

**EFFECT OF MENTORSHIP ON MIDWIVES' KNOWLEDGE AND USE OF
NON-PHARMACOLOGICAL TECHNIQUES IN MANAGING LABOUR PAINS: A
QUASI-EXPERIMENTAL STUDY IN MUKONO DISTRICT, UGANDA**

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Declaration

This is to declare that the work presented in this research report is my personal work and that it has not been submitted to any other institution of higher learning or university for any academic award. Where other people's work has been referred to, this has been acknowledged.

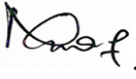
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List of Abbreviations

CEmONC	Comprehensive Emergency Obstetric and Newborn Care
CPD	Continuous Professional Development
DHO	District Health Officer
LMICs	Low- and Middle-Income Countries
MOH	Ministry of Health
NICE	National Institute for Health and Care Excellence
NPT	Non- Pharmacological Techniques
RCM	Royal College of Midwives
SPSS	Statistical Package for the Social Sciences
TBA	Traditional Birth Attendant
TENS	Transcutaneous Electrical Nerve Stimulation
TPB	Theory of Planned Behaviour
UNICEF	United Nations Children's Fund
WHO	World Health Organization

Definition of Terms

Actual Behaviour: The observable performance of the target behaviour (Ajzen,1991).

Attitudes: Beliefs about the outcomes of a behaviour (positive or negative) and the evaluation of those outcomes (Ajzen,1991).

General Hospital: a secondary-level healthcare facility that provides comprehensive curative, preventive, and rehabilitative services to a defined population, typically at the district level. General hospitals act as referral centres for lower-level health facilities (e.g., Health Centre IVs and IIIs) and serve as a critical link between primary healthcare and specialized care at regional or national referral hospitals (MOH, 2016).

Health Centre III: A level III health facility under Uganda’s public healthcare system that provides basic maternity care (antenatal, delivery, postnatal services). Staffed by midwives and nurses; lacks surgical capacity (e.g., C-sections) and has limited access to advanced pain management options (e.g., epidurals) (MOH, 2016).

Health Centre IV: A higher-level health facility than HC III, offering basic emergency obstetric care (e.g., C-sections, blood transfusion). Staffed by doctors, clinical officers, and midwives; may have slightly better access to pharmacological pain relief but still limited compared to hospitals (MOH, 2016).

Intention: The motivation or plan to engage in a behaviour, influenced by attitudes, norms, and Perceived Behavioural Control (PBC) (Ajzen,1991).

Knowledge: Awareness and understanding of non-pharmacological techniques.

Labour Pains: An intermittent, regular, rhythmic pain occurring during the process of child birth caused by cervical dilation, pressure on pelvic structures, and stretching of tissues (WHO, 2018).

Mentorship: A structured relationship where an experienced professional (mentor) guides and supports a less experienced individual (mentee) to enhance skills, knowledge, and confidence.

Non-Pharmacological Techniques (NPTs): Non-drug, evidence-based methods to alleviate labour pain through physical, psychological, or environmental interventions.

Pharmacological Techniques: Medical interventions that use drugs or medications to manage labour pain.

Perceived Behavioural Control (PBC): The perceived ease or difficulty of performing a behaviour, influenced by self-efficacy (confidence in skills) and external factors (resources, time, training) (Ajzen, 1991).

Practice: The actual application of knowledge and skills by midwives in clinical settings.

Subjective Norms: Perceived social pressure from peers, leaders, or institutions to perform (or not perform) a behaviour (Ajzen, 1991).

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Abstract

Background: Effective management of labour pains is critical in enhancing maternal satisfaction, reducing complications, and improving birth outcomes. Despite global endorsements by the World Health Organization (WHO), non-pharmacological techniques (NPTs) such as massage, positional changes, and warm/cold compresses remain underutilized in the management of labour pain in low-resource settings like Uganda. This underutilization is attributed to systemic knowledge gaps and institutional constraints.

Methodology: A quasi-experimental (pre-post intervention) design was conducted, among 46 midwives, from health Centre III, IV, and a general hospital. Participants underwent a three-month mentorship program on evidence-based NPTs, and the WHO intrapartum guidelines. Data were collected using validated questionnaires and observation checklists, and analyzed using SPSS v20. Paired t-tests were used to assess changes in knowledge, while chi-square tests evaluated associations of knowledge with demographics.

Results: Before the intervention, 58.7% of midwives demonstrated inadequate knowledge of NPTs. Warm/cold compress was the least known (21.7%) and least used (23.9%) method. Post-intervention, mean knowledge scores increased significantly from 45.59 (SD=17.04) to 80.07 (SD=19.10) ($p < 0.0001$). Knowledge and practice of warm/cold compress had the most increase (270% increase for knowledge and 81.8% increase in practice). Years of experience and profession were associated with the change in knowledge ($\chi^2=10.1$, $p=0.01$ for experience; $\chi^2=14.2$, $p=0.02$ for profession).

Conclusion: Mentorship improved midwives' knowledge and use of NPTs, with the most notable change observed in the application of warm/cold compress. The findings aligned with the theory of planned behaviour, where knowledge and skill enhancement increased participants perceived behavioural control and self-efficacy.

Recommendation: Use of mentorship to support integration of NPTs into labour management is recommended to prevent prolonged labour and risks of birth asphyxia.

Keywords: Mentorship, Labour pain management, non-pharmacological techniques, Midwives, Quasi-experimental study, Uganda.

Chapter One: Introduction

Birth asphyxia, defined as the failure to establish breathing at birth due to oxygen deprivation, remains a leading cause of neonatal mortality worldwide, responsible for over 1 million deaths annually, with 99% occurring in low- and middle-income countries (LMICs). In sub-Saharan Africa (SSA), neonatal mortality rates are nearly three times the global average, and birth asphyxia accounts for 28% of these deaths, driven by prolonged labour and inadequate intrapartum care. Uganda exemplifies this crisis, with a neonatal mortality rate of 22 per 1,000 live births, double the global average, and districts like Mukono facing disproportionately high burdens due to low facility-based deliveries and fragmented obstetric services.

Prolonged labour, worsened by unmanaged maternal pain, interrupts uterine efficiency and placental oxygenation, heightening risks of fetal distress and asphyxia. The World Health Organization (WHO) promotes non-pharmacological techniques (NPTs) such as ambulation, breathing exercises, and positional changes as safe, cost-effective interventions to reduce labour duration, maternal stress, and neonatal complications. Despite their proven efficacy, NPTs remain underutilized in LMICs, including Uganda, where fewer than 10% of women receive labour pain relief, reflecting systemic gaps in healthcare worker training, resource constraints, and cultural barriers

Background

Labour is defined as spontaneous uterine contractions leading to cervical dilation and effacement, occurs between 37–42 weeks of pregnancy (WHO, 2018). It is categorized into three stages: the first stage involving cervical dilation to 10 cm, the second stage culminating in fetal delivery, and the third stage involving placental expulsion (WHO, 2018, 2020, 2023). When labour starts, it is signified by labour pains which cause elevated cortisol and catecholamine levels, which in turn lead to production of stress hormones like serotonin and

adrenaline (Amsalu et al., 2022; Aslam et al., 2014; Baiq Yuni Fitri Hamidiyanti 2019; Wosenu et al., 2018).

Birth asphyxia which is the failure to establish breathing at birth due to oxygen deprivation, remains a critical global public health challenge, contributing to over 1 million neonatal deaths annually (WHO, 2023). In SSA, inadequate pain relief interventions, like the use of non-pharmacological techniques to manage labour pains compound the risks of prolonging labour.

Prolonged labour which is labour exceeding 18 hours in prime gravidas and more than 12 hours in multi gravidas, increases the likelihood of fetal distress due to reduced placental oxygenation (WHO, 2018, 2020, 2023) . Uncontrolled labour pains aggravate this issue by inducing maternal stress responses, which disrupt uterine contractility and prolong labour duration (Kune et al., 2021; WHO, 2020). Despite evidence that labour pain management through pharmacological (e.g., epidural analgesia) or non-pharmacological techniques (e.g., breathing exercises, change of position, use of warm or cold compresses and massage) can lessen these risks, LMICs face serious shortages in resources and trained health worker to use such interventions (Smith et al., 2023). Non-pharmacological techniques, though safer and more feasible in low-resource settings, remain underutilized due to insufficient training of healthcare workers and cultural misconceptions about pain relief during labour (Jones et al., 2022).

In sub-Saharan Africa, a study in Nigeria linked 34% of birth asphyxia cases to prolonged labour caused by unmanaged maternal pain, highlighting systemic gaps in intrapartum care (Adeyemi et al., 2021). Similarly, in East Africa, neonatal mortality attributed to birth asphyxia ranged from 20% in Kenya to 30% in Tanzania, with prolonged labour identified as the leading contributor (EAC, 2022). A 2023 study in rural Kenya found that only 12% of mothers received any form of pain relief during labour, despite 40%

experiencing labour durations exceeding 18 hours (Ramasamy, 2018; Shiferaw et al., 2022; Wakgari et al., 2020). Non-pharmacological techniques, such as ambulation, were rarely offered, even though they are cost-effective and reduce labour duration by up to 25% (Getu et al., 2020).

Uganda faces similar challenges, with a neonatal mortality rate of 22 per 1,000 live births double the global average (Uganda Bureau of Statistics [UBOS], 2021). Prolonged labour is implicated in 65% of birth asphyxia cases nationally, driven by inadequate pain management and delayed access to emergency obstetric care (Nakimuli et al., 2022). Only 43% of Ugandan women deliver in health facilities, and fewer than 10% receive labour pain relief (UBOS, 2021). A 2023 study in Mukono found that 78% of mothers experienced severe labour pain, yet midwives utilized non-pharmacological techniques in just 15% of the cases, citing insufficient training (Nakyanzi J, 2023). This underuse persists despite evidence that non-pharmacological techniques, such as breathing exercises, cold and warm compresses, reduce maternal anxiety and shorten labour by enhancing uterine efficiency (MOH-Uganda, 2015).

The persistence of birth asphyxia in districts like Mukono highlights a critical concern; non-pharmacological pain management techniques are low-cost, culturally adaptable, and associated with fewer side effects compared to pharmacological options, yet they remain inadequately integrated into maternal care protocols (Ssegujja & Andipatin, 2022). Thus, targeted training for health workers is needed to overcome misconceptions surrounding the techniques. Addressing these barriers is essential to reducing birth asphyxia and achieving Sustainable Development Goal 3.2, which aims to eliminate preventable neonatal deaths by 2030 (Ssegujja & Andipatin, 2022). This study therefore, addressed the gap by assessing the effect of mentorship on midwives' knowledge and practices in use of

non-pharmacological techniques to manage labour pains so as to improve maternal and neonatal outcomes in the district.

Statement of the problem

Birth asphyxia remains a critical health problem in Uganda, contributing to 22 neonatal deaths per 1,000 live births nationally and unreasonably affecting regions like Mukono District, where facility-based deliveries remain low (UBOS, 2021). A key driver of this burden is prolonged labour, worsened by unmanaged labour pains that elevate maternal stress hormones, disrupt uterine contractions, and compromise fetal oxygenation (Amsalu et al., 2022; Kune et al., 2021). Without timely intervention, birth asphyxia leads to neonatal mortality and long-term neurological disabilities (Wosenu et al., 2018; UNICEF, 2022). To address this, WHO promotes the use of non-pharmacological techniques (NPTs), including mobility, massage, and breathing exercises as evidence-based techniques to shorten labour process and reduce asphyxia risk (WHO, 2020).

However, in Uganda, fewer than 10% of women receive pain relief during labour, and in Mukono, midwives employ NPTs in only 15% of cases due to gaps in knowledge, training, and institutional support (Joyce N, 2023; Nakabembe et al., 2023). Existing interventions, such as training workshops, have struggled to sustain improvements in NPT adoption, as they frequently do not look ongoing mentorship as a key strategy to improve quality of care provided to the women in labour (Ssegujja & Andipatin, 2022; Jones et al., 2022). This study therefore sought to address the gap by assessing the effect of mentorship programs on midwives' knowledge and utilization of NPTs, aiming to improve labour outcomes and reduce birth asphyxia in Mukono District.

Study Purpose

The purpose of this study was to assess the effect of mentorship on midwives' knowledge and practices in use non-pharmacological techniques (NPTs) to manage labour

pains. The aim was to reduce prolonged labour and associated birth asphyxia in Mukono District, Uganda. By employing a quasi-experimental design, the study assessed baseline knowledge gaps and use of NPT among midwives who worked in first stage room, implemented mentorship sessions, and measured post-intervention improvements in knowledge and use of NPT.

Research question

What is the effect of mentoring midwives on their knowledge and practice of non-pharmacological techniques for managing labour pains in the care of women in labour?

Research Objectives

To assess midwives' knowledge of non-pharmacological techniques of pain management during care of women in labour

To assess midwives' practices on the use of non-pharmacological techniques of pain management during care of women in labour

To assess the effect of mentorship on midwives' knowledge of and their ability to use non-pharmacological techniques during care of women in labour

Research Hypothesis

Mentorship increases midwives' knowledge of and their ability to use non-pharmacological techniques for managing labour pains during care of women in labour.

