



**FACULTY OF HEALTH SCIENCE
DEPARTMENT OF COMMUNITY AND PUBLIC HEALTH**

FINAL YEAR MASTERS' DISSERTATION

**FEASIBILITY, ACCEPTABILITY AND EXPERIENCES OF
INTRAPARTUM FETAL MONITORING BY CAREGIVERS USING THE
MOYO DEVICE AT MBALE REGIONAL REFERRAL HOSPITAL: A
PILOT QUASI EXPERIMENTAL STUDY**

By

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This final year masters' dissertation is submitted to the department of Community and public health in partial fulfilment for the award of Master of Public Health of Busitema University

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Abstract

Background: Intrapartum fetal heart rate monitoring (FHRM) is essential for identifying fetal distress and preventing asphyxia-related complications. However, inadequate FHRM due to staffing shortages is a critical issue in low-resource settings such as Uganda, where intrapartum-related neonatal deaths are high. The Moyo device, a portable fetal heart rate (FHR) monitor, reduced perinatal morbidity and mortality in a recently conducted trial in Mbale. However, its potential remains underutilized due to a high patient-to-midwife ratio. Recent evidence suggests that task-sharing FHRM with caregivers may address poor fetal monitoring practices, enabling non-clinical individuals to support the timely identification of fetal distress.

Objective: This study assessed the feasibility, acceptability, and caregivers' experiences with intrapartum FHRM using the Moyo device at Mbale Regional Referral Hospital (MRRH), Eastern Uganda.

Methods: A pilot quasi-experimental study design was used employing a sequential explanatory mixed-methods approach at MRRH. Caregivers of labouring women were consecutively enrolled, trained, and guided to monitor FHR every 30 minutes using the Moyo device. Feasibility was defined as achieving a mean monitoring interval within 30 ± 5 minutes, while acceptability was assessed using a five-point Likert scale converted into percentage scores and categorized using Bloom's criteria. Experiences of caregivers who used the Moyo were explored through structured, in-depth interviews. Quantitative data were analysed using Stata version 17, and qualitative data were analysed thematically using Atlas. ti.

Results: A total of 75 caregivers participated, with a median age of 32 years (IQR: 25–42). Most were female (n=70, 93.3%) and had primary-level education (n=35, 46.7%). The majority of participants (n=74, 98.7%) were able to use the Moyo device to check and document FHR, with 65 (86.7%) reporting no technical issues. However, only 34.7% (n=26) of caregivers were able to monitor FHR at 30-minute intervals, and 65.3% (n=49) of readings within 60 minutes. The median number of FHR recordings was 3 (IQR: 1–10), and the mean duration of the active stage of labour was 10.9 ± 9.7 hours. Feasibility was higher among caretakers who were first or second-degree relatives (61.5%; $p = 0.037$). The majority of the caregivers (n=70, 93.3%) found FHRM using the Moyo device acceptable. Caregivers reported positive experiences with the Moyo device, driven by curiosity, reassurance about fetal safety, and a desire to learn.

Conclusion: Intrapartum FHRM by caregivers using the Moyo device was highly acceptable, and most caregivers correctly used the device. However, adherence to the recommended 30-minute monitoring interval remained low. Similar initiatives involving caregivers should prioritize practical support systems like reminders and workflow integration to enable timely recordings and improve adherence to recommended FHR monitoring.

Keywords: intrapartum monitoring, fetal heart rate, Moyo device, task sharing, caregiver

Declaration

I, Nakawuki Ashley Winfred, declare that this dissertation is my original work and has never been submitted to any academic institution/company for any purpose.

Signature

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Approval

This dissertation has been submitted with the approval of my supervisors.

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List of abbreviations and acronyms

CS	Caesarean section
CTG	Cardiotocography
ENND	Early Neonatal Deaths
FHR	Fetal Heart Rate
FSB	Fresh Still Births
FY	Financial Year
HIC	High-income countries
IA	Intermittent Auscultation
IDI	In-Depth Interviews
FHRM	Fetal Heart Rate monitoring
LIC	Low-income countries
MRRH	Mbale Regional Referral Hospital
SB	Still Birth
TAM	Technology Acceptance Model
WHO	World Health Organisation

Operational definitions

Acceptability is a multi-faceted construct that reflects the extent to which people delivering or receiving a healthcare intervention consider it to be appropriate, based on anticipated or experienced cognitive and emotional responses to the intervention (Sekhon et al., 2017)

Caregiver: a non-clinical person who attends to the needs or concerns of a pregnant woman during labour and immediately after delivery. This could be a member of the family, a neighbor, or a close friend, commonly known as an attendant (WHO, 2018) .

Feasibility in this study is defined by frequency of intrapartum fetal heart rate monitoring in the first stage of active labour for normal labour as per the WHO guidelines (WHO, 2018).

Intrapartum monitoring refers to the continuous or intermittent observation and assessment of a mother and fetus during labour and childbirth (Lightly et al., 2022).

Moyo device is a strap-on automatic multi-crystal Doppler device that has been recently introduced into clinical practice designed for both intermittent and continuous fetal heart rate monitoring (Munyaw et al., 2022).

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