IMPLICATIONS OF THE M-MAMA PROGRAM IN REDUCING CHILD MORTALITY RATES IN SINGIDA REGION, TANZANIA

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A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN MONITORING AND EVALUATION (MAM&E)

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CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by the Open University of Tanzania a dissertation entitled; "**Implications of the M-Mama Program in Reducing Child Mortality Rates in Singida Region, Tanzania"** in partial fulfillment of the requirements for the award of the Degree of Master of Arts in Monitoring and Evaluation (MAM&E).

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DECLARATION

I, **Donald Ephata,** declare that, the work presented in this dissertation is original. It has never been presented to any other University or Institution. Where other People's works have been used, references have been provided. It is in this regard that I declare this work as originally mine. It is hereby presented in partial fulfillment of the requirement for the Degree of Master of Arts in Monitoring and Evaluation (MA M&E).

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12th September 2024

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Date

DEDICATION

This dissertation is dedicated to the people of Singida Region, Tanzania, whose resilience (ability to withstand hardship/difficulty) and perseverance (quality of continuing in a course of action despite difficulty or opposition) in the face of adversity inspire us all. It is also dedicated to the healthcare providers and community health workers (CHWs) who tirelessly work to improve the health and well-being of the population.

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ABSTRACT

This dissertation investigates the effectiveness of the m-Mama program in reducing child mortality rates in the Singida region of Tanzania. The study employed a quantitative cross-sectional design, collecting data from 150 pregnant women and new mothers. The findings reveal that participation in the m-Mama program is significantly associated with lower child mortality rates. Beneficiaries were more likely to utilise maternal and child health services, such as antenatal care, postpartum care, and routine checkups. The program also enhanced knowledge, attitudes, and practices related to maternal and child health among beneficiaries. Key factors contributing to reducing child mortality include increased access to healthcare services, improved knowledge of danger signs, and enhanced confidence in handling child health needs. However, challenges such as limited program coverage and network connectivity hinder the program's reach and effectiveness. Recommendations include scaling up the m-Mama program, integrating it with other health services, conducting long-term evaluations, and conducting cost-effectiveness analyses. By addressing these areas, the m-Mama program can continue to make a significant contribution to reducing child mortality and improving maternal and child health outcomes in Tanzania.

Keywords: *M-Mama Program, Maternal and Child Health, Child Mortality, Mobile Health Intervention.*

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ANC	Antenatal Care
BJOG	An International Journal of Obstetrics and Gynecology
BMC	Biomedical Central (BMC Pregnancy and Childbirth journal)
CHWs	Community Health Workers
CMR	Child Mortality Rate
DHIS	District Health Information Systems
EmOC	Emergency Obstetric Care
FGD	Focus Group Discussion
GHO	Global Health Observatory
ICF	Inner City Fund (ICF International, now known as ICF)
KAP	Knowledge, Attitudes, and Practices
mHealth	Mobile Health
M-Mama	A mobile health intervention for maternal and child health
MMR	Maternal Mortality Ratio
NIH	National Institutes of Health
SPSS	Statistical Package for Social Sciences
TDHS	Tanzania Demographic and Health Surveys
TDHS-MIS	Tanzania Demographic and Health Survey and Malaria Indicator Survey
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background Information

Child mortality remains a significant and persistent global public health concern. Despite significant progress, an estimated 5.4 million children under the age of five died in 2020 worldwide, translating to a staggering 14,800 deaths every single day (UNICEF, 2024). These preventable deaths are often caused by infectious diseases, complications during birth, and malnutrition (World Health Organization, 2023). Sub-Saharan Africa disproportionately bears the weight of this global crisis. In 2020, this region accounted for nearly half (47%) of all under-five deaths globally (UNICEF, 2024). Limited access to healthcare services, poverty, and inadequate sanitation contribute significantly to these high rates (Black et al., 2010).

Many children in Sub-Saharan Africa face a heightened risk of death due to preventable causes such as malaria, pneumonia, diarrhea, and malnutrition. Also, newborn mortality rates remain alarmingly high, reflecting challenges in maternal and neonatal care. The persistent threat of infectious diseases, coupled with inadequate healthcare infrastructure and skilled personnel, exacerbates the crisis. (WHO, 2023).

Tanzania has made commendable strides in reducing child mortality. The under-five mortality rate has declined from 111 deaths per 1,000 live births in 1990 to 41 deaths per 1,000 live births in 2020 (UNICEF, 2024). However, Tanzania's commendable strides in reducing child mortality nationwide, significant disparities persist across the country. According to the 2022 Tanzania Demographic and Health Survey

(TDHS), rural areas continue to face a harsher reality, with child mortality rates exceeding the national average. This disparity is primarily attributed to limited access to healthcare facilities, particularly in remote areas, coupled with transportation barriers and socioeconomic factors. These challenges contribute to higher rates of preventable child deaths in rural regions, highlighting the urgent need for targeted interventions to address these disparities and ensure equitable access to healthcare services.

The Singida region in Tanzania continues to face significant challenges in terms of child health. A study in 2022 revealed a concerning under-five mortality rate of 62 deaths per 1,000 live births, exceeding the national average (National Bureau of Statistics Tanzania, 2022). This alarming rate highlights the urgent need for targeted interventions to address the underlying factors contributing to child mortality in Singida. While the Tanzanian government has made strides in expanding healthcare infrastructure and services, access to healthcare facilities, particularly in remote areas like Singida, remains a significant challenge. According to the 2022 Tanzania Demographic and Health Survey (TDHS)**,** many rural communities still lack adequate access to healthcare services, including maternal and child health care. Also, transportation barriers continue to impede access to health facilities, especially for women in labor and children with urgent medical needs. These factors contribute to the high child mortality rates observed in Singida.

The m-Mama Program is a mobile health intervention for maternal and child health that has emerged as promising solutions to address these challenges in resource-limited settings. Developed by Touch Health, m-Mama delivers critical health

information and reminders directly to pregnant women and mothers of young children through their mobile phones. The Vodafone Foundation is a key partner in the m-Mama program. In Tanzania, the m-mama program collaborates with communication companies like Vodacom, where anyone can call number 115 free for emergency transport (Vodafone Foundation, 2022). By providing essential health information, promoting timely healthcare service utilization, and enhancing communication between healthcare providers and mothers, m-Mama aims to improve maternal and child health outcomes.