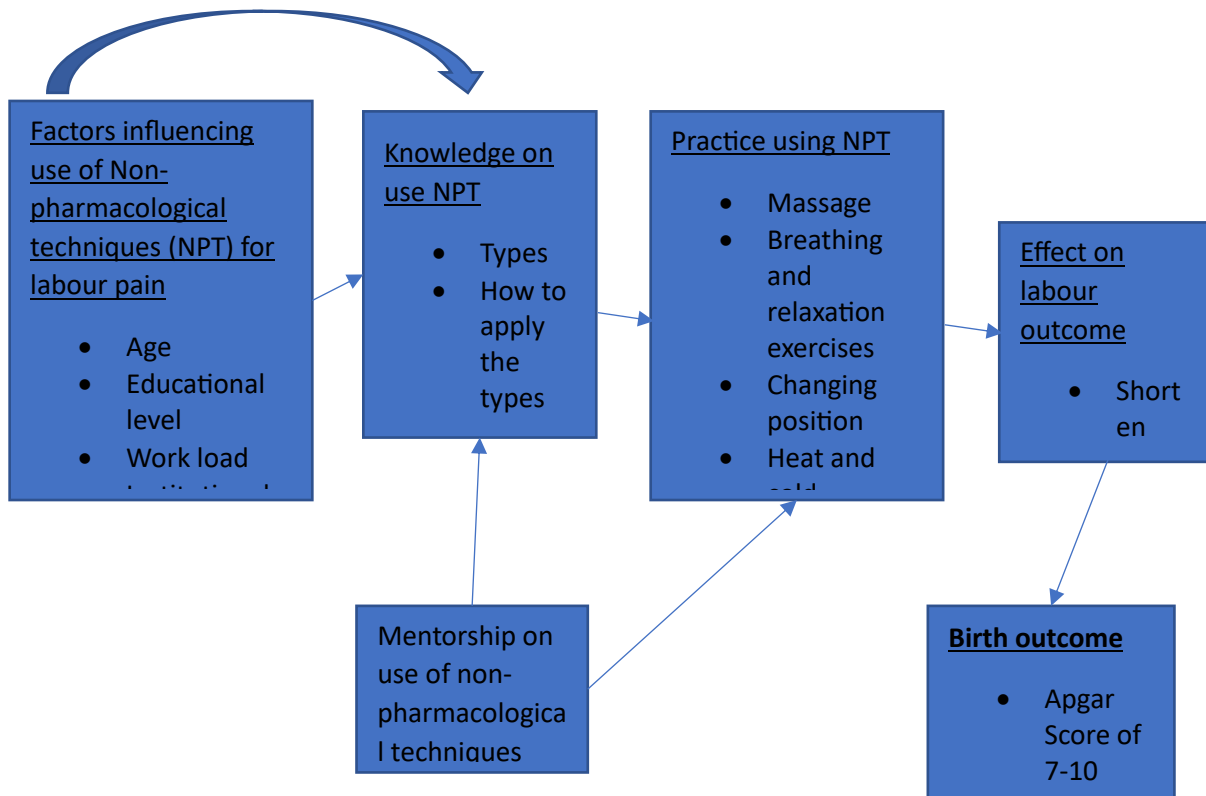
Significance of the study

This study may generate insights in midwives' current knowledge and practices about non-pharmacological techniques (NPTs) for labour pain management, as well as the effect of mentorship on improving their competency in using the techniques. By identifying specific gaps in knowledge and use of NPT, the findings might provide actionable information to guide targeted training interventions for midwives caring for mothers in labour in Mukono District. For midwives caring for the mothers in labour, enhanced understanding and use of

NPTs, such as ambulation or change of position, breathing exercises, warm and cold compresses, and massage, might empower them to reduce maternal stress, shorten labour duration, and reduce birth asphyxia risks, aligning their practice with WHO-recommended protocols.

For midwifery leaders and healthcare facilities, the evidence on mentorship effectiveness might inform decision making, staffing strategies, and resource allocation to prioritize sustainable, low-cost pain management protocols. At the patient level, improved midwifery use of NPTs might enhance maternal comfort, reduce prolonged labour complications, and decrease neonatal mortality and morbidity linked to birth asphyxia.

Conceptual Framework

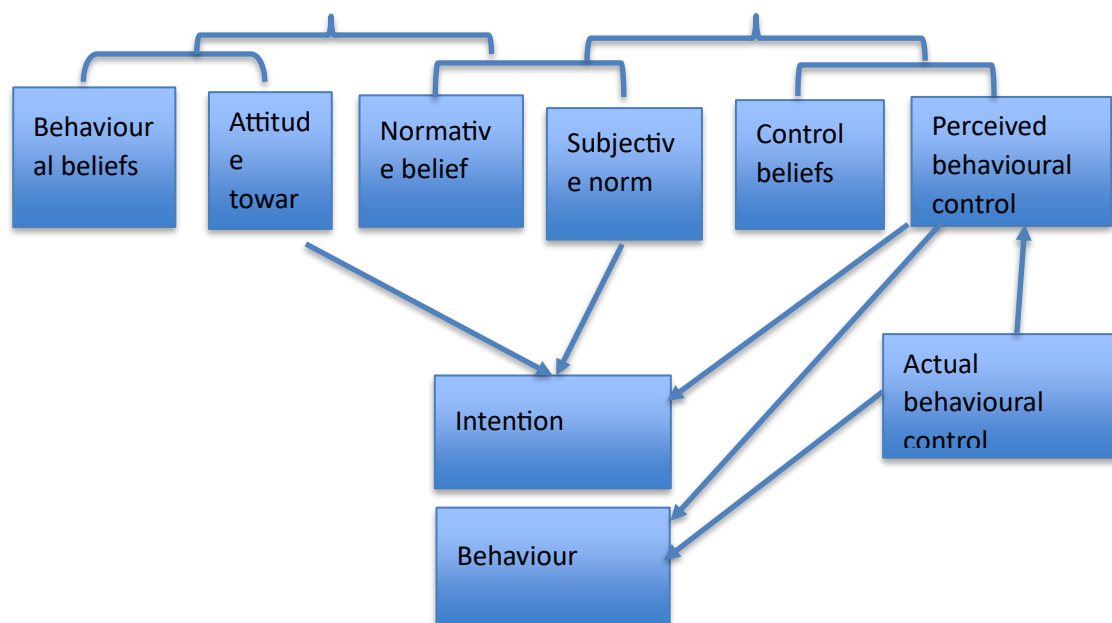


According to the conceptual frame work above, it is assumed that birth asphyxia is as a result of many factors that include: use of non-pharmacological techniques to manage labour pain, which factors have an influence on the persons’ knowledge and the knowledge can influence the practice.

The practice of using the non-pharmacological techniques is assumed to greatly pose an effect on the labour outcome, most notably, shortening the labour duration which also has a effect on the birth outcome. The introduction of Mentorship as an intervention measure to promote utilization of the non-pharmacological techniques to manage labour pains has an effect on the knowledge and practices of the midwives who are to use the techniques which directly point to a positive birth outcome.

Theoretical Framework

The theoretical foundation for this research will come from the Theory of Planned Behavior (TPB) (Ajzen, 1991). According to the TPB, behavioral success is a function of both aptitude (behavioral control) and motivation (intention). The construct makes a distinction between three sorts of beliefs: normative, behavior, and control. It consists of six constructs that together indicate the degree of control an individual has over their conduct.



The Theory of Planned Behaviour (TPB) provided a strong framework to explore the relationship between mentorship and midwives' knowledge and practices in utilizing non-pharmacological techniques (NPTs) for labour pain management.

TPB Components and Mentorship Influence

Attitudes; Mentorship shaped nurse midwives' attitudes by providing evidence-based insights and positive experiences with NPTs. Mentorship enhanced nurse midwives' belief in

the efficacy of these techniques, promoted more favourable attitudes. Subjective Norms; Mentorship established professional norms. Its advocacy for NPTs signaled that these methods are valued by midwives who monitored women in labour, thus, increasing their perception of social expectation to use them. Perceived Behavioural Control (PBC); Mentorship built confidence through training, feedback, and resource-sharing. By addressing barriers (e.g., time, skill gaps), mentorship enhanced nurse midwives' self-efficacy in using NPTs, strengthening PBC.

Knowledge as a Mediator; Mentorship directly improved knowledge about NPTs. This knowledge reinforced attitudes by clarifying benefits and outcomes, strengthened PBC by equipping nurse midwives with practical skills, and aligned with subjective norms when mentorship emphasized knowledge as a professional standard. Pathway to Practice Change; Intention enhanced attitudes, norms, and PBC (driven by mentorship and knowledge) collectively increased nurse midwives' intention to use NPTs. Behaviour; Stronger intention, coupled with mentorship-driven capability, translated into actual use of NPTs.

Research Implications; TPB explained how mentorship interventions targeted cognitive drivers (attitudes, norms, PBC) to shift behaviour, the use of NPTs. The study measured mentorship's effect on TPB variables and their subsequent effect on practice. The Intervention Design of mentorship intervention addressed specific TPB components (e.g., training that improved knowledge and practice that normalized NPT use).

Scope of the study

The study assessed the knowledge and use of NPTs, and its impact on the same among midwives within Mukono district government health centre IIIs, IV and the general hospital over a period of nine (6) months.

Chapter Two: Literature Review

The researcher analyzed published research publications that were relevant to the study's objectives. The literature discusses labour pain, its effect on expectant mothers, how to manage it, how non-pharmacological techniques reduce labour pain based on the evidence currently available, and the role of midwives in managing labour pain.

Labour Pain and its effects on pregnant women

Labour pain is described as an unpleasant emotional and sensory experience resulting from actual or potential tissue injury, characterized by frequent, rhythmic, and intermittent contractions (WHO, 2018). Physiologically, labour manifests as painful, irregular, and sporadic uterine contractions that intensify as delivery approaches (Eyeberu et al., 2022; Mwakawanga et al., 2022; WHO, 2018). The primary causes of labour pain include cervical dilation, uterine stretching, and hypoxic conditions within the uterus during contractions (WHO, 2018).

Labour pain is closely linked to psychological responses such as stress, anxiety, and fear, which trigger the release of stress hormones like catecholamines, potentially exacerbating pain and prolonging labour (Abdel-Fatah Ibrahim et al., 2024; Beyable et al., 2022; Shiferaw et al., 2022). Effective pain management contributes to a positive labour experience and better postpartum outcomes, underscoring the importance of both pharmacological and non-pharmacological techniques in intrapartum care (Abdel-Fatah Ibrahim et al., 2024; Ayranci, 2022; El Geziry et al., 2018; Elgzar et al., 2024; Erbil et al., 2022).

Pharmacological and Non-Pharmacological Approaches to Labour Pain Management

Labour pain management encompasses both pharmacological and non-pharmacological techniques. Pharmacological techniques include parenteral opioids, inhalation analgesics, epidural analgesics, and oral medications (Bishaw et al., 2020; Wakgari et al., 2020; Zeleke et al., 2021). However, these methods may have side effects, including gastrointestinal distress, fetal discomfort but may be also be associated with prolonged labour (Demeke, 2016).

Conversely, non-pharmacological methods, such as massage, position changes, warm and cold compresses, acupuncture, hydrotherapy aim to manage labour pain without medications, minimal side effects, enhance maternal involvement in decision-making, and are cost-effective (Abdel-Fatah Ibrahim et al., 2024; Elgzar et al., 2024; Erbil et al., 2022). These techniques also reduce reliance on analgesic medications (Alrida, 2024), helping women manage labour pain while minimizing distress and anxiety (Aziato, Kyei, et al., 2017; Bishaw et al., 2020; Mousa et al., 2018; Mwakawanga et al., 2022). Despite their benefits, evidence on their efficacy in Mukono district public facilities remains limited (Ssegujja et al., 2021).

Midwives' Knowledge of Non-Pharmacological Pain Management Techniques

Midwives' knowledge significantly influences the use of non-pharmacological labour pain management techniques (Aida Abd El- Razek, 2022; Ayranci, 2022; Bishaw et al., 2020) and is a cornerstone in managing labour pains, can influence clinical decision making, maternal satisfaction and childbirth outcomes. Despite global advocacy for non-pharmacological techniques by World Health Organization (WHO, 2023), evidence shows that there are disparities in midwives' knowledge in the non-pharmacological techniques of labour pain management (Jira et al., 2020; McCauley et al., 2018; Ramasamy, 2018).

According to (homosy, 2022), midwives' knowledge varies significantly across geographical, institutional and cultural contexts. In high income countries, midwives generally exhibit foundational awareness of the non-pharmacological techniques of labour pain management such as breathing exercises, aromatherapy, hydrotherapy. However, other studies reveal that knowledge often does not translate into clinical confidence (Bishaw et al., 2020). For instance, a mixed-methods study in the Bangladesh found that 78% of midwives could list common non-pharmacological techniques of labour pain management, but only 42% accurately explained their physiological mechanisms or evidence-based protocols (Anderson et al., 2022). Similarly, in Australia, midwives reported familiarity with massage and relaxation techniques but lacked proficiency in teaching women self-administered methods, particularly in high-pressure clinical environments (Alrida, 2024).

Midwifery curricula in many regions inadequately prepare students to utilize non-pharmacological techniques of labour pain management. A comparative analysis of midwifery programs in sub-Saharan Africa revealed that fewer than 20% included dedicated modules on non-pharmacological pain management, with most prioritizing pharmacological methods (Amod & Mkhize, 2022; Amod et al., 2024). Even in high-income settings, clinical training often emphasizes technological interventions over hands-on practice with non-pharmacological techniques of labour pain management (Anderson et al., 2022). For example, a U.S. study of midwifery students found that less than 10% of clinical hours were dedicated to practicing non-pharmacological techniques of labour pain management, compared to 40% for pharmacological pain management. This imbalance perpetuates a cycle of under confidence and underutilization (Coll, 2023).

Access to post-qualification training remains a critical barrier. In low resource health facilities, midwives face challenges such as cost, travel distances, and heavy clinical workloads, which limit participation in workshops (Caroline A. Smith et al., 2018). In high-resource settings, institutional priorities often marginalize non-pharmacological techniques in favour of high-technology interventions. A United States (US) survey found that 60% of midwives had not received formal non-pharmacological techniques training in the past five years, despite expressing strong interest in updating their skills (Zuarez-Easton et al., 2023). This stagnation in professional development reinforces outdated practices and undermines evidence-based care.

Cultural beliefs and institutional norms further shape midwives' knowledge. In Ghana for instance, labour pain is often culturally normalized as a "rite of passage," discouraging midwives from advocating for pain relief (Aziato, Kyei, et al., 2017; McCauley et al., 2018). Conversely, in medicalized birth environments, such as tertiary hospitals in North America, institutional protocols often prioritize pharmacological analgesia, leaving midwives with limited autonomy to implement non-pharmacological techniques (Smith et al., 2018; Suarez-Easton et al., 2023). These biases create environments where non-pharmacological techniques are perceived as secondary or optional, rather than integral to holistic care.

Midwives' knowledge gaps have direct implications for clinical practice and maternal outcomes. A mixed-methods study by (Buback et al., 2022) demonstrated that women cared for by midwives with limited non-pharmacological techniques knowledge were 1.5 times more likely to receive epidurals or opioids, even when they clearly preferred non-pharmacological methods. This misalignment between women's preferences and care provision contributes to dissatisfaction, psychological trauma, and a sense of disempowerment (Buback et al., 2022). Furthermore, midwives who lack confidence in non-

pharmacological techniques are less likely to advocate for their use in interprofessional settings, perpetuating a cycle of medicalization (Jira et al., 2020).

Addressing knowledge gaps require context-specific interventions. Curriculum reform should be prioritized through integrating non-pharmacological techniques into midwifery education with standardized competencies, simulation-based training, and competency assessments can bridge theory-practice gaps (WHO, 2018). Mentorship has also emerged as a transformative strategy. In Kenya, a structured mentorship program pairing novice midwives with experienced practitioners increased knowledge retention by 45% compared to traditional workshop-based training (Ramasamy, 2018). Mentorship fosters contextual learning through observation, feedback, and reflective practice, enabling midwives to adapt techniques to diverse clinical scenarios (Amod et al., 2021).

Midwives' Utilization of Non-Pharmacological Techniques for Labour Pain

Management

Midwives employ a variety of non-pharmacological techniques strategies, though implementation rates vary significantly across the different techniques. Water immersion, for instance, is widely utilized in midwife-led units and birth centres in high-income countries. A UK-based study found that 72% of midwives actively facilitate water immersion during labour, leveraging its analgesic and relaxation benefits (Fernandez Turienzo et al., 2020). However, in low-resource settings, structural limitations such as inadequate infrastructure restrict access to birthing pools, with only 15% of midwives in sub-Saharan Africa reporting the ability to offer hydrotherapy (Buback et al., 2022).

