science and Technology, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Kakamega on the topic: IMPLEMENTATION OF TARGETED POSTNATAL CARE IN SELECTED HEALTH FACILITIES IN KAKAMEGA COUNTY, KENYA for the period ending : 21/September/2024.

License No: **NACOSTI/P/23/29537**

439389

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

Appendix VII: Approval Letter from Ministry of Health Services

COUNTY GOVERNMENT OF KAKAMEGA

E-mail: wpgh15@yahoo.com
Telephone: Kakamega 0702930346
When replying, please quote:

REF: CGH/KAK/ERC/VOL.I/231

COUNTY GENERAL HOSPITAL
P.O. Box 15-G.P. O-50100
KAKAMEGA

DATE: 2ND OCTOBER, 2023

MINISTRY OF HEALTH SERVICES

Ms. RUTH MAENDE SHITABULE
REF: NACOSTI/P/23/29537

RE: RESEARCH AUTHORIZATION FOR DATA COLLECTION – NO. ERC/218-10/2023

This is to inform you that Kakamega County General Hospital Ethics Review Committee (KCGH ERC) acting on behalf of the Kakamega County Department of Health has reviewed and authorized your data collection for the protocol titled: ***"Implementation of Targeted Postnatal Care in Selected Health Facilities in Kakamega County, Kenya."*** The approval period shall expire on 21st September 2024.

This authorization is subject to compliance with the following requirements:

i. Only approved documents including informed consent, study instruments, will be used.
ii. All changes including amendments, deviations and violations are submitted for review and approval by the **KCGH ERC.**
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **KCGH ERC** within 24 hours of notification.
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety of welfare of the study participants and others or affect the integrity of the research must be reported to **KCGH ERC** within 24 hours.
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to **KCGH ERC**.
viii. Submission of quarterly progress report to the **KCGH ERC** and dissemination of preliminary findings at the end of the study is expected from the researcher

This authorization should be attached to your research license from National Commission for Science, Technology and Innovation (NACOSTI) and also other necessary clearances. Preliminary dissemination of your study findings to **KCGH ERC** is mandatory prior to publications.

COUNTY DIRECTOR HEALTH SERVICES
02 OCT 2023
Sign.....
P.O. Box 359-50100, KAKAMEGA COUNTY

12/10/2023
Office to be issued the research fees

DR. AJEVI AUSTINE
CHAIRMAN; ETHICS AND RESEARCH COMMITTEE
CGH – KAKAMEGA
Copy to: Director, Health Services

COUNTY DIRECTOR OF HEALTH SERVICES
12 OCT 2023
SIGN.....
P.O. Box 359-50100, KAKAMEGA COUNTY