According to M-mama (2022), M-mama is designed to decrease maternal and newborn mortality in Tanzania. The m-Mama program is designed to improve access to emergency transportation, particularly for women experiencing labor complications. Also, it aims to enhance emergency preparedness at healthcare facilities and improve communication between referring and receiving facilities. Since its launch in 2022 the program has been operational in Singida for approximately two years. The Tanzanian government, supported by the Vodafone Foundation and USAID, has been expanding m-Mama to all regions of the country, including Singida. This expansion is being implemented under the guidance of the President's Office for Regional Administration, Local Government, and the Ministry of Health.

1.2 Problem Statement

Child mortality remains a devastating challenge across the globe, with Sub-Saharan Africa bearing a disproportionate burden compared to other regions (World Health Organization, 2023). According to the 2022 Tanzania Demographic and Health

Survey (TDHS), Singida had an under-five mortality rate of 62 deaths per 1,000 live births, significantly higher than the national average of 41 deaths per 1,000 live births. This data highlights the region's disproportionate share of the global child mortality crisis.

A significant proportion of women in Singida deliver their babies at home without the assistance of a skilled health professional. This lack of access to skilled care can lead to complications during childbirth, increasing the risk of maternal and child mortality. Also, transportation barriers can hinder access to emergency medical care, particularly in remote areas of Singida, further exacerbating the problem (TDHS 2022). However, reliable transportation options are often scarce in remote areas of Singida, creating a significant barrier to reaching emergency medical services (National Institutes of Health, 2018). These limitations in access to skilled care and emergency transportation contribute to (tragic outcome) high child mortality rates within Singida, as confirmed by recent data (TDHS-MIS 2022).

The m-Mama program emerges as a potential solution to address some of these critical access issues. This mobile health (mHealth) intervention aims to empower mothers with knowledge and potentially facilitate access to care. Bridging the information gap M-Mama delivers crucial health information and reminders directly to pregnant women and mothers of young children through their mobile phones. This equips them with knowledge on danger signs, prenatal care, and healthy practices for themselves and their children. While further research is needed to confirm its specific functionality, the program offers assistance with emergency transportation during childbirth complications. Even without direct transportation support, timely

information and communication facilitated by m-Mama can encourage women to seek care and navigate the healthcare system more effectively.

Despite the promising potential of the m-Mama program, a critical knowledge gap persists regarding its effectiveness in reducing child mortality rates in Singida. While existing research confirms the region's high child mortality burden, rigorous quantitative evaluations are lacking to definitively assess the program's impact. Further research is needed to determine if m-Mama is successfully contributing to a reduction in child deaths in Singida.

1.3 Research Objectives

1.3.1 General Objective

To explore the effectiveness of the M-Mama program in reducing child mortality rates in Singida Region, Tanzania.

1.3.2 Specific Objectives

1. To evaluate the impact of participating in the M-Mama program on reducing child death risks in Singida Region.
2. To investigate the utilization of maternal and child health services among beneficiaries of the M-Mama program compared to non-beneficiaries.
3. To assess the knowledge, attitudes, and practices related to maternal and child health behaviors among participants of the M-Mama program.
4. To explore the perceptions and challenges faced by program beneficiaries regarding the implementation, accessibility, and effectiveness of the M-Mama program in reducing child mortality rates.

1.4 Research Questions

1. Does the m-Mama program participation in Singida associate with a reduction in child mortality rates?
2. Does m-Mama program participation in Singida influence mothers' utilization of maternal and child health services compared to non-participants?
3. Do m-Mama program participants in Singida exhibit greater knowledge, improved attitudes, and better practices related to maternal and child health compared to non-participants?
4. How do m-Mama program beneficiaries in Singida perceive the program's accessibility, effectiveness, and challenges in reducing child mortality rates?

1.5 Significance of the Study

This study holds the potential to revolutionize child health outcomes in Singida, Tanzania, and serve as a beacon of hope for replicating success in similar resource-limited settings. By rigorously evaluating the impact of the m-Mama program on child mortality rates, the study provides robust evidence for policymakers and public health professionals. A statistically significant association between program participation and reduced child mortality would be a game-changer. It could inform the large-scale implementation of m-Mama across Singida and beyond, potentially saving countless lives.

Furthermore, the study goes beyond a simple yes-or-no answer. By delving into the program's mechanisms of action, the research illuminates the "how" behind any potential reduction in child mortality. Examining program utilization patterns among

participants reveal if the program successfully increases access to maternal and child health services like antenatal care and facility deliveries. Additionally, exploring changes in knowledge, attitudes, and practices related to maternal and child health among participants provides insights into potential behavior modifications triggered by the program. Also the study prioritizes the voices of m-Mama beneficiaries themselves. By investigating their perceptions on program accessibility, effectiveness, and challenges, the research identify areas for improvement. This user-centered approach informs targeted program modifications to enhance its reach, effectiveness, and ultimately, its impact on reducing child mortality rates.

In essence, this study has the potential to not only demonstrate the effectiveness of the m-Mama program but also to pave the way for its optimization and widespread use. The findings could empower policymakers and public health professionals with data-driven strategies to combat the persistent tragedy of child mortality in resource-limited settings. This has the potential to save countless lives and improve the overall health and well-being of mothers and children in Singida and beyond.

1.6 Summary

This chapter lays the groundwork for the research on child mortality in Singida, Tanzania. It begins with a sobering reminder of the global burden of child death, with Sub-Saharan Africa facing the brunt of the crisis. While Tanzania has made strides nationally, Singida a rural region, struggles with high child mortality rates due to limited access to skilled birth attendants, transportation barriers, and poverty. The m-Mama program emerges as a potential solution, aiming to empower mothers with knowledge and potentially facilitate access to care through mobile technology.

However, a critical gap exists; a lack of rigorous research to determine if the program actually reduces child mortality in Singida.