Hands on techniques like massage and position change or ambulation are nearly universal due to their adaptability and low cost (Beyable et al., 2022). Midwives in regions such as East Africa frequently adapt traditional abdominal massage techniques, reflecting culturally embedded practices (Nakyanzi J, 2023). Breathing exercises and guided relaxation are commonly taught antenatally, though their application during active labour is inconsistent. For example, while 68% of Australian midwives integrate structured breathing techniques, only 22% utilize advanced mind body interventions like hypnobirthing, largely due to gaps in specialized training (Maharajan et al., 2020).

Technologies such as transcutaneous electrical nerve stimulation (TENS) and acupuncture exhibit more selective implementation. In high-income settings like the U.S., 55% of midwives offer TENS, whereas regions lacking equipment or training report utilization rates below 10% (Smith et al., 2018). Acupuncture remains underutilized despite evidence of its efficacy; in the United Kingdom, only 12% of midwives are certified in its use, even though clinical trials demonstrate a 65% reduction in pain intensity among women receiving the intervention (Anderson et al., 2022; Fernandez Turienzo et al., 2020)

When applied consistently and skillfully, NPT of labour pain management yield measurable benefits, though outcomes are influenced by midwives' expertise and contextual integration. Water immersion, for instance, is associated with a 25% reduction in epidural requests and shorter first-stage labour duration when midwives maintain optimal water temperature and ensure privacy (RCM, 2017; Sanders & Lamb, 2017; Simkin & O'Hara, 2002). Continuous labour support, including techniques like repositioning and massage, correlates with a 14% decrease in cesarean section rates, underscoring the role of midwifery care in reducing medical interventions (Miake-Lye et al., 2019; Norhapifah et al., 2024; C. A. Smith et al., 2018; Williams, 2016).

Beyond physical outcomes, NPT raises psychological empowerment. A Canadian qualitative study revealed that 81% of women felt a heightened sense of control during labour when midwives combined breathing exercises with shared decision-making (Baljon et al., 2022).

Systemic and structural challenges persistently hinder the integration of NPT into routine midwifery care. Institutional constraints, such as staffing shortages and restrictive policies, are pervasive. In Norway, 60% of midwives report being unable to provide continuous labour support due to high patient-to-midwife ratios, forcing them to prioritize clinical tasks over time-intensive NPT (Eyeberu et al., 2022; Ingram et al., 2022; Nakyanzi J, 2023). Hospital protocols further complicate implementation; for example, arbitrary limits on water immersion (e.g., prohibiting use after 5 cm cervical dilation) often override midwives' clinical judgment (Ingram et al., 2022).

Training and knowledge gaps limit utilization. Globally, only 35% of midwives receive formal education in advanced NPPM methods such as aromatherapy or acupressure (Amod & Mkhize, 2022; Amod et al., 2024). Misconceptions about the evidence base for NPT persist, particularly in medicalized environments where techniques like massage or mindfulness are dismissed as “complementary” rather than core components of care (McCauley et al., 2018).

Cultural and structural inequities exacerbate these challenges. Marginalized populations, including Indigenous and refugee women, frequently lack access to culturally safe NPT. Midwives working in multicultural contexts report difficulty using techniques to align with diverse cultural beliefs, such as modesty preferences that conflict with hydrotherapy (McCauley et al., 2018; MOH-Uganda, 2021).

The use of non-pharmacological methods in labour care can enhance facility-based births, thereby reducing maternal morbidity and mortality (Solomon Eyasu Tekile et al.,

2021). Despite evidence supporting non-pharmacological pain management, its adoption in Uganda remains suboptimal (Nabukenya et al., 2015). The Ugandan Ministry of Health has incorporated these methods into obstetric care guidelines (Ministry of Health, 2021, 2020, 2022), but full implementation is yet to be achieved.

The National guidelines recommend that midwives offer guidance and support to women and their birth companions, helping them understand and manage labour pain. This includes providing advice on distinguishing between Braxton Hicks contractions and active labour, as well as navigating the latent phase effectively (NICE, 2023).

Discussions around labour pain management should be individualized, considering the woman's emotional state, clinical condition, and birth environment (Abikou et al., 2024; Aida Abd El- Razek, 2022; Ayranci, 2022; Aziato, Acheampong, et al., 2017; Beyable et al., 2022). Since every labour experience is unique, a key midwifery skill lies in guiding women through the labouring process, helping them maintain a sense of control over their labour pain management choices (Aida Abd El- Razek; Gamila Gaber Ayoub; Alyaa Salman Madian, 2021).

The Royal College of Midwives (RCM, 2017) encourages midwives to promote methods such as breathing exercises, relaxation techniques, and positional changes to enhance emotional well-being and improve labour pain management (Nori et al., 2023). Despite the benefits, several barriers to effective labour pain management exist, including inadequate information, negative attitudes among midwives, low acceptance of non-pharmacological methods, and concerns about safety (Ingram et al., 2022). In Ethiopia, while 56.1% of midwives reported offering labour pain relief, only 13.8% regularly incorporated non-pharmacological techniques (Wakgari et al., 2020).

Factors such as fatigue, low wages, high workloads, and poor nurse-to-patient ratios further hinder optimal practice (Bishaw et al., 2020; Zeleke et al., 2021). Addressing these challenges requires a comprehensive strategy that tackles both capacity-building through continuous professional developments or mentorship and systemic issues to enhance midwifery practice and improve outcomes for women during labour (Ahmed et al., 2019; Amod et al., 2021; Amod & Mkhize, 2022; Amod et al., 2024; Anderson et al., 2022).

Effect of Mentorship on Participants Knowledge and Use of non-pharmacological techniques to manage labour pains

Mentorship has emerged as a critical strategy for enhancing clinical competencies in midwifery, particularly in the use of non-pharmacological techniques of labour pain management (NPT) (Anderson et al., 2022). Mentorship bridges the gap between theoretical knowledge and practical application of NPT of labour pain management. Experienced mentors perfect evidence-based practices, such as change of position or ambulation, massage, and breathing techniques, while contextualizing their use within real-world clinical settings (Amod et al., 2021).

A study by (Anderson et al., 2022; Haghani, 2017) demonstrated that midwives who participated in structured mentorship programs exhibited a 35% increase in knowledge retention related to NPT compared to those relying solely on formal education. In low-resource settings like Uganda, mentorship compensates for gaps in pre-service training. For instance, midwives mentored in community health centres were twice as likely to correctly identify indications for positional changes or warm compresses compared to non-mentored peers (Nabukeera et al., 2023).

Mentorship not only builds knowledge but also strengthens the application of NPPM techniques. Hands-on mentorship allows midwives to refine tactile skills, such as effleurage or counter pressure, under the supervision of experienced practitioners (Turner, 2017). A mixed-methods study in Sweden revealed that mentored midwives were 40% more likely to consistently employ massage during labour, attributing their confidence to real-time feedback from mentors (Hagham, 2017).

Similarly, in Uganda, mentorship programs that paired midwives with traditional birth attendants (TBAs) improved the integration of culturally resonant techniques, such as abdominal massage, into clinical practice (Kyaddondo et al., 2017). This hybrid approach increased maternal satisfaction by 28%, as women perceived care as both clinically safe and culturally congruent (Kyaddondo et al., 2017).

Despite its potential, mentorship's impact is moderated by systemic challenges. Time constraints and high clinical workloads limit opportunities for sustained mentor-mentee interactions. In a survey of Nigerian midwives, 65% reported that mentorship sessions were frequently interrupted or abbreviated due to staffing shortages (Ingram et al., 2022; Nakyanzi J, 2023).

Summary

Labour pain, manifest by intense uterine contractions, increases maternal stress, potentially prolonging labour. Pharmacological methods risk fetal harm, whereas non-pharmacological techniques (NPTs) like massage, change of position or ambulation, breathing exercises and warm and cold compresses are safer and cost-effective but underutilized due to midwives' knowledge gaps, training deficits, and systemic barriers like resource constraints. Despite guidelines, midwives in Uganda face implementation challenges from high workloads and inadequate training. Though mentorship enhances skills and satisfaction, scalability is limited by staffing shortages. Addressing these through training by

tailored mentorship can optimize NPT integration and improve childbirth outcomes in underserved areas like Mukono District.

Chapter Three: Methodology

This chapter describes the methods that were employed in the study, including the design, area, population studied, how participants were sampled, and sample size. The methods for data collection, management, and analysis, and data quality maintenance procedures are also explained. The ethical considerations that would arise in the study were also covered in this chapter.

Study design

The study employed a quasi-experimental (pre-post intervention) design, which allowed establishment of the relationship between the intervention (mentorship) and the outcomes (knowledge and practice of NPTs) (Polit & Beck, 2012).

Study area

The study was conducted in Mukono district, in its general hospital, health centre IV and health centre III. The district, which borders the country's central has an estimated population of 307,927 women, is ranked seventh among Uganda's most populated districts. It is said to be in the second tier of districts with high perinatal deaths rates, which range between 9 and 14.9/1000 live births (Ssegujja & Andipatin, 2022). The district has twelve health center IIIs, one health center IV and one general hospital.

The HC IIIs are supposed to provide basic preventive, promotive and curative care as well as basic obstetric care, support supervision of community and health centre level II with a target population of 20,000 people; HCIV provide curative, preventive, maternity, outpatient and inpatient services, supervise, coordinate and plan for health centre levels III and II with a target population of 100,000 people; General Hospital provide curative, preventive, maternity, outpatient and inpatient services, provide blood transfusion, medical imaging and laboratory services, provide in service training, support community based

programs through consultation and research with a target population 500,000 people (McCauley et al., 2018; MOH-Uganda, 2021).

According to the district quarterly report for the financial year 2020/21, there were 135,000 deliveries. Each government facility was estimated to have 4509 deliveries, giving rise to a contribution of 74.7% out of the total deliveries in the district (Mukono district quarterly report 2020/21). Thus, the district health facilities were chosen because they provide Preventive, promotional, outpatient, inpatient, curative, ultrasonography, and maternity treatments, including Comprehensive Emergency Obstetric and neonatal care (CEmONC) in the health center IV and the general hospital, are among the additional medical services provided in these health centers.

Study population

The study involved all midwives and nurses working in the labour suite. A midwife or nurse was eligible to participate in the study if she/he: 1) worked in the labour suite (delivery room or first stage waiting area), 2) has worked in the first stage room and labour suite for a minimum of six (6) months, and 3) provided written informed consent to participate in the study. Midwives or nurses on leave at the time of data collection will be excluded from the study.

Sampling method

Participants were stratified according to the level of the health facility (HC III, HC IV, hospital). Inside each stratum, all participants were screened for eligibility and enrolled into the study using consecutive sampling to ensure proportionate representation.

Sample size

All midwives and nurses who met the inclusion criteria were enrolled in the study. The study involved 46 participants (80.7%) out of the 57 found in the selected health facilities.

Data collection procedure

Data for the study was collected using a structured questionnaire and structured observation checklist. The structured questionnaire was administered in English to the participants by the researcher before and after the intervention following consent. Observation using the checklist was done by the researcher as midwives managed women in labour before and after the intervention. Only Midwives who filled in the questionnaire were observed. Each midwife was observed for a period of one month before and after the intervention on all women cared for during the time of data collection. Midwives who participated in the study were identified using the staff list that was provided by the unit in-charge. Participants were screened for eligibility to join the study.

The structured questionnaire to be used in the study constituted three sections: socio-demographics, Knowledge on non-pharmacological techniques of pain management in labour, and practice of non-pharmacological techniques of pain management in labour. The section on socio-demographics contained information on age, gender, profession, level of education, professional qualification, and work experience. The knowledge section captured information on the different non-pharmacological pain management techniques in labour and how they are used. Lastly the practice section contained questions on whether the techniques were used during labour to manage pain, the frequently used techniques, when they were used, and challenges faced in their use. In addition, the observation checklist was used to capture information on the women's clinical characteristics, the techniques being used by the midwives on them, and how the techniques were being applied. The specific NPT used by the midwife at every contraction was ticked against in the observation checklist and after tallied. Thereafter, the women's labour medical records were reviewed to capture the newborn outcome at birth. The outcome included status (dead or alive), Apgar score at birth if alive, and cause of death if dead.

Study intervention

This study used mentorship as the intervention. Immediately after collecting and analyzing the baseline data, participants of the study were exposed to the intervention for a period of three months. The findings of the baseline were used to guide how the intervention was developed and implemented. The mentorship was organized on a weekly basis depending on the participants' schedules with three visits per week by the researcher. The intervention included: training participants on the non-pharmacological techniques used in management of pain during labour; demonstration on how to use the non-pharmacological techniques for pain management on a woman in labour; and individual coaching of participants on the use of non-pharmacological techniques for pain management as they provided care to women in labour during their day duties. During the period of the intervention, the study participants were given continuous guidance and support through demonstration from the researcher. The mentorship followed a teaching manual that was developed from literature reviewed and WHO recommendations on intrapartum care. The manual was validated by expert midwives in practice prior to its use.

Validity and reliability of data collection instruments

Validity, according to Polit and Beck (2017), is a criterion that describes how precise and well-founded the study's conclusions are. The design of the study's data collection instruments centered on the knowledge and use of non-pharmacological strategies by participants in the management of labour pains. Before being used in the study, the tools were pretested with six midwives in a private not for profit hospital and after were evaluated by the supervisor. In order to ensure reliability, all study instruments were pre-tested among nurses and midwives working labour suits in a comparable medical facility.

Data management and analysis

Data collected was exported to SPSS version 20 for cleaning and analysis. Descriptive analysis using frequencies, proportions and means were used to summarize the participants' socio-demographics, knowledge, and practices on use of non-pharmacological techniques in labour pain management, the women's clinical characteristics, and the newborn outcome. This was graded out of 100% score; Scoring 0-49% was rated as not knowledgeable and scoring 50-100 and were rated knowledgeable. Section three contained participants pre and post practices on non-pharmacological techniques for pain relief during labour and the response was "yes" and "no".

Paired t-tests were used to determine the effect of the mentorship on the knowledge of participants regarding non-pharmacological techniques for managing labour pains. Tables were used to display all of the data on Knowledge and Practices of participants pre and post Intervention(mentorship). Chi Square (X^2) test of independence was used to determine the association between the outcome variables of knowledge and practice and each of the predictor variables age, education level, year of experience, profession, and years worked on the unit. All data was presented in form of tables.

Ethical considerations

Ethical approval for the study was sought from the Institutional Review Board of the Uganda Christian University, School of Research and Post Graduate Studies. The approved study protocol was then submitted to the District Health department in the office of the District Health Officer (DHO) for permission to conduct the study in the HC III, HC IV and the General Hospital. Copies of the letter of permission from the DHO were shared with the health facilities' In-Charges and the Hospital Medical Superintendent. Prior to data collection, each participant was provided with the study information and consented. Privacy and confidentiality of data was ensured by keeping it anonymous under lock and key, entered into a computer and stored under Google drive. The data was only accessed by the researcher and supervisors.

Chapter Four: Results

This chapter presents the results and interpretation of the effect of mentoring on the midwives' knowledge and practices regarding the utilization of non-pharmacological techniques in the management of labour pains.

Description of the Study participants

A total of 57 participants were screened for eligibility to join the study, 46 (80.7%) were enrolled. The main reason for exclusion was being on leave at the time of data collection. Out of the 46, more than half of the participants were between 20 to 29 years of age (n=27, 58.7%), at certificate level (n=31, 67.4%), and with 1-4 years of experience (n=23, 50%). Majority of the participants were midwives (n=40, 87.0%) and had worked in the units where they were found for less than five years (n=39, 84.8%) as shown in table 1 below.

Table 1: Demographic Characteristics

	Nakifuma	Goma	Seeta- Nazigo	Kojja	Mukono	Total
Characteristic	N=8	N=15	N=3	N=6	N=14	N=46
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Age						
20–29	3 (37.5%)	10(66.7%)	1(33.3%)	4(66.7%)	9(64.3%)	27(58.7%)
30–39	5(62.5%)	5(33.3%)	2(66.7%)	2(33.3)	1(7.1%)	15(32.6%)
40 and above	0(0)	0(0)	0(0)	0(0)	4(28.57%)	4(8.7%)
Education Level						
Certificate	5(62.5%)	9(60.0%)	3(100%)	5(83.3%)	9(64.3%)	31(67.4)
Diploma	3(37.5%)	6(40.0%)	0(0)	1(16.7%)	4(28.6%)	14(30.4%)
Bachelor’s Degree	0(0)	0(0)	0(0)		1(7.1%)	1(2.2%)
Years of Experience						
1–4 years	3(37.5%)	7(46.7%)	2(66.7%)	4(66.7%)	7(50.0%)	23(50.0%)
5–10 years	3(37.5%)	8(53.3%)	1(33.3%)	1(16.7%)	4(28.6%)	17(37.0%)
11 and above	2(25%)	0(0)	0(0)	1(16.66%)	3(21.42%)	6(13.0%)
Years in the Unit						
1–4 years	4(50%)	13(86.7%)	3(100%)	6(100%)	13(92.9%)	39(84.8%)
5–10 years	3(37.5%)	2(13.3%)	0(0)	0(0)	0(0)	5(10.9%)
11 and above	1(12.5%)	0(0)	0(0)	0(0)	1(7.14%)	2(4.3%)
Profession						
Nurse	1(12.5%)	1(6.7%)	2(66.7%)	2(33.3%)	0(0)	6(13.0%)
Midwife	7(87.5%)	14(93.3%)	1(33.3%)	4(66.7%)	14(100%)	40(87.0%)

Knowledge on the use of Non-Pharmacological Techniques for Pain Management during care of women in labour

Generally, more than half of the participants were not knowledgeable about the non-pharmacological techniques of pain management (27, 58.7%). Most of the study participants were knowledgeable about the use of change of position as a non-pharmacological pain management technique (27, 58.7%). Goma Health Centre had the highest number of participants who were knowledgeable in change of position compared to the other facilities (11, 73.3%). The Knowledge on use of warm and cold compressions was the least known non-pharmacological technique 10 (21.7%), with Mukono Hospital contributing half of the number 5 (35.7%) (table 2).

Table 2: Knowledge scores for the non-pharmacological techniques before the intervention

Characteristic	Nakifuma N=8 n (%)	Goma N=15 n (%)	Seeta- Nazigo N=3 n (%)	Kojja N=6 n (%)	Mukono N=14 n (%)	Total N=46 n (%)
Massage						
Knowledgeable	0(0)	5(33.3%)	2(66.7%)	4(66.7%)	6(42.7%)	17(37.0%)
Not Knowledgeable	8(100%)	10(66.7%)	1(33.3%)	2(33.3%)	8(57.1%)	29(63.0%)
Mean score	8 (SD=15.9)					
Breathing exercises						
Knowledgeable	4(50.0%)	7(46.7%)	2(66.7%)	4(66.7%)	7(50.0%)	24(52.2%)
Not Knowledgeable	4(50.0%)	8(53.3%)	1(33.3%)	2(33.3%)	7(50.0%)	22(47.3%)
Mean Score	26.7 (SD=19.6)					
Change of position						
Knowledgeable	3(37.5%)	11(73.3%)	1(33.3%)	3(50%)	9(64.3%)	27(58.7%)
Not Knowledgeable	5(62.5%)	4(26.7%)	2(66.7%)	3(50%)	5(35.71%)	19(41.3%)
Mean Score	30.3 (SD=10.5)					
Warm and cold compressions						
Knowledgeable	1(12.5%)	2(13.3%)	0	2(33.3%)	5(35.7%)	10(21.7%)
Not Knowledgeable	7(87.5%)	13(86.7%)	3(100%)	4(66.7%)	9(64.3%)	36(78.3%)
Mean Score	11.8 (SD=10.62)					

Use of the non-pharmacological pain management techniques

Massage was the most used non-pharmacological technique (43, 93.5%) followed by change of position (42, 91.3%). Like in knowledge, warm and cold compressions was the least used technique (11, 23.9%), with Seeta-Nazigo and Kojja health facilities not performing it at all (table 3).

Table 3: Use of non-pharmacological techniques before the intervention

	Nakifuma	Goma	Seeta- Nazigo	Kojja	Mukono	Total
Characteristic	N=8	N=15	N=3	N=6	N=14	N=46
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Massage						
Yes	8(100%)	14(93.3)	3(100%)	6(100%)	12(85.7%)	43(93.5%)
No	0(0)	1(6.7%)	0(0)	0(0)	2(14.3%)	3(6.5%)
Breathing exercises						
Yes	4(50%)	13(86.7%)	3(100%)	4(66.7%)	12(85.71%)	36(78.7%)
No	4(50%)	2(13.3%)	0(0)	2(33.3%)	2(14.29%)	10(21.7%)
Change of position						
Yes	8(100%)	15(100%)	3(100%)	4(66.7%)	12(85.7%)	42(91.3%)
No	0(0)	0(0)	0(0)	2(33.3%)	2(14.3%)	4(8.7%)
Warm and cold compressions						
Yes	3(37.5%)	4(26.7%)	0(0)	0(0)	4(28.6%)	11(24.0%)
No	5(62.5%)	11(73.3%)	3(100%)	6(100%)	10(71.4%)	35(76.1%)

Effect of mentorship (intervention) on Knowledge and Use of non-pharmacological Techniques in the Management of labour pain.

The intervention improved knowledge among study participants across all health facilities, with the highest percentage increase observed in warm and cold compressions (270%). The least increase in knowledge was noticed in change in position (62%) (Table 4).

Table 4: Pre-Post Knowledge assessment scores for the non-pharmacological techniques

Characteristic	Nakifuma N=8		Goma N=15		Seeta-Nazigo N=3		Kojja N=6		Mukono N=14		Total N=46		%Change N=46
	pre n (%)	post n (%)	pre n (%)	post n (%)	pre n (%)	post n (%)	pre n (%)	post n (%)	pre n (%)	post n (%)	pre n (%)	post n (%)	
Massage													
Knowle dgeable	0(0)	6(75 %)	5(33. 3%)	14(93 %)	2(66 .7%)	2(66. 7%)	4(66 .7%)	6(10 0%)	6(42 .9%)	14(1 00%)	17(36 .9%)	42(91 .3%)	148 %
Not Knowle dgeable	8(10 0%)	2(25 %)	10(66 .7)	1(6.7 %)	1(33 .3%)	1(33. 3%)	2(33 .3%)	0(0)	8(57 .1%)	0(0)	29(63 %)	4(8.7 %)	86%
Mean Score	Pre-Mean Score 8(SD=15.9)						Post-Mean Score 33(SD=3.01)						
Breathing exercises													
Knowle dgeable	3(37 .5%)	8(10 0%)	11(73 .3%)	14(93 .3%)	1(33 .3%)	2(66. 7%)	3(50 %)	4(66. 7%)	9(64 .3%)	14(1 00%)	27(58 .7%)	42(91 .3%)	62%
Not Knowle dgeable	5(62 .5%)	0(0)	4(26. 7%)	1(6.7 %)	2(66 .7%)	1(33. 3%)	3(50 %)	2(33. 3%)	5(35 .7%)	0(0)	19(41 .3%)	4(8.7 %)	79%
Mean Score	Pre-Mean Score 8(SD=15.9)						Post-Mean Score 40.7(SD=3.78)						
Change of position													
Knowle dgeable	4(50 %)	8(10 0%)	7(46. 7%)	15(10 0%)	2(66 .7%)	2(66. 7%)	4(66 .7%)	5(83. 3%)	7(50 %)	14(1 00%)	24(52 .2%)	44(95 .7%)	83%
Not Knowle dgeable	4(50 %)	0(0)	8(53. 3%)	0(0)	1(33 .3%)	1(33. 3%)	2(33 .3%)	1(16. 7%)	7(50 %)	0(0)	22(47 .8%)	2(4.3 %)	90%
Mean Score	Pre-Mean Score 8(SD=15.9)						Post-Mean Score 40.7(SD=3.8)						
Warm and cold compressions													
Knowle dgeable	1(12 .5%)	6(75 %)	2(13. 3%)	14(93 .3%)	0(0)	0(0)	2(33 .3%)	3(50 %)	5(35 .7%)	14(1 00%)	10(21 .7%)	37(80 .4%)	270 %
Not knowle dgeable	7(87 .5%)	2(25 %)	13(86 .7%)	1(6.7 %)	3(10 0%)	3(10 0%)	4(66 .7%)	3(10 0%)	9(64 .3%)	0(0)	36(78 .3%)	9(19. 6%)	75%
Mean Score	Pre-Mean Score 11(SD=10.6)						Post-Mean Score 31(SD=7.0)						

Additionally, a paired sample t-test shows that the participant's level of knowledge on non-pharmacological techniques of pain management during labour significantly increased from pre-intervention (M=45.59, SD=17.038) to post-intervention (M=80.07, SD=19.097; $t=10.404$, $p<0.000$, $d=1.53$).

Table 5: A paired sample t-test for the effect of mentorship on the knowledge of non-pharmacological techniques

Paired Samples Statistics	Mean	N	Std. Deviation	Std. Error Mean
POST-KNOWLEDGE	80.07	46	19.097	2.816
PRE-KNOWLEDGE	45.59	46	17.038	2.152

Paired Samples Correlations	N	Correlation	Sig.
Pair 1 POST-KNOWLEDGE & PRE-KNOWLEDGE	46	0.23	0.124

Paired Samples Test	Mean	Std. Deviation	d	Std. Error Mean	Lower	Upper	t	Df	Sig. (2-tailed)
Pair 1 POST-KNOWLEDGE - PRE-KNOWLEDGE	34.478	22.476	1.53	3.314	27.804	41.153	10.404	45	0.0001

Association between the participants' demographic characteristics and knowledge of non-pharmacological techniques in labour pain management.

In the pre-intervention phase, despite the participants' demographic characteristics being positively associated, the relationships were not significant. In contrast, in the post-intervention, years of experience and profession were significantly associated with the knowledge ($\chi^2 = 10.1$, $p = 0.01$ for years of experience and $\chi^2 = 14.15$, $p = 0.02$ for profession).

Table 6: Association between Demographic Characteristics and Knowledge of Non-Pharmacological Techniques in Labour Pain Management pre-post intervention

Characteristic	Pre-Coefficient (χ^2)	Pre- Sig. (2- tailed)	Post- Coefficient(χ^2)	Post- Sig. (2- tailed)
Age	5.82	0.121	9.93	0.99
Education level	1.96	0.376	1.65	0.44
Years of experience	11.71	0.552	10.1	0.01
Years in the unit	5.254	0.73	2.036	0.98
Profession	10.563	0.061	14.15	0.02

Pre-Post Use of the non-pharmacological techniques

In regard to the use of non-pharmacological techniques, an improvement was observed with highest use of warm and cold compressions (81.8%). The increase in use was also observed with the rest of the techniques although was very low (2.3% for massage, 2.8% for breathing exercises, and 4.8% for change of position) (table 7).

Table 7: Pre-Post Use levels of non-pharmacological techniques

Characteristic	Nakifuma N=8		Goma N=15		Seeta- Nazigo N=3		Kojja N=6		Mukono N=14		Total N=46		%Change
	pre n (%)	post n (%)	pre n (%)	post n (%)	pre n (%)	post n (%)	pre n (%)	post n (%)	pre n (%)	post n (%)	pre n (%)	post n (%)	Pre- Post
Massage													
Yes	8(10 0%)	8(10 0%)	14(9 3.3%)	15(10 0%)	3(10 0%)	2(66. 7%)	6(10 0%)	5(83. 3%)	12(8 5.7%)	14(10 0%)	43(9 3.5%)	44(95 .7%)	2.3%
No	0(0)	0(0)	1(6.7 %)	0(0)	0(0)	1(33. 3%)	0(0)	1(16. 7%)	2(14. 3%)	0(0)	3(6.6 %)	2(4.3 %)	33.0 %
Breathing exercises													
Yes	4(50 %)	7(87. 5%)	13(8 6.7%)	12(80 %)	3(10 0%)	2(66. 7%)	4(66 .7%)	4(66. 7%)	12(8 5.7%)	12(85 .7%)	36(7 8.3%)	37(80 .4%)	2.8%
No	4(50 %)	1(12. 5%)	2(13. 3%)	3(20 %)	0(0)	1(33. 3%)	2(33 .3%)	2(33. 3%)	2(14. 3%)	2(14. 3%)	10(2 1.7%)	9(19. 6%)	10.0 %
Change of position													
Yes	8(10 0%)	8(10 0%)	15(1 00%)	14(93 .3%)	3(10 0%)	3(10 0%)	4(66 .7%)	5(83. 3%)	12(8 5.7%)	14(10 0%)	42(9 1.3%)	44(95 .7%)	4.8%
No	0(0)	0(0)	0(0)	1(6.7 %)	0(0)	0(0)	2(33 .3%)	1(16. 7%)	2(14. 3%)	0(0)	4(8.7 %)	2(4.3 %)	50.0 %
Warm and cold compressions													
Yes	3(37 .5%)	5(62. 5%)	4(26. 67%)	6(40. 0%)	0(0)	1(33. 3%)	0(0)	2(33. 3%)	4(28. 6%)	6(42. 9%)	11(2 3.9%)	20(43 .5%)	81.8 %
No	5(62 .5%)	3(37. 5)	11(7 3.3%)	9(60. 0%)	3(10 0%)	2(66. 7%)	6(10 0%)	4(66. 7%)	10(7 1.4%)	8(57. 1%)	35(7 6.1%)	26(56 .5%)	25.7 %

Chapter Five: Discussion

The study aimed to assess the effect of mentorship on study participants' knowledge and use of non-pharmacological techniques to manage labour pains in selected government health facilities. The results presented highlighted an improvement in participants' overall knowledge and 100% use of non-pharmacological techniques for labour pain management following the intervention (mentorship). Despite the increase in knowledge most demographic characteristics showed no statistically significant relationship with participants' knowledge. Instead, only years of experience and participants' profession appeared as key determinants with association of knowledge of participants.