In the opening act of this research endeavor, the chapter sets the scene for the critical issue of child mortality in Singida, Tanzania. It paints a grim picture of the global challenge, highlighting Sub-Saharan Africa's disproportionate burden. Despite Tanzania's national progress, Singida, a rural area, remains trapped in a cycle of high child mortality. Limited access to skilled birth attendants, scarce transportation options during emergencies and poverty all contribute to this tragic reality. The m-Mama program emerges as a beacon of hope, wielding the power of mobile technology to empower mothers with knowledge and potentially bridge the gap to essential healthcare.

However, a crucial question hangs unanswered: does m-Mama truly translate to a reduction in child deaths within Singida? This research dives headfirst into this critical gap, meticulously outlining specific objectives. These objectives delve into the program's impact on reducing child death risks, beneficiary utilization of healthcare services, knowledge and practice changes among participants, and ultimately, the program's effectiveness and accessibility as perceived by the mothers themselves. By addressing these questions, the study aspires to not only illuminate the program's effectiveness but also pave the way for its optimization, with the ultimate goal of saving countless lives and fostering a healthier future for mothers and children in Singida and beyond. Finally, the study's alignment with Tanzania's development goals established.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

High child mortality rates remain a significant public health challenge in low-resource settings, including Singida, Tanzania. This chapter reviews existing literature relevant to the effectiveness of the m-Mama program in reducing these mortality rates. The chapter addresses key concepts, relevant theories, existing empirical studies, and identify knowledge gaps that this research aims to address, all within the framework of the study's specific objectives.

2.2 Key Concepts and Definitions

Maternal Mortality Ratio (MMR) is the number of maternal deaths per 100,000 live births (World Health Organization, 2020). This study not directly measure MMR but utilize existing data from government health surveys. Child Mortality Rate (CMR) is the number of deaths of children less than five years old per 1,000 live births (World Health Organization, 2023). Operational Definition: CMR in this study was measured using data on under-five deaths obtained from district health information systems (DHIS) and Tanzania Demographic and Health Surveys (TDHS).

Emergency Obstetric Care (EmOC) it is essential interventions provided to pregnant women experiencing complications during childbirth (World Health Organization, 2018). This study will not directly measure access to EmOC but consider it as a potential mediating variable between the m-Mama program and child mortality reduction. Mobile Health (mHealth) is the use of mobile and wireless technologies to improve health outcomes (World Health Organization, 2011). The m-Mama program

is an example of a mHealth intervention.

2.3 Theoretical Framework: The Safe Motherhood Framework (SMF)

The Safe Motherhood Framework (SMF) by George Acsadi et al. (2016) provides a robust theoretical lens for understanding the potential impact of the m-Mama program on child mortality in Singida, Tanzania. The SMF emphasizes three key components:

Availability of skilled birth attendants: While the m-Mama program does not directly address this component, it can indirectly contribute to improved skilled birth attendance by facilitating timely access to emergency care. When women in labor experience complications, the program can help connect them with healthcare facilities that have skilled birth attendants available. Accessibility of EmOC services: The m-Mama program directly addresses this component by improving access to emergency transport for women experiencing childbirth complications. By providing timely transportation, the program can help ensure that women in need of emergency obstetric care can reach appropriate facilities.

Quality of care: While the m-Mama program primarily focuses on access, future research can explore how it may indirectly influence the quality of care received at healthcare facilities. For example, by improving access to emergency transport, the program may reduce the time it takes for women to reach facilities, which could potentially lead to better quality of care. The SMF considers a wide range of factors that contribute to maternal and child health outcomes, providing a comprehensive framework for understanding the complex interplay of these factors, the SMF is directly applicable to the research question, as it focuses on the factors that influence

child mortality and how the m-Mama program can address these factors and also the SMF can inform policy decisions by highlighting the importance of addressing all three components of the framework to improve maternal and child health outcomes.

While the SMF considers the availability and accessibility of healthcare services, it does not explicitly address the broader social determinants of health, such as poverty, education, and gender inequality, which can also significantly impact maternal and child health outcomes. Also it can be difficult to accurately measure all three components of the SMF, particularly in resource-limited settings. This can make it challenging to assess the overall effectiveness of interventions aimed at improving maternal and child health.

The SMF is particularly relevant to this study because it provides a framework for understanding how the m-Mama program can address the key factors contributing to child mortality in Singida. By improving access to emergency transport, the program can help ensure that women in need of emergency obstetric care can reach appropriate facilities, thereby improving the accessibility of EmOC services. While the program does not directly address the availability of skilled birth attendants, it can indirectly contribute to this component by facilitating timely access to care.

2.4 Empirical Review

2.4.1 To Evaluate the Impact of Participating in the M-Mama Program on Reducing Child Death Risks in Singida Region

Research by Mwageni et al. (2016) explored the impact of the m-Mama program on healthcare facility utilization during delivery complications. Their findings suggest

an increase in facility deliveries among program participants. While existing studies show promise regarding increased healthcare facility utilization, there is a lack of research directly investigating the program's impact on reducing child death risks in Singida. A study by Odhiambo et al (2019) conducted in Kenya found that a mobile-based maternal and child health program was associated with increased antenatal care visits and immunization coverage. The interventions have shown promise in improving child health outcomes, including reducing child mortality rates. While this study did not directly assess child mortality, it highlights the potential positively impact to child health indicators.

Research on mHealth interventions demonstrates positive impacts on child health, including immunization coverage, growth monitoring, and antenatal care utilization, direct evidence linking m-Mama programs to reduced child mortality remains limited (Patel et al., 2016; Thadhani et al., 2017). In the African context, studies from Ghana (Awuah et al., 2018) and Nigeria (Odimegwu et al., 2019) showcase the potential of mHealth interventions in improving maternal and child health knowledge and practices, as well as newborn care. However, more research is needed to specifically evaluate the impact of m-Mama programs on child mortality rates and to understand the underlying mechanisms driving these outcomes (Patel et al., 2016; Thadhani et al., 2017).

2.4.2 To Investigate the Utilization of Maternal and Child Health Services among Beneficiaries of the M-Mama Program Compared to Non-Beneficiaries

Several studies have explored the impact of mHealth interventions on healthcare service utilization (Nguyen et al., 2019; Binagwaho et al., 2016). These studies show

that mHealth interventions can increase utilization of antenatal care (ANC) services and facility deliveries. While these studies provide general insights into mHealth and healthcare service utilization, there is a paucity of research specifically examining the m-Mama program's impact on service utilization compared to non-beneficiaries within Singida's context.

The effectiveness of m-Mama programs in increasing maternal and child health (MCH) service utilization is a critical area of inquiry. While the global landscape of mHealth interventions has shown promise in enhancing ANC, PNC, and immunization services (Patel et al., 2016; Thadhani et al., 2017), research specifically targeting m-Mama programs is limited. In the African context, particularly Sub-Saharan Africa, studies in Ghana (Awuah et al., 2018) and Nigeria (Odimegwu et al., 2019) have demonstrated the potential of mobile health interventions to increase ANC visits, facility deliveries, and postnatal care utilization. However, the East African region, exemplified by Kenya (Odhiambo et al., 2019), requires more research to understand the specific impact of m-Mama programs on service utilization. To effectively evaluate these programs, future studies should compare beneficiaries with non-beneficiaries and explore factors influencing service uptake.

2.4.3 To Assess the Knowledge, Attitudes, and Practices Related to Maternal And Child Health Behaviors Among Participants of the M-Mama Program

Studies by Mwanga et al., (2020) and Nwabuobi et al., (2013) assessed knowledge and behaviors related to pregnancy care among m-Mama program participants. These studies found positive changes in knowledge and self-reported behaviors

regarding danger signs and seeking medical attention. While these studies contribute valuable insights, further research is needed to explore the long-term impact of the program on knowledge, attitudes, and practices, considering potential behavior change over time.

The influence of m-Mama programs on maternal and child health (MCH) knowledge, attitudes, and practices (KAP) is a critical area of research. The global studies on mHealth interventions have demonstrated positive impacts on KAP (Patel et al., 2016; Thadhani et al., 2017) research specifically focused on m-Mama programs remains limited. In the African context, particularly Sub-Saharan Africa, studies in Ghana (Awuah et al., 2018) and Nigeria (Odimegwu et al., 2019) have shown that mobile health interventions can positively influence maternal and child health knowledge and behaviors. However, the East African region, including Kenya (Odhiambo et al., 2019), requires further investigation into the specific impact of m-Mama programs on KAP. To comprehensively understand the long-term effects of these programs, future research should explore factors influencing KAP changes and how these changes translate into improved health outcomes.

2.4.4 To Explore the Perceptions and Challenges Faced By Program Beneficiaries Regarding the Implementation, Accessibility, and Effectiveness of the M-Mama Program in Reducing Child Mortality Rates

Limited research explores the perspectives of beneficiaries regarding the m-Mama program's implementation and challenges. There is a critical gap in understanding beneficiary experiences and challenges faced when using the program. This study aims to address this gap by exploring perceptions of accessibility, effectiveness, and

challenges related to the program's implementation in reducing child mortality rates in Singida by incorporating the views of beneficiaries, this study can provide valuable insights for program improvement and future implementation strategies.

Understanding beneficiary perspectives on m-Mama programs is crucial for improving their implementation, accessibility, and effectiveness in reducing child mortality. While research on mHealth interventions highlights the importance of user-centered design (Patel et al., 2016; Mishra et al., 2018), studies specifically focusing on m-Mama programs and beneficiary experiences remain limited. Although the African continent has witnessed a growing recognition of the need to understand beneficiary perspectives (Awuah et al., 2018; Odimegwu et al., 2019), further research is necessary, particularly in the East African region. To address the identified knowledge gap, future studies should prioritize qualitative research to explore beneficiary experiences in depth, examining how perceptions influence program outcomes and identifying strategies for improvement.

2.5 Research Gap

High child mortality rates continue to cast a long shadow over Tanzania, particularly in the Singida Region. Limited access to quality healthcare, widespread poverty, and inadequate infrastructure all contribute to this critical public health challenge. Despite national efforts to improve maternal and child health outcomes, Tanzania still faces a significant burden of child deaths (World Bank, 2023). This study focuses on the potential of the m-Mama program to address this crisis within the specific context of Singida. The m-Mama program is a mobile health intervention designed to combat these challenges by providing critical information on maternal

and child health through mobile phones, potentially improving health behaviors and knowledge (Njiro et al., 2023). The program offer assistance with emergency transportation during childbirth complications.

However, despite the promising potential of the m-Mama program, a crucial gap exists in understanding its effectiveness. While existing research suggests the program improve knowledge and behaviors related to maternal and child health (Mwanga et al., 2020), a rigorous quantitative evaluation of its impact on directly reducing child mortality rates within the Singida is lacking. This study aims to address this critical knowledge gap by examining the association between participation in the m-Mama program and child mortality rates in Singida, this research seeks to determine the program's effectiveness in tackling this specific public health concern. The findings can provide valuable insights for policymakers and healthcare professionals as they strive to improve child health outcomes in Singida and beyond.

2.6 Conceptual Framework

Based on the specific objectives and identified research gaps, the conceptual framework focus on the m-Mama program's impact on child mortality rates in the Singida, Tanzania. The conceptual framework provides a structured overview of the study, outlining the relationships between the independent variables and the dependent variable. It helps to guide the data collection and analysis process by providing a clear focus for the research.