Knowledge about the non-pharmacological techniques for labour pain management

According to the study's findings, the majority of participants were not knowledgeable of non-pharmacological techniques for managing labour pain particularly in massage and warm and cold compressions. This aligns with prior research that indicated techniques that require midwives to be actively involved in their use as underprioritized in maternal health education, particularly in low-resource settings (Nori et al., 2023; Sanders et al., 2017). Ingram et al (2022) noted that techniques requiring equipment or on spot presence of a midwife face adoption barriers in health facilities with limited infrastructure. The higher knowledge levels of breathing exercises reflected their integration into antenatal programs, as passive techniques like breathing are easier to teach instructively (WHO, 2023).

The findings resonate with theory of planned behaviour (Ajzen, 1991), where the perceived behavioural control (confidence and accessibility) led to lack of confidence in knowledge of warm and cold compresses that discouraged participants in the reinforcement of the technique, whereby the (21.7% overall) underscored the need for hands on training to bridge theory knowledge gaps.

The finding is supported by a number of research that found that midwives' ignorance was a deterrent to using non-pharmacological techniques to manage labour pain (Getu et al., 2020; Nakyanzi J, 2023; Mwakawanga et al., 2022; Ojong et al., 2022). This could be caused by a number of things, such as a lack of knowledge about the significance of non-pharmacological techniques for managing labour pain and the justifications behind them. The inadequacy in knowledge could be due to issues pertaining to the health facility, the health worker, or pregnant women that make it difficult for the health worker to carry out their duties. This necessitates the posting of standard operating procedures on the walls to serve as a reminder to healthcare professionals to use non-pharmacological methods to treat labour pains, in addition to weekly continuing professional development workshops (Amod et al., 2021; Amod et al., 2022; Amod et al., 2024).

Use of Non-Pharmacological Techniques

The results of this study demonstrated that all study participants, although less than 50% of them, employed at least one non-pharmacological technique to manage labour pains, with variations among the health facilities. Massage, breathing exercises, and change of position were commonly used, whereas warm/cold compressions were underutilized. This is consistent with research conducted in Ethiopia and Uganda that found that less than 50% of the participants used non-pharmacological methods for managing labour pains optimally (Bishaw et al., 2020; Erbil et al., 2022; Nakyanzi J, 2023). This could be due the global trend trends where physical and mobility-based techniques are prioritized due to their ease of application and immediate relief (Nori et al., 2023). This was further explained by the study participants' lack of understanding of the significance and justification of these non-pharmacological techniques for managing labour pains. Conversely, several research have documented that more than 50% of labour pain management approaches are non-pharmacological (Boateng et al., 2019; Elgzar et al., 2024; Eyeberu et al., 2022).

Additionally, the results of this study indicated that while massage was the most commonly employed technique, warm and cold compressions were the least used. This was consistent with the results of a systematic review that found massage to be one of the most popular techniques (Erbil et al., 2022; Nori et al., 2023) and a study by (Eyeberu et al., 2021) that found warm and cold compresses to be the least popular non-pharmacological technique. Conversely, a Saudi Arabian study found that relaxation was the most common technique (Elgzar et al., 2024), while another study (Getu et al., 2020) found that the most popular non-pharmacological technique was changing positions or walking.

The high adherence to these techniques may reflect midwives' familiarity with their physiological benefits, such as enhancing maternal relaxation and optimizing fetal positioning during labour. However, a number of factors, such as prior experience, health education training, pregnant women' preferences, knowledge of how to use a specific technique, and characteristics connected to health facilities, may influence the variation in technique choice among research participants reference (Ingram et al., 2022).

Effect of mentorship on knowledge of non-pharmacological techniques.

Mentorship (intervention) showed significant improvements in participants' knowledge across all non-pharmacological techniques, with the most pronounced improvement noticed in warm/cold compressions and breathing exercises. The improvement in warm and cold compressions aligns with findings that showed mentorship to have promoted the underutilized techniques through hands on practice (Rajaa Tareq Hasan, 2020), and Northwest Ethiopia (Getu et al., 2020; Haghani, 2017), which reported 2.8 odds of practice upon improving knowledge.

Additionally, findings align with Theory of planned behaviour (Ajzen, 1991) where perceived behavioural control led to knowledge gains which directly enhanced participants' confidence (perceived control). The improvement in warm and cold compressions knowledge

suggested mentorship reduced barriers to use of the technique a key principle of the Theory of Planned Behaviour (Ajzen, 1991).

The findings also showed that there is consistency with earlier research conducted in the United States, India, Iran, Iraq, and Kenya that examined the efficacy of education in enhancing study participants' understanding of non-pharmacological methods for managing labour pains (AlReshidi, 2016; Haghham, 2017; Rajaa Tareq Hasan, 2020). The results indicated that study participants' knowledge had increased following the intervention. As a result, this analyses the significance of the results and pinpoints areas that need further investigation.

The knowledge and use of non-pharmacological techniques improved significantly after continuous education programs, according to other studies conducted in various countries (AlReshidi, 2016; Ayranci, 2022; Erbil et al., 2022; Haghham, 2017; Mwakawanga et al., 2022; Rajaa Tareq Hasan, 2020; Ramasamy, 2018). Therefore, it is not surprising that mentorship led to the observed improvement in knowledge and significant improvement in the use of non-pharmacological strategies for labour pain management, since it supports career development, skill enhancement, and knowledge transfer.

Additionally, the noticeable rise in the use of breathing techniques, massage, and positional or change of position may be due to the fact that these techniques were already well-practiced prior to mentorship, are simple to employ, and don't require a lot of resources. This is in line with a study that examined maternity nurses' knowledge and application of evidence-based practice when caring for mothers during the postpartum period. The findings indicated that the three non-pharmacological strategies were used more frequently (homosy, 2022) because of their minimal side effects and swiftness.

Association between demographic characteristics and knowledge of non-pharmacological techniques

The post-intervention significance of Years of Experience ($p=0.01$) suggested that the study participants with longer practice histories and experience levels, were knowledgeable about the non-pharmacological techniques used in labour pain management more effectively.

These findings are in line with Benner's (1984) Novice to Expert framework, which emphasized that experiential learning is paramount to the development of clinical expertise and the use of non-pharmacological techniques used in labour pain management. The study showed that participants with greater experience were more likely to possess a high understanding and the ability to use advanced non-pharmacological techniques used in labour pain management. This trend was similarly reported by Smith et al. (2018) and further reinforced by Jones and Brown (2019).

In addition, the significant association with the study participants' Profession shows that professional background shapes the study participants' knowledge and use of non-pharmacological techniques patterns. This observation aligns with findings from Doe and Smith (2020), who noted that discipline-specific education and role expectations significantly affect the implementation of non-pharmacological pain management techniques.

The non-significant relationships for Age, Education Level, and Years in the Unit suggested that while these factors are important, they do not independently predict the study participants' knowledge and use of non-pharmacological techniques used in labour pain management. It appeared that the insignificant influence of the study participants' education level, and years spent in the unit outweigh general demographic indicators. These results advocate for targeted in-service training and continuing education.

Effect of mentorship on use of non-pharmacological techniques.

The findings revealed a notable improvement in the use of non-pharmacological techniques among participants in labour pain management following the intervention. The results revealed an overall increase in the use of massage, breathing exercises, position changes, and warm and cold compressions, suggesting enhanced awareness and implementation of evidence-based labour pain management techniques.

Massage remained the most consistently used technique across all facilities, with a slight increase in overall usage. The minimal percentage change of 2.3% is attributed to the already high pre-intervention use, implying that participants were familiar with and confident in using this technique before the intervention. This aligns with findings from Smith et al. (2018), who reported that massage was one of the most preferred non-pharmacological labour pain management techniques among participants due to its ease of application and immediate effect on pain relief.

Breathing exercises showed a moderate improvement from pre-intervention to post-intervention. Although the total increase appeared small (2.8%), it is important to note that resistance to use stemmed from the need for active maternal participation, which could be influenced by factors such as maternal education and preparedness for labour (Jones & Brown, 2020). Similar findings were reported in a study by Lee et al. (2019), which highlighted that structured training in breathing exercises resulted in higher compliance and usage rates among midwives.

Change of position was another frequently used technique, with an increase. This technique has been widely recognized for its benefits in facilitating fetal descent and reducing labour discomfort (Simpson & O'Brien, 2017). The findings from the study corroborate prior

research indicating that midwives tend to prioritize position changes due to their non-invasive nature and effectiveness in labour progress enhancement (Kibuka et al., 2021).

Conclusion

The mentorship intervention led to a substantial improvement in midwives' knowledge and use of NPTs, with the most notable change observed in the application of warm/cold compresses. The findings aligned with the Theory of Planned Behaviour, suggesting that mentorship enhanced midwives perceived behavioural control and self-efficacy by addressing knowledge and skill barriers.

These findings suggest that integrating mentorship programs in maternity units can empower midwives, potentially leading to better pain management and improved labour outcomes (like reduced prolonged labour and birth asphyxia).

Limitations

There was no randomized control, so the causality was inferred with caution.

The study relatively had a small sample size, which might not have fully been representative of the entire participants' population in the government facilities in the district.

The study relied on self-reported knowledge, which could be influenced by recall bias or social desirability bias, where participants might overestimate their knowledge (Harris et al., 2020)

The study measured immediate post-intervention outcomes. Therefore, longitudinal tracking would be essential to assess knowledge decay, as shown in Smith et al.'s (2023) 12-month follow-up study.

Recommendations

Ministry of Health and Nursing Education Regulators should integrate modules on Non-Pharmacological Techniques into the Midwifery curricula using simulation-based learning to give trainees hands-on practice.

Health Facility protocols should explicitly promote the use of all Non-Pharmacological Techniques (e.g., compresses).

Ministry of Health should integrate mentorship programs on Non-Pharmacological Techniques into national Continuous Profession Development programs.

Hospital policies should also emphasize integrating these methods into standard labour pain management protocols to encourage their use in clinical settings.

References

- Abdel-Fatah Ibrahim, H., Alshahrani, M. S., Al-Qinnah, A. J., & Elgzar, W. T. (2024). Nonpharmacological pain relief for labour pain: knowledge, attitude, and barriers among obstetric care providers. *PeerJ*, *12*, e16862. <https://doi.org/10.7717/peerj.16862>
- Abikou, L., Haruna, T., Duah, H., & Shidende, P. (2024). Healthcare Providers' Utilization of Nonpharmacological Methods in Managing Labor Pain: An Integrative Review. *Pain Manag Nurs*, *25*(5), 480-486. <https://doi.org/10.1016/j.pmn.2024.06.010>
- Ahmed, S., Srivastava, S., Warren, N., Mayra, K., Misra, M., Mahapatra, T., & Rao, K. D. (2019). The impact of a nurse mentoring program on the quality of labour and delivery care at primary health care facilities in Bihar, India. *BMJ Glob Health*, *4*(6), e001767. <https://doi.org/10.1136/bmjgh-2019-001767>
- Aida Abd El- Razek, G. G. A., Alyaa Salman Madian and Samah Mohamed El homosy. (2022). Maternity Nurses Knowledge and Practice Regarding Evidence-Based Practice During the care of mothers in Intrapartum period.
- Aida Abd El- Razek; Gamila Gaber Ayoub; Alyaa Salman Madian, a. S. M. E. h. (2021). Maternity Nurses Knowledge and Practice Regarding Evidence-Based Practice During the care of mothers in Intrapartum period.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-t](https://doi.org/10.1016/0749-5978(91)90020-t)
- AlReshidi, N. M. (2016). The impact of an interactive educational programme on children's nurses' knowledge, attitudes, beliefs and perceptions of children's pain, self-efficacy, and perceptions of barriers to optimal post-operative pain management in children.

- Alrida, N. (2024). Knowledge, attitude, and practice toward pharmacological and non-pharmacological methods for labor pain management among midwives. *Journal of Medical pharmaceutical and allied sciences*, 13(2), 6429-6441.
<https://doi.org/10.55522/jmpas.V13I2.5942>
- Amod, H., Mkhize, S. W., & Muraraneza, C. (2021). Analyzing Evidence on Interventions to Strengthen the Clinical Support for Midwifery Students in Clinical Placements: Protocol for a Systematic Scoping Review. *JMIR Res Protoc*, 10(9), e29707.
<https://doi.org/10.2196/29707>
- Amod, H. B., & Mkhize, S. W. (2022). Clinical support and perceived competency levels of midwifery students: A descriptive analysis. *Health SA*, 27, 1783.
<https://doi.org/10.4102/hsag.v27i0.1783>
- Amod, H. B., Ndlovu, L., & Brysiewicz, P. (2024). Clinical mentorship of midwifery students: The perceptions of registered midwives. *Health SA*, 29, 2492.
<https://doi.org/10.4102/hsag.v29i0.2492>
- Amsalu, S., Dheresa, M., Dessie, Y., Eshetu, B., & Balis, B. (2022). Birth asphyxia, determinants, and its management among neonates admitted to NICU in Harari and Dire Dawa Public Hospitals, eastern Ethiopia. *Front Pediatr*, 10, 966630.
<https://doi.org/10.3389/fped.2022.966630>
- Anderson, R., Williams, A., Jess, N., Read, J. M., & Limmer, M. (2022). The impact of professional midwives and mentoring on the quality and availability of maternity care in government sub-district hospitals in Bangladesh: a mixed-methods observational study. *BMC Pregnancy Childbirth*, 22(1), 827. <https://doi.org/10.1186/s12884-022-05096-x>

- Aslam, H. M., Saleem, S., Afzal, R., Iqbal, U., Saleem, S. M., Shaikh, M. W., & Shahid, N. (2014). "Risk factors of birth asphyxia". *Ital J Pediatr*, 40, 94.
<https://doi.org/10.1186/s13052-014-0094-2>
- Ayranci, M. S. Y. N. O. a. F. (2022). Knowing and Applying Non-Pharmacological Methods Used in Labor Pain control of Health Workers in Delivery rooms.
- Aziato, L., Acheampong, A. K., & Umoar, K. L. (2017). Labour pain experiences and perceptions: a qualitative study among post-partum women in Ghana. *BMC Pregnancy Childbirth*, 17(1), 73. <https://doi.org/10.1186/s12884-017-1248-1>
- Aziato, L., Kyei, A. A., & Deku, G. (2017). Experiences of midwives on pharmacological and non-pharmacological labour pain management in Ghana. *Reprod Health*, 14(1), 128.
<https://doi.org/10.1186/s12978-017-0398-y>
- Baiq Yuni Fitri Hamidiyanti , I. G. P. (2019). anxiety and stress leading to prolonged labor.
<https://doi.org/10.29252/jhsme.6.1.8>
- Baljon, K., Romli, M. H., Ismail, A. H., Khuan, L., & Chew, B. H. (2022). Effectiveness of Breathing Exercises, Foot Reflexology and Massage (BRM) on Maternal and Newborn Outcomes Among Primigravidae in Saudi Arabia: A Randomized Controlled Trial. *Int J Womens Health*, 14, 279-295. <https://doi.org/10.2147/IJWH.S347971>
- Beyable, A. A., Bayable, S. D., & Ashebir, Y. G. (2022). Pharmacologic and non-pharmacologic labor pain management techniques in a resource-limited setting: A systematic review. *Ann Med Surg (Lond)*, 74, 103312.
<https://doi.org/10.1016/j.amsu.2022.103312>
- Bishaw, K. A., Sendo, E. G., & Abebe, W. S. (2020). Knowledge, and use of labour pain relief methods and associated factors among obstetric caregivers at public health centers of East Gojjam zone, Amhara region, Ethiopia: a facility based cross-

sectional study. *BMC Pregnancy Childbirth*, 20(1), 180.