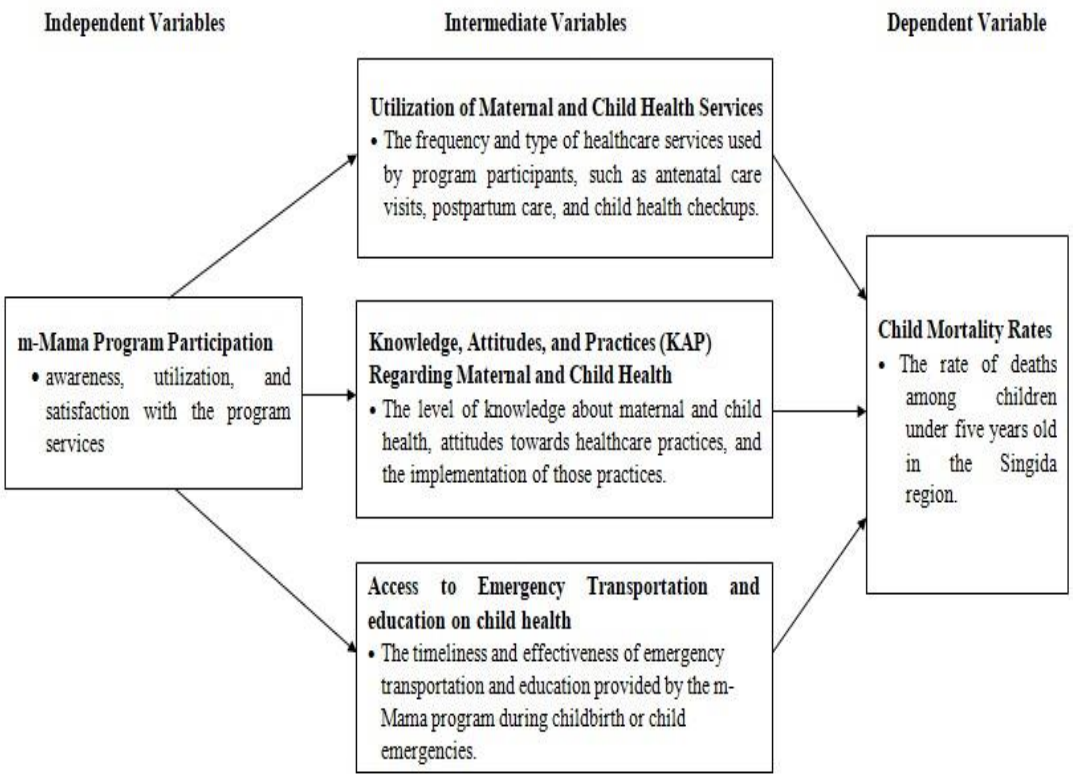

Figure 2.1: Conceptual Framework

Source: The Researcher, (2024)

Hypothesized Relationships according to conceptual framework

1. Impact of m-Mama Program Participation on Child Mortality Rates.

   Participation in the m-Mama program is expected to lead to a reduction in child mortality rates by improving access to timely healthcare services and emergency transportation.

2. Effect of m-Mama Program Participation on Utilization of Maternal and Child Health Services.

   Participation in the m-Mama program is hypothesized to increase the utilization of maternal and child health services, leading to better health outcomes for both mothers and children.

3. Influence of m-Mama Program Participation on Knowledge, Attitudes, and Practices (KAP).

   The m-Mama program is expected to enhance participants' knowledge, attitudes, and practices related to maternal and child health, contributing to healthier behaviors and practices that reduce health risks.

4. Perceptions and Challenges of m-Mama Program Implementation.

   Beneficiary perceptions and challenges regarding the program's implementation and accessibility may affect the program's overall effectiveness and outcomes.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter outlines the research methodology employed to evaluate the effectiveness of the M-Mama program in reducing maternal and child mortality rates in Singida, Tanzania. It details the research approach, research design, sampling strategy, data collection methods, data analysis plan, and addresses critical choices made during the research process.

3.1 Research Philosophy

This study adopts a quantitative research approach aligned with the positivism philosophy (Bryman, 2016). This approach emphasizes objectivity, standardized data collection (surveys), and statistical analysis to test hypotheses and establish cause-and-effect relationships. This aligns with the study's aim to assess the program's impact on measurable outcomes (maternal and child mortality rates).

3.2 Research Design

A cross-sectional research design was employed. This design involves collecting data from a sample population at a single point in time. Also Cross-sectional studies are generally less time-consuming and resource-intensive compared to longitudinal designs, which track participants over extended periods. This is beneficial considering potential research time constraints. This study adopted a positivist research approach, aligning with the chosen cross-sectional design. Positivism emphasizes objectivity, relying on measurable data to test hypotheses and establish relationships between variables. Quantitative data collected through questionnaires was analyzed using statistical methods to identify significant associations between

program participation and child mortality rates at a specific point in time (Polit & Beck, 2017).

3.3 Study Area

The study area for this research is Singida Region, Tanzania. This specific location was chosen because the m-Mama program, a mobile health intervention designed to improve maternal and child health outcomes, is implemented in Tanzania and in this region inclusively. The researcher chose Singida as a study area due to its unique position among program beneficiaries. Singida faces significant maternal and child mortality challenges, including limited access to healthcare facilities, particularly in rural areas. This context allows us to examine the program's effects within a region grappling with specific healthcare access issues, offering a more comprehensive picture of its impact. Singida's economy is primarily driven by agriculture and livestock, with subsistence farming and livestock rearing being the most common activities. The region also engages in natural resource extraction, small-scale industries, and trade.

3.4 Study Population

The target population in the research study refers to the entire group of individuals to which the findings of the study are intended to be generalized (Asiamah, M & Oteng-Abayie, 2017). According to the 2022 census, the number of pregnant women was estimated to be 27690 from productive age, which covers about 41.5% of the Singida’s women. The study was conducted in the Singida region, targeting two distinct groups of participants. Based on this study the population consisted of 27690 pregnant women and new mothers who are enrolled in and actively utilize the M-

Mama program, a maternal health initiative designed to improve access to healthcare services for mothers and their babies. This group was selected to assess the impact and effectiveness of the m-Mama program in enhancing maternal health outcomes. The second group, serving as a comparison group, comprised pregnant women and new mothers who are not enrolled in or do not utilize the m-Mama program. By comparing these two groups, the study aimed to evaluate the differences in health outcomes and service utilization between those benefiting from the program and those who are not, providing insights into the program's overall effectiveness in the Singida region.

3.5 Sample Size

The Slovin's formula was used in determining the appropriate sample size for a research study (Yamane, 1973). The formula considers the population size and desired margin of error. Slovin's formula was used to calculate the sample size. Because the research population is known, Slovin's formula was applied. Each district was assigned a proportionate share of respondents.

The calculation of the sample size was as follows:

Formula: n = N/ (1+Ne^2)

Where: N = Total number of pregnant and new mothers in Singida

n = Estimated sample size

e = stands for margin error. A margin error of 8.2% employed.

Therefore

n = 27690/ (1+27690*0.082^2)

=150

Note: *While calculating sample using Slovin's formula is approximately 149, rounding it up to 150 to ensure more robust sample size and to align with the common practices in this study.*

3.6 Sampling Procedures and Sampling Technique

A multistage sampling approach was employed to select participants from the Singida region, which consists of five districts. This method is particularly effective for large and geographically dispersed populations. In the first stage, all five districts within the region were included in the study to ensure comprehensive regional representation. In the second stage, five health facilities were randomly selected from each district, resulting in a total of 30 health facilities. Finally, in the third stage, six respondents were randomly chosen from each of the selected health facilities, leading to a total of 150 respondents. This sampling technique ensured a broad and diverse sample that accurately reflects the population of the Singida region, capturing variations across different geographical areas and healthcare settings.

The sample was divided into two groups. First is the intervention group, which was pregnant women and new mothers who are enrolled in and actively utilize the m-Mama program, and second is the comparison group, which was pregnant women and new mothers who are not enrolled in or do not utilize the m-Mama program. Stratified sampling is used within each health center to ensure proportional representation of the intervention and comparison groups based on their estimated prevalence within the Singida population.

3.7 Data Collection Methods

According to Creswell (2014), data collection methods are the techniques and procedures used to gather information for research purposes. This study used the

quantitative data collection method.

3.7.1 Quantitative Data

A standardized questionnaire was the primary tool for collecting quantitative data. The questionnaire developed based on previous research and it was include closed-ended questions to gather information on Demographics (age, parity, socio-economic status), Knowledge and attitudes towards the m-Mama program (intervention group only), Healthcare utilization (antenatal care visits, facility deliveries) and Pregnancy complications experienced. The questionnaire was administered to participants at selected health centers by trained research assistants. This method ensures standardized data collection and minimizes interviewer bias.

To enhance data validity and credibility, member checking, peer debriefing and triangulation approach allowed for a more comprehensive understanding of the m-Mama program's impact and the factors influencing child mortality rates in the Singida region.

3.8 Data Analysis

Quantitative data was analyzed using the Statistical Package for Social Sciences (SPSS) software version 26, where descriptive statistics (frequencies, percentages, means, and medians) were used to summarize participant characteristics and program utilization.

Objective 1: Logistic regression used to assess the association between participation in the m-Mama program (independent variable) and child mortality rates (dependent variable), controlled for potential confounders (socioeconomic status, access to

healthcare facilities).

Objective 2: Chi-square tests are exact tests (depending on cell frequencies) used to compare healthcare service utilization between the intervention and comparison groups.

Objective 3: Descriptive statistics used to examine summarized knowledge and attitudes towards the m-Mama program among participants in the intervention group.

3.9 Limitations of the Cross-Sectional Design

While the cross-sectional design allows for efficient data collection and analysis of associations, it cannot definitively establish causal relationships between program participation and mortality rates. Future research designs, such as cohort studies, could be employed to explore causal pathways over time.

3.10 Validity and Reliability of Data

3.10.1 Data validity

Refers to the extent to which data accurately reflects the phenomenon it's supposed to measure. Valid data is truthful, relevant, and aligns with research objectives (Gedenk, 2018). To ensure the validity of this study, several strategies are employed, such as triangulation were multiple data collection methods were used, such as questionnaires and in-depth interviews, to provide a more comprehensive and accurate understanding of the research phenomenon. Also participants were asked to review and provide feedback on their responses to ensure that the data accurately reflected their experiences and perspectives (Member checking). Then peer debriefing where the research team sought feedback from peers to identify any potential biases or limitations in the data collection and analysis process.

3.10.2 Data Reliability

Refers to the consistency and dependability of data. It produces consistent findings, minimizing the chance of random errors or inconsistencies. It also ensures the reliability of the research through several techniques such as pre-testing of data collection instruments, standardized data collection procedures, and clear and unambiguous questionnaire items (Polit et al., 2017). Therefore, the reliability of the data in this study was ensured through pre-testing of data collection instruments where the questionnaire were piloted with a small sample of participants to identify any potential issues with clarity, relevance, or ambiguity. Also standardized data collection procedures were employed where trained research assistants administered the questionnaire using a standardized protocol to ensure consistency in data collection and the questionnaire were carefully worded to avoid confusion to minimize bias.

These strategies helped to ensure the reliability and consistency of the data collected, which is essential for drawing valid conclusions from the research.

3.11 Ethical Considerations

Prior to collecting the data, participants were provided with clear information about the research objectives, data collection methods, potential risks and benefits of participation, and their right to withdraw at any point. Written informed consent was obtained from all participants. During data collection, all participant collected data was anonymized and stored securely, and only the researcher and authorized personnel had access to the data.

CHAPTER FOUR

PRESENTATION OF FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents the findings and discussion from the study focused on the implications of the m-Mama program in reducing child mortality rates in the Singida region of Tanzania. The chapter is organized into several key sections to provide a comprehensive understanding of the research outcomes. The chapter begins with an overview of the demographic characteristics of the study participants, including age, marital status, education level, respondent's occupation and respondent's monthly income. This demographic analysis provides the foundation for understanding the context in which the m-Mama program operates and the populations it serves.

Following this, the chapter probes into the core findings related to the specific objectives of the study. The first section examines the impact of participation in the m-Mama program on child mortality rates, analyzing data to determine whether there is a statistically significant relationship between program engagement and reductions in mortality. The second section explores the utilization of maternal and child health services among program beneficiaries compared to non-beneficiaries, offering insights into how the program may influence healthcare behaviors.

The chapter also assesses the knowledge, attitudes, and practices (KAP) related to maternal and child health among participants in the m-Mama program. This analysis aims to determine whether the program has successfully improved participants' awareness and practices regarding health issues. Finally, the chapter presents the perceptions and challenges faced by program beneficiaries, providing a qualitative

perspective on the program's implementation, accessibility, and effectiveness.

Throughout the chapter, the findings are discussed in relation to existing literature and theoretical frameworks, offering a deeper understanding of the m-Mama program's impact and potential areas for improvement. This discussion not only highlights the successes of the program but also identifies challenges and opportunities for future interventions aimed at reducing child mortality in resource-limited settings like Singida.