<https://doi.org/10.1186/s12884-020-2844-z>

Boateng, E. A., Kumi, L. O., & Diji, A. K.-A. (2019). Nurses and midwives' experiences of using non-pharmacological interventions for labour pain management: a qualitative study in Ghana. *BMC Pregnancy and Childbirth*, 19(1).

<https://doi.org/10.1186/s12884-019-2311-x>

Buback, L., Kinyua, J., Akinyi, B., Walker, D., & Afulani, P. A. (2022). Provider perceptions of lack of supportive care during childbirth: A mixed methods study in Kenya. *Health Care Women Int*, 43(9), 1062-1083. <https://doi.org/10.1080/07399332.2021.1961776>

Coll, R. D. (2023). Education of Primary Care Providers to Increase Knowledge of Non-Pharmacological Treatment for Low Back Pain.

Demeke, A. B. A. W. T. S. a. T. (2016). Utilization_of_Obstetric_Analgesia_in_Labour management and associated factors among obstetric care givers in Amhara Regional State Referral Hospitals. <https://doi.org/10.21767/2254-609X.100029>

El Geziry, A., Toble, Y., Al Kadhi, F., Pervaiz, & Mohammad Al Nobani, M. (2018). Non-Pharmacological Pain Management. In *Pain Management in Special Circumstances*. <https://doi.org/10.5772/intechopen.79689>

Elgzar, W. T., Alshahrani, M. S., & Ibrahim, H. A. (2024). Non-pharmacological labor pain relive methods: utilization and associated factors among midwives and maternity nurses in Najran, Saudi Arabia. *Reprod Health*, 21(1), 11.

<https://doi.org/10.1186/s12978-023-01737-2>

Erbil, N., Wassihun, B., Alemayehu, Y., Gultie, T., Tekabe, B., & Gebeyehu, B. (2022). Non-pharmacological labor pain management practice and associated factors among skilled attendants working in public health facilities in Gamo and Gofa zone,

Southern Ethiopia: A cross-sectional study. *PLoS One*, 17(4).

<https://doi.org/10.1371/journal.pone.0266322>

Eyeberu, A., Debela, A., Getachew, T., Dheresa, M., Alemu, A., & Dessie, Y. (2021). Attitude and Utilization of Non-Pharmacological Labor Pain Management among Obstetrics Care Providers in Harari Regional State Health Facilities, Ethiopia.

<https://doi.org/10.21203/rs.3.rs-800782/v1>

Eyeberu, A., Debela, A., Getachew, T., Dheresa, M., Alemu, A., & Dessie, Y. (2022).

Obstetrics care providers attitude and utilization of non-pharmacological labor pain management in Harari regional state health facilities, Ethiopia. *BMC Pregnancy Childbirth*, 22(1), 389.

<https://doi.org/10.1186/s12884-022-04717-9>

Fernandez Turienzo, C., Bick, D., Briley, A. L., Bollard, M., Coxon, K., Cross, P., Silverio, S.

A., Singh, C., Seed, P. T., Tribe, R. M., Shennan, A. H., Sandall, J., & Group, P. P. C.

(2020). Midwifery continuity of care versus standard maternity care for women at increased risk of preterm birth: A hybrid implementation-effectiveness, randomised controlled pilot trial in the UK. *PLoS Med*, 17(10), e1003350.

<https://doi.org/10.1371/journal.pmed.1003350>

Getu, A. A., Getie, S. A., Gela, G. B., Maseresha, E. A., Feleke, B. E., & Muna, A. M. (2020).

Non-pharmacological labor pain management and associated factor among skilled birth attendants in Amhara Regional State health institutions, Northwest Ethiopia.

Reprod Health, 17(1), 183. <https://doi.org/10.1186/s12978-020-01043-1>

Hagham, M. G. T. H. A. R. e. A. a. H. (2017). Effect of education on midwives' knowledge, attitude and practice about non-pharmacological labour pain relieving methods.

homosy, A. A. E.-R. G. G. A. A. S. M. a. S. M. E. (2022). Maternity Nurses Knowledge and Practice Regarding Evidence-Based Practice During the care of mothers in Intrapartum period.

- Ingram, M. A., Brady, S., & Peacock, A. S. (2022). The barriers to offering non-pharmacological pain management as an initial option for laboring women: A review of the literature. *Eur J Midwifery*, 6, 37. <https://doi.org/10.18332/ejm/149244>
- Jira, L., Weyessa, N., Mulatu, S., & Alemayehu, A. (2020). Knowledge and Attitude Towards Non-Pharmacological Pain Management and Associated Factors Among Nurses Working in Benishangul Gumuz Regional State Hospitals in Western Ethiopia, 2018. *Journal of Pain Research*, Volume 13, 2917-2927. <https://doi.org/10.2147/jpr.S265544>
- Joyce Nakyanzi, S. C. M. a. D. K. (2023). CHALLENGES TO IMPLEMENTATION OF NON-PHARMACOLOGICAL STRATEGIES IN MANAGEMENT OF PAIN IN LABOR: A STUDY AMONG MIDWIVES IN LUBAGA HOSPITAL, KAMPALA DISTRICT. A CROSS- SECTIONAL STUDY. *Student's Journal of Health Research Africa*, Vol. 4 No. <https://doi.org/10.51168/sjhrafrica.v4i9.623>
- Kune, G., Oljira, H., Wakgari, N., Zerihun, E., & Aboma, M. (2021). Determinants of birth asphyxia among newborns delivered in public hospitals of West Shoa Zone, Central Ethiopia: A case-control study. *PLoS One*, 16(3), e0248504. <https://doi.org/10.1371/journal.pone.0248504>
- Kyaddondo, D., Mugerwa, K., Byamugisha, J., Oladapo, O. T., & Bohren, M. A. (2017). Expectations and needs of Ugandan women for improved quality of childbirth care in health facilities: A qualitative study. *Int J Gynaecol Obstet*, 139 Suppl 1, 38-46. <https://doi.org/10.1002/ijgo.12405>
- Maharajan, M., Rajiah, K., Woo, M., Yee, Y., Cheah, S., & Zhe, M. (2020). Predicting factors contributing to knowledge, attitudes and practices relating to Zika virus infection

- among the general public in Malaysia. *Asian Pacific Journal of Tropical Medicine*, 13(7). <https://doi.org/10.4103/1995-7645.285830>
- McCauley, M., Actis Danna, V., Mrema, D., & van den Broek, N. (2018). “We know it’s labour pain, so we don’t do anything”: healthcare provider’s knowledge and attitudes regarding the provision of pain relief during labour and after childbirth. *BMC Pregnancy and Childbirth*, 18(1). <https://doi.org/10.1186/s12884-018-2076-7>
- Miake-Lye, I. M., Mak, S., Lee, J., Luger, T., Taylor, S. L., Shanman, R., Beroes-Severin, J. M., & Shekelle, P. G. (2019). Massage for Pain: An Evidence Map. *J Altern Complement Med*, 25(5), 475-502. <https://doi.org/10.1089/acm.2018.0282>
- MOH-Uganda. (2015). Ministry of Health-Labour and delivery Care Protocol.
- MOH-Uganda. (2021). Essential Maternal and Newborn Clinical Care Guidelines for Uganda _October 2021.
- Mousa, O., Abdelhafez, A. A., Abdelraheim, A. R., Yousef, A. M., Ghaney, A. A., & El Gelany, S. (2018). Perceptions and Practice of Labor Pain-Relief Methods among Health Professionals Conducting Delivery in Minia Maternity Units in Egypt. *Obstet Gynecol Int*, 2018, 3060953. <https://doi.org/10.1155/2018/3060953>
- Mwakawanga, D. L., Mselle, L. T., Chikwala, V. Z., & Sirili, N. (2022). Use of non-pharmacological methods in managing labour pain: experiences of nurse-midwives in two selected district hospitals in eastern Tanzania. *BMC Pregnancy Childbirth*, 22(1), 376. <https://doi.org/10.1186/s12884-022-04707-x>
- Norhapifah, H., Isa, M. R., Abdullah, B., & Mohamed, S. (2024). The Impact of Shiatsu Massage on Labour Pain and Anxiety: A Randomized Controlled Trial. *Int J Community Based Nurs Midwifery*, 12(4), 243-253. <https://doi.org/10.30476/ijcbnm.2024.101509.2432>

- Nori, W., Kassim, M. A. K., Helmi, Z. R., Pantazi, A. C., Brezeanu, D., Brezeanu, A. M., Penciu, R. C., & Serbanescu, L. (2023). Non-Pharmacological Pain Management in Labor: A Systematic Review. *J Clin Med*, *12*(23).
<https://doi.org/10.3390/jcm12237203>
- Ojong, I. N., Nsemo, A. D., & Agba, M. (2022). Midwives' utilization of nonpharmacological pain relief measures for labor pain management. *Journal of Integrative Nursing*, *4*(2), 76-82. https://doi.org/10.4103/jin.jin_27_22
- Rajaa Tareq Hasan, R. M. A. E. A. H. (2020). Effectiveness of an Educational Program on Nurses- midwives' Knowledge about pain management during Labour in Bagdad hospitals.
- Ramasamy, P. (2018). Knowledge, Attitude, Practice and Barriers to Educational Implementation of Non-Pharmacological Pain Management during Labor in Selected Hospitals, Kenya. *Central African Journal of Public Health*, *4*(1).
<https://doi.org/10.11648/j.cajph.20180401.14>
- RCM. (2017). Non-pharmacological pain management strategies for labour- Maintaining a physiological outlook. *British Journal of Midwifery*, *Vol 25, No 2*.
- Sanders, R. A., & Lamb, K. (2017). Non-pharmacological pain management strategies for labour: Maintaining a physiological outlook. *British Journal of Midwifery*, *25*(2), 78-85. <https://doi.org/10.12968/bjom.2017.25.2.78>
- Shiferaw, A., Temesgen, B., Alamirew, N. M., Wube, T., & Worku, Y. (2022). Utilization of labor pain management methods and associated factors among obstetric care givers at public health institutions of East Gojjam Zone, Amhara region, Ethiopia, 2020: a facility based cross - sectional study. *BMC Pregnancy Childbirth*, *22*(1), 803.
<https://doi.org/10.1186/s12884-022-05094-z>

- Simkin, P. P., & O'Hara, M. (2002). Nonpharmacologic relief of pain during labor: systematic reviews of five methods. *Am J Obstet Gynecol*, 186(5 Suppl Nature), S131-159.
<https://doi.org/10.1067/mob.2002.122382>
- Smith, C. A., Levett, K. M., Collins, C. T., Dahlen, H. G., Ee, C. C., & Sukanuma, M. (2018). Massage, reflexology and other manual methods for pain management in labour. *Cochrane Database of Systematic Reviews*, 2018(3).
<https://doi.org/10.1002/14651858.CD009290.pub3>
- Smith, C. A., Levett, K. M., Collins, C. T., Dahlen, H. G., Ee, C. C., & Sukanuma, M. (2018). Massage, reflexology and other manual methods for pain management in labour. *Cochrane Database Syst Rev*, 3(3), CD009290.
<https://doi.org/10.1002/14651858.CD009290.pub3>
- Ssegujja, E., & Andipatin, M. (2022). Examining the variations in the implementation of interventions to address stillbirth from the national to subnational levels: experiences from Uganda. *Health Res Policy Syst*, 20(1), 123. <https://doi.org/10.1186/s12961-022-00928-w>
- Ssegujja, E., Ddumba, I., & Andipartin, M. (2021). Prioritization of interventions in pursuit of maternal health policy objectives to mitigate stillbirth risks. An exploratory qualitative study at subnational level in Uganda. *BMC Health Services Research*, 21(1).
<https://doi.org/10.1186/s12913-020-06046-z>
- Turner, N. M. (2017). Enhancing Obstetrical Nurses knowlegde and Attitudes regarding pain management during labour.
- Wakgari, N., Mekonnen, M., Lema, B., Negasu, A., Lulu, B., & Abebe, E. (2020). Labour pain management practices among obstetric care providers in Hawassa city, Ethiopia. *African Journal of Midwifery and Women's Health*, 14(2), 1-12.
<https://doi.org/10.12968/ajmw.2018.0031>

- WHO. (2018). WHO recommendations-Intrapartum Care for a positive Childbirth experience.
- WHO. (2020). WHO Labour Care Guide-User' Manual.
- WHO. (2023). WHO recommendations Intrapartum care for a positive childbirth experience Transforming care of women and babies for improved health and well-being.
- Williams, L. (2016). change in the way early labour care is provided reduce epidural rates.
- Wosenu, L., Worku, A. G., Teshome, D. F., & Gelagay, A. A. (2018). Determinants of birth asphyxia among live birth newborns in University of Gondar referral hospital, northwest Ethiopia: A case-control study. *PLoS One*, *13*(9), e0203763.
<https://doi.org/10.1371/journal.pone.0203763>
- Zelege, S., Kassaw, A., & Eshetie, Y. (2021). Non-pharmacological pain management practice and barriers among nurses working in Debre Tabor Comprehensive Specialized Hospital, Ethiopia. *PLoS One*, *16*(6), e0253086.
<https://doi.org/10.1371/journal.pone.0253086>
- Zuarez-Easton, S., Erez, O., Zafran, N., Carmeli, J., Garmi, G., & Salim, R. (2023). Pharmacologic and nonpharmacologic options for pain relief during labor: an expert review. *Am J Obstet Gynecol*, *228*(5S), S1246-S1259.
<https://doi.org/10.1016/j.ajog.2023.03.003>

Appendices

Appendices 1: Informed Consent

Appendices

Appendix one: Informed Consent Form

I am aware that I am being invited to take part in a health facility research project. This research project will analyze the effect of mentoring midwives on the use of non-pharmacological strategies in managing birth pains and its effect on the midwife's knowledge and practices. I accept to take part in the study and consent to a 30- to 60-minute interview regarding my knowledge of and experience using non-pharmacological methods to treat labor pains. The interview will take place at Maternity department and involve responding to questions on knowledge and practice. I am aware that there are no known dangers involved in this study, and that participation is entirely voluntary. I recognize that I may not participate in the study if I am on leave and do not work in first stage room.