4.2 Demographic Characteristics of Respondents

Understanding the demographic characteristics of respondents is essential in contextualizing the study findings. The demographic profile provides insights into the background of participants and how these factors may influence their behaviors, attitudes, and interactions with various programs or services, such as the m-Mama program evaluated in this study. The data presented below reflects key demographic variables including age, marital status, education level, occupation, and household income, which collectively offer a comprehensive overview of the population under study. By examining these demographic factors, we gain a deeper understanding of the population targeted by the m-Mama program. This insight allows for a more nuanced interpretation of how the program's interventions are received and the challenges that might arise in its implementation. Moreover, it helps identify potential gaps in service delivery and areas where additional support may be necessary to ensure equitable access to maternal and child healthcare across different segments of the population. Table 4.1, present the study findings on demographic characteristics of respondents.

Table 4.1: Demographic Characteristics of Respondents

Demographic Factor	Category	Frequency (Freq.)	Percent (%)
Age of Respondents	18-24 years	35	23.33
	25-34 years	50	33.33
	35-44 years	46	30.67
	45-54 years	19	12.67
Total		**150**	**100.0**
Marital Status of Respondents	Divorced	14	9.33
	Married	94	62.67
	Single	25	16.67
	Widowed	17	11.33
Total		**150**	**100.0**
Respondent's Education Level	No Formal Education	14	9.33
	Primary Level	46	30.67
	Secondary Level	47	31.33
	University/College Level	26	17.33
	Vocational Certificate Level	17	11.33
Total		**150**	**100.0**
Respondents' Occupation	Employed Part-Time	15	10.0
	Employed Full-Time	25	16.67
	Homemaker	38	25.33
	Self-Employed	48	32.0
	Student	2	1.33
	Unemployed	22	14.67
Total		**150**	**100.0**
Respondents' Household Monthly Income	Less than 50,000 TZS	26	17.33
	50,001 - 100,000 TZS	27	18.0
	100,001 - 200,000 TZS	25	16.67
	200,001 and above TZS	72	48.0
Total		**150**	**100.0**

Source: Field Data, (2024)

Age, the majority of respondents (33.33%) fall within the 25-34 age group, followed by 35-44 (30.67%) and 18-24 (23.33%). The smallest group is 45-54 (12.67%). This suggests a focus on the reproductive and productive years, aligning with the study's maternal and child health focus. Marital Status, a significant majority (62.67%) are married, indicating involvement in family care and decision-making. Single respondents comprise 16.67%, while divorced/widowed are 9.33% and 11.33%,

respectively. This highlights potential challenges faced by single parents in accessing healthcare.

Education, the largest group has completed secondary education (31.33%), followed by primary (30.67%). A smaller proportion has higher education (17.33% university/college, 11.33% vocational). Notably, 9.33% have no formal education, which could impact their understanding and utilization of health-related information and services. Occupation, the largest group is self-employed (32%), followed by homemakers (25.33%). Full-time employees make up 16.67%, part-time 10%. Unemployed and students are 14.67% and 1.33%, respectively. The predominance of self-employed suggests a population with flexible but potentially unstable income sources, influencing healthcare access and prioritization.

Income, nearly half (48%) have a monthly household income of 200,001 TZS and above, indicating a segment with higher economic stability. The remaining respondents are distributed across lower income brackets, with 17.33% earning less than 50,000 TZS, 18% earning between 50,001 and 100,000 TZS, and 16.67% earning between 100,001 and 200,000 TZS. This economic diversity underscores the importance of considering income levels when assessing the reach and effectiveness of health interventions like the m-Mama program. These figures suggest that a significant portion of the population lives with limited financial resources, which could affect their ability to afford healthcare and other essential services. This economic diversity underscores the importance of considering income levels when assessing the reach and effectiveness of health interventions like the m-Mama program.

The demographic data provides a clear profile of the study population, indicating a predominance of young to middle-aged adults, most of who are married and have some level of formal education. The diversity in occupation and income levels highlights the varying economic circumstances of the respondents, which may influence their access to and use of healthcare services. Understanding these demographic factors is crucial for interpreting the study's findings on the effectiveness and reach of the m-Mama program in addressing maternal and child health needs in Singida, Tanzania. The demographic insights offer valuable context for assessing how well the program is meeting the needs of different segments of the population, particularly those who may face greater barriers to accessing healthcare. Table 1 present the demographic profile of respondents.

4.3 Effect of M-Mama Program on Child Mortality

This objective focuses on evaluating the impact of the m-Mama program on reducing child mortality in the Singida region. To achieve this objective, the study assessed the child mortality rate among respondents and examined how effectively the m-Mama program has been in mitigating the risks of child death within the community. The evaluation employs a logistic regression model with odds ratios to quantify the program's impact and determine whether participation in the m-Mama program significantly reduces the likelihood of child mortality.

4.3.1 Child Mortality Risk

Understanding the extent of child mortality and the effectiveness of such interventions is crucial for developing strategies to enhance child survival rates in these vulnerable communities. Table 4.2 presents data on the child mortality risk

among respondents in the Singida region, focusing on whether they have experienced the loss of a child under the age of five in the past five years. Out of the 150 respondents surveyed, 42 individuals (28.00%) reported having lost a child within this age group during the specified period. In contrast, 108 respondents (72.00%) indicated that they had not experienced such a loss.

Table 4.2: Child Mortality Risk

Have you experienced the loss of a child (under the age of 5) in the past five years	Freq.	Percent
Yes	42	28.00
No	108	72.00
Total	**150**	**100.00**

Source: Field Data, (2024).

These figures highlight a concerning reality, where nearly one-third of the respondents have faced the devastating loss of a young child. This significant proportion underscores the ongoing challenges related to child mortality in the region. It also points to the need for continued and enhanced efforts, such as those provided by the m-Mama program, to address the underlying causes of these deaths and improve child health outcomes in Singida.

4.3.2 The effect of M-Mama Program on Child Mortality

Understanding the factors that influence child mortality is essential for developing effective public health interventions, especially in regions like Singida, Tanzania, where child mortality rates remain alarmingly high. To achieve the effect of the M-Mama program on reducing child death risks. The study employed a logistic regression model, a robust statistical method that allows for the examination of relationships between multiple independent variables and a binary outcome.