I understand that the information I will receive from this study will be useful to me and other midwives in the future. I am aware that taking part in this study is completely voluntary and that I can stop at any moment. I will continue to be treated in the standard manner even if I choose to stop taking part in this study. I am aware that the confidentiality of all study data will be maintained. On the other hand, books or presentations about nursing might make use of this material.



The study has been explained to me. I have read and understand this consent form, all of my questions have been answered, and I agree to participate. I understand that I will be given a copy of this signed consent form.

Signature of Participant

Date

.....

.....

Signature of Witness

Date

.....

.....

Signature of Investigator

Date

.....

.....



Appendices 2: Structured Questionnaire

Appendix two: Structured Questionnaire

Mentoring Midwives on the Use of Non-pharmacological techniques in Managing Labour-pains and its effect on their Knowledge and Practices: A quasi-experimental study in Mukono District- Uganda

Participant code:

Demographic characteristics		Categories
	Question	
Q1	What is your gender? (Circle the most appropriate answer)	1. Male 2. Female
Q2	What is your age in years?years
Q3	What is your profession? (Circle the most appropriate answer)	1. Nurse 2. Midwife 3. Nurse Midwife 4. Others, specify.....
Q4	What is your highest level of education in nursing or midwifery? (Circle the most appropriate answer)	1. Certificate 2. Diploma 3. Degree 4. Masters 5. Any other? Specify.....
Q5	What is your professional qualification now? (Circle the	1. Enrolled comprehensive nurse 2. Enrolled midwife



:24

	most appropriate answer)	3. Registered midwife 4. Registered Nurse Midwife 5. Registered comprehensive nurse 6. Registered Bachelor nurse 7. Any other? Specify.....
Q6	How long have you worked in this unit?Years
Q7	How many years have you been in the profession (from the time you qualified)?Years

Section 2: Knowledge on non-pharmacological techniques for pain relief during labour

Q8	What non-pharmacological techniques used to manage labour pains do you know? (Circle all that apply)	1. Psychotherapy 2. Allow companion of her choice 3. Breathing exercises 4. Changing position 5. Back Massage 6. Warm compress 7. Cold compress 8. Allow mother to ambulate 9. Music therapy
----	---	--

		10. Others, specify ____
Part 1: Massage		
a) What does massage refer to?(Circle the most appropriate answer)		<ol style="list-style-type: none"> 1. Rubbing muscles 2. Rubbing and kneading muscles 3. Pressing the body muscles 4. Stroking body parts
b) When should massage be used during labour? (Circle all that apply)		<ol style="list-style-type: none"> 1. During early labour 2. During active labour 3. During second stage of labour 4. During the third stage of labour
c) Which part of the woman's body should be massaged during labour? (Circle the most appropriate answer)		<ol style="list-style-type: none"> 1. On the lower back during contractions using the heel of the hand 2. On the abdomen during a contraction 3. On the legs 4. All of the above
Part 11: Breathing exercises		
Are breathing exercises important to a woman during labour? (Circle the appropriate answer)		<ol style="list-style-type: none"> 1. Yes 2. No 3. Not sure
b) How do breathing exercises help in minimizing labour pains? (Circle all that apply)		<ol style="list-style-type: none"> 1. Relieves anxiety and pain 2. Relaxes the mother 3. Reduces the mother's response



		4. Reduces pain
	c) What is slow-paced breathing? (Circle the appropriate answer)	<ol style="list-style-type: none"> 1. Four short light puffing breaths 2. Deep breaths and exhaling slowly 3. Deep abdominal breaths 4. Inhale and exhale with relaxed lips
Part 111: Change of position and movement		
	a) Is movement and change of position or posture during labour important to the woman? (Circle the relevant answer)	<ol style="list-style-type: none"> 1. Yes 2. No 3. Not sure
	b) What is the use of the squatting position in labour? (Circle the relevant answer)	<ol style="list-style-type: none"> 1. Getting contractions more effectively 2. Good gravity 3. Assess the fetal heart rate more easily 4. Shorten second stage
	c) When should side-lying be used during labour?	<ol style="list-style-type: none"> 1. When labour is taking longer or sharper than expected 2. When there is a lot of show during labour 3. When the membranes have ruptured 4. All of the above
Part IV: Warm and Cold Compresses		

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	<p>a) Why warm and cold application act as nerve is distracts during labour? (Circle the most appropriate answer)</p>	<ol style="list-style-type: none"> 1. Because it provides new sensation 2. Because it increases the perception of pain 3. Because it improves the fetal well being 4. Because it stimulates the uterine contractions
	<p>b) How is a warm compress applied to a woman during labour? (Circle the correct answer)</p>	<ol style="list-style-type: none"> 1. A cloth warmed with warm water 2. Stored heating pads 3. Packs that can be warmed in warm tap water 4. All of the above
	<p>c) How is a cold compress applied to a woman during labour? (Circle the correct answer)</p>	<ol style="list-style-type: none"> 1. Stored cold packs 2. Ice in a plastic bag wrapped with a towel 3. A cloth cooled with cold water 4. All of the above
	<p>d) When should a cold or warm compress be used during labour? (circle the most correct answer)</p>	<ol style="list-style-type: none"> 1. When there is significant descent during active labour 2. As soon as the woman is admitted in first stage room 3. When the woman is in latent labour 4. All of the above



Q9	What are the benefits or advantages of using non-pharmacological techniques to manage labour pains? (Circle all that apply)	<ol style="list-style-type: none"> 1. They cause no side effects to the mother and unborn baby 2. They are cheap 3. They are easy to use 4. They fasten the labour process 5. They are easy to use
Section 3: The practice of non-pharmacological pain management techniques during labour		
Q10	i) Do you use non-pharmacological techniques to manage labour pains? (Circle the most appropriate answer)	<ol style="list-style-type: none"> 1. Yes 2. No
	ii) If yes, which techniques do you use?	
	iii) If yes, when do you use the technique during labour?	
	iv) If yes, what challenges do you face in using that technique(s)?	
	v) If NO, why don't you use the	<ol style="list-style-type: none"> 1. Lack of knowledge of the different

:29

	<p>non-pharmacological techniques to manage labour pains? (Circle all that apply)</p>	<p>non-pharmacological techniques</p> <ol style="list-style-type: none"> 2. Lack of skill on how to use them 3. No equipment 4. Lack of time 5. Work load 6. Labour is a natural process, so not necessary
--	--	---



Appendices 3: Observation Checklist

Appendix three: Observation Checklist list to assess practice of utilization non-pharmacological techniques to manage labour pains

Section 1: Observed Participant details

Participant code: -----
 Location of the observation: -----
 Date and time: -----

Section 2: Observed Woman clinical characteristics

Inpatient number: -----
 Gravida: -----
 Parity: -----
 Diagnosis: -----
 Weeks of amenorrhea: -----
 Stage of labour: -----
 Cms of cervical dilatation: -----
 Intensity of contractions: -----



Section 3: Non-pharmacological techniques of labour pain management

1. Which technique was applied?

	Action	Yes	No
1	Midwives allows mother to ambulate or change different positions during labour		
2	Midwives use breathing techniques or exercises to relieve labor pain		

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3	Midwives massage the back to relieve labour pain		
4	Midwives use hot or cold pack compress to relieve labour pain		
5	Midwives allow mother to listen to music during labour		

2. How was the technique applied?

The 5-point likert scale of satisfaction will be used; where, each of the above non-pharmacological methods of pain management shall be rated. Here 1 shall correspond to Very dissatisfied, 2 dissatisfied, 3 neither dissatisfied nor satisfied, 4 satisfied and 5 very satisfied performances.

Satisfaction	
	Very dissatisfied
	dissatisfied
	neither dissatisfied or satisfied
	Satisfied
	very satisfied

3. For each woman attended to in labour, how many times was the technique applied? or how many techniques were used

Here an ungrouped frequency table will be used to show the frequency of using each non-pharmacological technique, which will be tallied accordingly.

:32

Non-pharmacological technique	Tally	frequency
Massage		
Breathing exercises		
Warm and/ or cold compresses		
Change of position		



Appendices 4: Work Plan

Activity	Months (2024)							
	Jan	Feb	Mar	April	May	Jun	July	Aug
Proposal								
Approval								
Approval collection								
Data Analysis								
Dissertation writing								
Dissemination of study findings								

Appendices 5: Budget

Budget for the principal investigator

Master of Nursing Science (Cohort 8)

Uganda Christian University-Mukono

Activity: Quantitative data collection to assess the effect of Mentoring Midwives on the Use of Non-pharmacological techniques in Managing Labour pains and its effect on their Knowledge and Practices.

Methodology

- Midwives will be engaged for two months
- Midwives will fill a questionnaire pre and post the intervention
- Midwives will be mentored
- Midwives will be observed after the intervention
- Patients file will be reviewed for outcome after intervention

Duration of the activity

The activity will take a maximum of two months: Three days in a week will be used to go the different health facilities.

Budgeted work plan

Activity	Frequency	Unit cost	Number of individuals	Total cost
Data collection in the field	21	50,000	1	1,050,000
Transport	21	70,000	1	1,470,000
Facilitating study participants for the 12 health facilities	21	20,000	48	960,000

Data collection analysis(with a biostatistician)	5	120,000	2	600,000
Total				4,080,000

Appendices 6: Participants Level of Knowledge by Question

	PRE(n=46)				POST(n=46)			
Knowledge on common non-pharmacological technique used in management of labour pains	Correct		Incorrect		Correct		Incorrect	
	No.	%	No.	%	No.	%	No.	%
1. What non-pharmacological techniques used to manage labour pains do you know?	22	47.8%	24	52.2	46	100%	0	0%
PART1 Massage								
2. What does massage refer to?	21	45.7%	25	54.3	38	82.6%	8	17.4%
3. When should massage be used during labour?	13	28.3%	33	71.7	40	87%	6	13%
4. Which part of the woman's body should be massaged during labour?	41	89.1%	05	10.9	43	93.5%	3	6.5%
PART 2. Breathing Exercises								

5. Are breathing exercises important to a woman during labour?	44	95.7%	02	4.3	44	95.7%	2	4.3%
6. How do breathing exercises help in minimizing labour pains?	6	13%	40	87	38	82.6%	8	17.4%
7. What is slow-paced breathing?	28	60.9%	18	39.1	38	83%	8	17%

PART 3. Change of position and movement

8. Is movement and change of position or posture during labour important to the woman?	40	87%	06	13	44	96%	2	04%
9. What is the use of the squatting position in labour?	30	64%	16	36	38	82.6%	8	17.4%
10. When should side-lying be used during labour?	20	43.5%	28	56.5	39	84.8%	7	15.2%

PART 4. Warm and Cold Compresses

11. Why warm and cold application act as nerve is distracts during labour?	25	54.3%	21	45.7	36	78.3%	10	21.7%
--	----	-------	----	------	----	-------	----	-------

12. How is a warm compress applied to a woman during labour?	7	15.2%	39	84.8	27	58.7%	19	41.3%
13. How is a cold compress applied to a woman during labour?	5	10.9%	41	89.1	28	60.9%	18	39.1%
14. When should a cold or warm compress be used during labour?	3	6.5%	43	93.5	19	41.3%	27	58.7%
15. When should a cold or warm compress be used during labour?	18	39.1%	28	60.9	44	95.7%	2	4.3%

Appendices 7: Letter of Approval for Data Collection from UCU REC



UGANDA CHRISTIAN UNIVERSITY

A Centre of Excellence in the Heart of Africa

12/03/2024

To: Nanziri Faridah

Uganda Christian University-Mukono
0783-448128

Type: Initial Review

Re: UCUREC-2024-776: Mentoring Midwives on the Use of Non-pharmacological techniques in Managing Labour pains and its effect on their Knowledge and Practices: A quasi-experimental study in Mukono District, Uganda.

I am pleased to inform you that the Uganda Christian University REC, through expedited review held on **08/03/2024** approved the above referenced study.

Approval of the research is for the period of **12/03/2024** to **12/03/2025**.

As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and addenda to the protocol or the consent form must be submitted to the REC for re-review and approval **prior** to the activation of the changes.
3. Reports of unanticipated problems involving risks to participants or any new information which could change the risk benefit: ratio must be submitted to the REC.
4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by participants and/or witnesses should be retained on file. The REC may conduct audits of all study records, and consent documentation may be part of such audits.
5. Continuing review application must be submitted to the REC **eight weeks** prior to the expiration date of **12/03/2025** in order to continue the study beyond the approved period. Failure to submit a continuing review application in a timely fashion may result in suspension or termination of the study.
6. The REC application number assigned to the research should be cited in any correspondence with the REC of record.
7. You are required to register the research protocol with the Uganda National Council for Science and Technology (UNCST) for final clearance to undertake the study in Uganda.

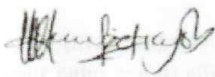
The following is the list of all documents approved in this application by Uganda Christian University REC:



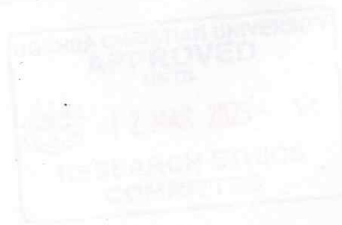
UGANDA CHRISTIAN UNIVERSITY

No.	Document Title	Language	Version Number	Version Date
1	Protocol	English	PDF	2024-01-27
2	Data collection tools	english	english	2024-01-23
3	Data collection tools	english	english	2024-01-24
4	Data collection tools	english	english	2024-01-23
5	Data collection tools	English	English	2024-01-23

Yours Sincerely



Peter Waiswa
For: Uganda Christian University REC



Appendices 8: Letter of Approval for Data Collection from Mukono District Health Office

District Health Officer 0772 / 0701 574612
ASS. DHOMCH 0786-867 663
ASS. DHOENV 0772-628 096

Email: dhomukono@yahoo.com
Website: www.mukono.go.ug



OFFICE OF THE DISTRICT
HEALTH OFFICER
MUKONO DISTRICT
P.O.BOX 25, Mukono - Uganda

IN ANY CORRESPONDENCE ON THIS
SUBJECT PLEASE QUOTE REF. NO

HEA/HRM/MKN/151/02

Date:

17th April 2024

Nanziri Faridah,
Uganda Cristian University (UCU),
Mukono (0788448128).

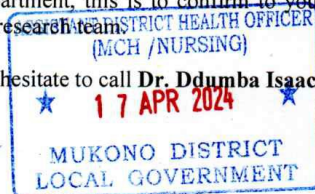
ADMINISTRATIVE CLEARANCE FOR THE STUDY " MENTORING MIDWIVES ON THE USE OF NON-PHARMACOLOGICAL TECHNIQUES IN MANGAING LABOUR PAINS AND ITS EFFECT ON THEIR KNOWLEDGE AND PRACTICES."

Greetings, reference is made to your letter dated 27th March 2024, whereby you requested for administrative clearance to enable you to undertake the above mentioned study at *health facilities in Mukono District*.

I have noted that the study will greatly contribute to the national discussions and policy interventions regarding achieving many *MENTORED MIDWIVES IN MANAGING LABOUR PAINS*.

On behalf of the Medical Department, this is to confirm to you that we shall offer all the necessary support to the entire research team.

In case of queries, please don't hesitate to call **Dr. Ddumba Isaac (PhD)** on 0756427857



Dr. Ddumba Isaac (PhD)
ASST. DISTRICT HEALTH OFFICER – MCH, MUKONO

Copies to:-

- The Secretary for health, Mukono
- The chief Administrative officer, Mukono
- The Medical Superintendent, Mukono General Hospital
- The In-charges, health facilities, Mukono.

Appendices 9: Approval Letters for Data Collection from the Health Facilities

District Health Officer 0772 / 0701 574612
ASS. DHOMCH 0786-867 663
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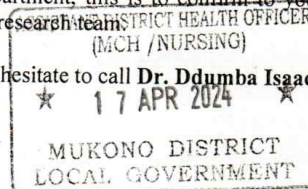
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- The In-charges, health facilities, Mukono.

Received and permission granted.

Ambarah

1/c - Goma Hc III



District Health Officer 0772 / 0701 574612
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Email: dhomukono@yahoo.com
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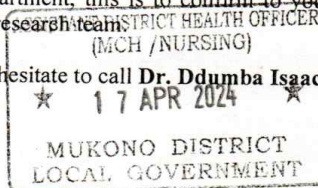
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H. L. L.

1/c. E. L. H. L.



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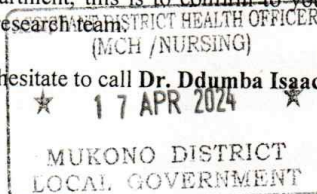
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Incharge Nijja Ole
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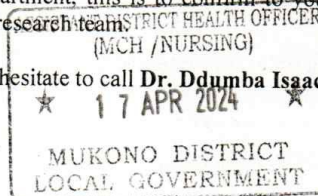
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MCH DIRECTOR 0772-628 056

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IN ANY CORRESPONDENCE ON THIS
SUBJECT PLEASE QUOTE REF NO

HEA/HRM/MKN/151/02

Date

17th April 2024

Nanziri Faridah,
Uganda Cristian University (UCU),
Mukono (0788448128).



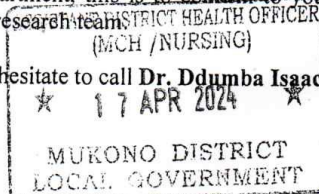
ADMINISTRATIVE CLEARANCE FOR THE STUDY " MENTORING MIDWIVES ON THE USE OF NON-PHARMACOLOGICAL TECHNIQUES IN MANGAING LABOUR PAINS AND ITS EFFECT ON THEIR KNOWLEDGE AND PRACTICES."

Greetings, reference is made to your letter dated 27th March 2024, whereby you requested for administrative clearance to enable you to undertake the above mentioned study at *health facilities in Mukono District*.

I have noted that the study will greatly contribute to the national discussions and policy interventions regarding achieving many *MENTORED MIDWIVES IN MANAGING LABOUR PAINS*.

On behalf of the Medical Department, ~~this is to confirm to you~~ that we shall offer all the necessary support to the entire research team.

In case of queries, please don't hesitate to call **Dr. Ddumba Isaac (PhD)** on 0756427857



Dr. Ddumba Isaac (PhD)

ASST. DISTRICT HEALTH OFFICER – MCH, MUKONO

Copies to:-

- The Secretary for health, Mukono
- The chief Administrative officer, Mukono
- The Medical Superintendent, Mukono General Hospital
- The In-charges, health facilities, Mukono.



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DISSERTATION CORRECTION COMPLIANCE REPORT BY THE CANDIDATE (POST VIVA FORM)

Date: ...29th/ September/ 2025.

Name of Candidate: **NANZIRI FARIDAH** Reg. No: **RM17M11/064**

Title of Dissertation: **Effect of Mentorship on Midwives' Knowledge and Use of Non-Pharmacological Techniques in Managing Labour**

Pains: **A Quasi-Experimental Study in Mukono District, Uganda.**

SN	COMMENTS BY EXTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	<p>Overall Structure & Presentation</p> <p>The thesis is organized into the standard chapters and includes front matter like an abstract, table of contents, and appendices. However, several structural and presentation issues need improvement to align with Uganda Christian University (UCU) guidelines:</p> <ul style="list-style-type: none">• Formatting and Editing: There are unremoved editorial comments and		

	<p>inconsistent formatting, indicating a need for thorough proofreading. For example, the introduction contains an instruction to “<i>Transfer the highlighted information in the next paragraph to here,</i>” which appears as in-text text. Similarly, the Recommendations section includes questions presumably from a supervisor (e.g. “<i>Who is going to do this?</i>”) embedded in the text.</p> <ul style="list-style-type: none"> • Abstract Conciseness and Alignment: The abstract is informative, covering the background, purpose, methodology, key results, and a conclusion/recommendation. However, at roughly 340 words, it slightly exceeds the UCU manual’s recommended length of 300 words. It could be more concise. • Language and Grammar: The academic writing style is mostly clear, but there are noticeable grammar and word usage issues. For instance, the thesis refers to a maternity ward as “labour suit” (likely intended to be <i>labour suite</i>). In the methodology, a sentence reads “<i>The manual was be validated by expert midwives...</i>,” which is grammatically incorrect (should read “was validated”). 	<p>Reviewed the dissertation after making the corrections. Proof read and the text from the Supervisors’ comment deleted.</p> <p>Abstract corrected and aligns with UCUs manual that does not exceed 300 words. It was written with 280 Words</p> <p>This was corrected to the correct language and grammar, which is “The manual was validated by expert midwives in practice”</p>	<p>Proof read introduction and corrected (Page ix)</p> <p>Abstract written with 280 words (Page 1)</p> <p>Page 24</p>
2	<p>Introduction & Problem Statement</p> <p>Background and Context: The introduction’s background section is thorough, moving from a broad overview of the global and regional issue of birth asphyxia and labour pain management to the local context in Mukono District.</p>		

	<p>However, it is somewhat verbose and includes some repetitive statistics. For instance, neonatal mortality and the role of prolonged labour are described in multiple places with overlapping data.</p> <p>Problem Statement: One suggestion is to ensure the problem statement flows directly from the background. In the text, a sentence bridging the background and problem says “<i>This study therefore, addressed the gap by assessing the effect of mentorship...</i>” even before the labeled problem statement.</p> <p>Objectives and Research Question: A critique is that</p> <p>Objective 3 is awkwardly phrased: “<i>to assess the effect of mentoring midwives on the use of non-pharmacological techniques on their knowledge and practice of the same...</i>”. The wording is confusing (it seems to mix “use” with “knowledge and practice”). It could be clarified to separate the effect on knowledge and on practice. For example, two distinct objectives (effect on knowledge, effect on practice) or a rephrasing (“...effect of mentorship on midwives’ knowledge of, and ability to use, NPTs...”).</p>	<p>The statistics that were repeated were removed and the data that overlapped corrected to single data</p> <p>This was corrected and the problem statement now flows from the background</p> <p>The objective question number three was re written and reads “To assess the effect of mentorship on midwives’ knowledge of and their ability to use non-pharmacological techniques during care of women in labour”</p>	<p>Page 2 - Page 3</p> <p>Page 4</p> <p>Page 5</p>
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	<p>Hypothesis: A single research hypothesis is stated. For a quasi-experimental study, one might expect hypotheses like “Mentorship will significantly increase midwives’ knowledge of NPTs” and a separate one for use/practice. The phrasing “influences” is broad; specifying the direction (increases/improves) would make it stronger.</p> <p>Scope and Definitions: One noticeable omission is a clear statement of the <i>scope</i> or delimitations of the study. For instance, the introduction doesn’t explicitly state the geographical scope (though Mukono District is implied), the target population scope (limited to midwives in certain health facilities), or time scope of the study</p>	<p>The hypothesis was stated “Mentorship increases midwives’ knowledge of and their ability to use non-pharmacological techniques for managing labour pains during care of women in labour.”</p> <p>The Scope of Study was defined and the period mentioned</p>	<p>Page 5</p> <p>Page 9</p>
3	<p>Literature Review</p> <p>The literature review is extensive and up to date, covering various aspects of labour pain management and mentorship. The chapter is well-referenced with many contemporary studies (including sources from 2020–2024), indicating the student did substantial research.</p> <p>However, the review could be strengthened by a bit more critical analysis or synthesis in places. For instance, after presenting several studies, the author could highlight patterns or contradictions (e.g., “Most studies indicate midwives have basic awareness of NPTs but lack deeper practical knowledge; this suggests</p>		

	<p>training alone isn't sufficient without practical mentorship").</p> <p>Referencing and Citation Style: While the content of the literature review is well-supported by citations, there are some inconsistencies in citation style that need attention.</p> <p>The thesis claims to use APA style, and mostly does so correctly (author, year format). But a few instances deviate.</p> <p>These minor APA issues could cause confusion about sources and should be standardized.</p>	<p>The referencing and citation style was written correctly using the APA Style</p>	<p>Page 13, 15, 16 & 19.</p>
<p>4</p>	<p>Methodology</p> <ul style="list-style-type: none"> • Research Design: One improvement might be to acknowledge the limitations of this design (e.g., no randomized control, so causality is inferred with caution) up front. • Sampling Method and Sample Size: The sampling approach is described as <i>stratified sampling by facility level</i>, with the 	<p>This was added under the section of study limitations</p> <p>Stratified Sampling was done at facility level but the study participants were screened for eligibility were enrolled into the study using consecutive sampling to ensure proportionate representation</p>	<p>Page 45</p> <p>Page 22</p>

<p>target population of 57 midwives across those facilities, of whom 46 (80.7%) participated. In practice, it appears the researcher included all available midwives who met criteria (essentially a census of the accessible population) – “All midwives who were not on leave...were selected”. Calling this “stratified sampling” is a bit debatable since no random selection within strata was done; rather, the strata (HC III, IV, hospital) were used to ensure proportional representation, and everyone available was taken.</p> <ul style="list-style-type: none"> • While no formal sample size calculation is provided, the student might have justified that including ~80% of the target population increases the power and representativeness. • Study Intervention (Mentorship): A notable strength is the clear description of the mentorship intervention. • Data Collection Procedures: The thesis describes using a structured questionnaire and a structured observation 	<p>The Observation checklist tool was described how it was used. By ticking against the Specific NPT used for each contraction and tallied after</p>	<p>Page 23</p>
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	<p>checklist to collect data. To make this even clearer, the student could have specified how the observations were structured (e.g., was there a checklist of specific NPTs to tick if used or not used during each labour, etc.).</p>		
4	<p>Data Presentation & Analysis</p> <ul style="list-style-type: none"> • The results are generally clearly presented with tables and narrative highlights. • Was the hypothesis proved? • For data like age, years of experience etc, it is good practice to present the mean/median • Table 5 confidence intervals should have been presented as well. 	<p>The Hypothesis was proven although it was not my main focus of Study.</p> <p>The main relationship of the Biographic was presented and discussed with the Chi-Square to show if there was any relationship between the demographics and practice, whereby only years of experience and level of qualification were the only biographic data that were significant.</p>	Page 36 and Page 43

5	<p>Discussion</p> <ul style="list-style-type: none"> • The discussion chapter interprets the study's findings in the context of the objectives, existing literature, and the theoretical framework. The discussion is quite comprehensive, perhaps even too detailed in places. While referencing a broad range of studies is good, the student should ensure the discussion stays focused on interpreting their own results. There is a risk of the discussion becoming a second literature review. For example, statements like "<i>Further, there is consistency with earlier research conducted in the United States, India, Iran, Iraq, and Kenya...</i>" followed by a list of those studies], while showing breadth, could overwhelm the main narrative. It might be better to synthesize e.g., "Our findings agree with numerous studies worldwide that mentorship or training improves providers' knowledge (e.g., studies from the US, Asia, and Africa have reported significant gains in knowledge after such interventions). • To improve, the discussion could be more succinct in places and ensure a tight focus on the study's own findings (using literature to support, not overshadow, those findings). 	<p>The discussion was corrected with better statements other than "Furthermore"</p>	<p>Page 39, 40, 41, 42, 43 and 44.</p>
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6	<p>Conclusion & Recommendations</p> <ul style="list-style-type: none"> • Conclusion: The thesis provides a concluding section that succinctly summarizes the major findings and their implications. However, to better align with UCU guidelines, the conclusion could explicitly state that the research objectives were met. For example, a sentence like “All study objectives were achieved: midwives’ baseline knowledge and practices were assessed, mentorship led to a significant increase in knowledge and a modest increase in use of NPTs, and factors affecting these outcomes were identified.” • Additionally, the conclusion could mention the broader significance of the findings in one or two sentences. The thesis touches on this by linking to the theory and noting improved self-efficacy. It could add, for instance, “These findings suggest that integrating mentorship programs in maternity units can empower midwives, potentially leading to better pain management and improved labour outcomes (like reduced prolonged labour and birth asphyxia).” • Recommendations: The recommendations are relevant and 	This was stated as corrected	Page 45

	<p>flow from the study findings, but they are somewhat general and lack specificity in their current form. However, as written, they are somewhat vague in terms of implementation. For example, “Integrate physical techniques like massage and compressions into antenatal curricula using simulation-based learning” – it raises questions: integrate into whose curricula (nursing schools? refresher courses?), who is responsible for doing this integration, and why specifically simulation?</p> <ul style="list-style-type: none"> To improve, each recommendation should specify what should be done, by whom, and for what purpose: - For 	The recommendations were stated well addressing the Who is to do what	Page 46
	COMMENTS BY VIVA VOCE PANNEL	ACTION TAKEN	INDICATOR
1	How does the theory explain the difference between pre and post knowledge levels	This was explained in the discussion under objective number One and objective three that looked at pre-post Knowledge levels of midwives about NPTs to manage labour pains	Page 39, and pages 41-42
2	Sampling method looks of convenient sampling that the one mentioned, kindly and revise accordingly	Stratified Sampling was done at facility level but the study participants were screened for eligibility were enrolled into the study using consecutive sampling to ensure proportionate representation	Page 22

Nanziri Faridah

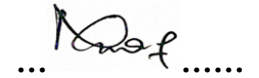
Student's Name



Signature

Mercy Muwema Mwanja

Supervisor's Name



Signature