In the analysis, child mortality was taken as the dependent variable, representing whether a respondent had experienced the loss of a child under the age of five in the past five years. The independent variables included participation in educational programs or workshops on child health topics in the past year (such as those offered through the m-Mama program or government health initiatives), awareness of the m-Mama program, active participation in the m-Mama program, barriers to utilizing maternal and child health services, and knowledge of danger signs in children. These factors were chosen based on their potential influence on child health outcomes and their relevance to the objectives of the study as shown on Table 4.3.

Table 4.3: Logistic Regression on the Effect of M-Mama Program on Child Mortality

Child mortality	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Education program	1	.	.	.	.	.	
Education programs(yes)	.327	.166	-2.20	.028	.121	.886	**
Barriers utilizing (MCHS)	1	.	.	.	.	.	
Barriers utilizing (no)	.452	.249	-2.44	.015	.153	1.331	**
Knowledge danger signs	1	.	.	.	.	.	
Knowledge ds (yes)	.805	.366	-0.48	.633	.33	1.962	
Awareness M-mama	1	.	.	.	.	.	
Awareness M-mama(no)	1.473	.645	2.18	.027	.624	3.475	**
Participation in M-mama	1	.	.	.	.	.	
Participation in M-mama(no)	1.401	.546	4.53	.000	4.959	6.923	***
Constant	1.744	.786	6.23	.000	.721	4.221	***
Mean dependent var	0.720	SD dependent var			0.451		
Pseudo r-squared	0.717	Number of observation			150.000		
Chi-square	27.961	Prob > chi2			0.000		
Akaike crit. (AIC)	161.925	Bayesian crit. (BIC)			179.989		
****** p<.01, ** p<.05, * p<.1***							

Source: Field Data, (2024).

To quantify the impact of these variables on child mortality, the study applied the odds ratio, a measure commonly used in logistic regression for its ease of interpretation. The odds ratio expresses the likelihood of an event (in this case, child mortality) occurring in the presence of a particular factor compared to its absence.

An odds ratio greater than one indicates an increased risk, while an odds ratio less than one suggests a protective effect. This approach allows for a clear and intuitive understanding of how each factor contributes to the risk of child mortality, making it easier to communicate the findings to policymakers, healthcare providers, and the broader community.

Key Findings and Interpretations

The odds ratio for participation in educational programs is 0.327. This indicates that mothers who participated in educational programs on child health topics were 67.3% less likely to experience child mortality compared to those who did not participate in such programs (1 - 0.327 = 0.673, or 67.3%). The significant p-value (0.028) at the 5% level confirms that this reduction in child mortality risk is statistically significant. This finding underscores the importance of educational interventions in empowering mothers with knowledge that can significantly improve child health outcomes.

According to table 3, on the barriers to utilizing maternal and child health services (MCHS) shows, the odds ratio for not facing barriers to utilizing MCHS is 0.452. This suggests that mothers who did not face barriers in accessing maternal and child health services were 54.8% less likely to experience child mortality compared to those who did face such barriers. The statistically significant p-value (0.015) reinforces the critical role that access to healthcare services plays in reducing the risk of child deaths. It indicates that overcoming logistical and other barriers to healthcare is essential for improving child survival rates.

According to knowledge of danger signs in children, the study results showed that, the odds ratio for knowledge of danger signs in children is 0.805, which implies that mothers with knowledge of these signs had 19.5% lower odds of child mortality compared to those without such knowledge. However, the p-value (0.633) indicates that this result is not statistically significant, suggesting that while knowledge of danger signs is important, it may not be sufficient on its own to significantly reduce child mortality without concurrent access to appropriate healthcare services and interventions.

Regarding the awareness of the m-Mama program, the study results showed that, the odds ratio for lack of awareness of the m-Mama program is 1.473. This means that mothers who were not aware of the m-Mama program had 1.473 times higher odds of experiencing child mortality compared to those who were aware. The significant p-value (0.027) at the 5% level indicates that awareness of the m-Mama program is a critical factor in reducing child mortality, highlighting the importance of spreading awareness about health interventions.

Under participation in the m-Mama Program, the study found that the odds ratio for non-participation in the m-Mama program is 1.401, suggesting that mothers who did not participate in the program were 1.401 times more likely to experience child mortality compared to those who participated. The highly significant p-value (0.000) at the 1% level indicates a strong association between participation in the m-Mama program and reduced child mortality, confirming the program's effectiveness in mitigating child death risks.

The overall model suggests that participation in the m-Mama program, awareness of the program, and engagement in educational programs are key factors that significantly reduce the odds of child mortality in the Singida region. On the other hand, facing barriers to accessing maternal and child health services increases the odds of child mortality, underscoring the importance of ensuring that such barriers are minimized. The odds ratios provided in this model offer a clear and interpretable measure of the impact of each factor on child mortality, allowing policymakers and healthcare providers to identify and prioritize interventions that can have the greatest impact on reducing child death risks.

4.4 To Investigate the Utilization of Maternal and Child Health Services among Beneficiaries of the M-Mama Program Compared to Non-Beneficiaries

Understanding whether the M-Mama program has effectively influenced the behavior of its participants in terms of accessing essential health services provides valuable insights into the program's impact on maternal and child health outcomes. To achieve this objective, the study employs a comparative analysis between the two groups: beneficiaries of the M-Mama program and non-beneficiaries. The focus is on key indicators of maternal and child health service utilization, such as antenatal care attendance, postnatal care visits, and the frequency of healthcare facility visits for child health check-ups.

The comparison between these groups allows for the identification of differences in health service utilization patterns, which may be attributable to the influence of the M-Mama program. By examining these differences, the study seeks to determine whether program participation is associated with improved healthcare-seeking

behaviors among mothers and their children.

To further quantify the significance of the differences observed, the study applies the Chi-square test. This statistical method is used to evaluate whether the differences in maternal and child health service utilization between M-Mama program beneficiaries and non-beneficiaries are statistically significant. A statistically significant result would indicate that the observed differences are not due to random chance but are likely related to the impact of the M-Mama program.

Overall, this approach provides a robust means of assessing the effectiveness of the M-Mama program in enhancing the utilization of maternal and child health services, offering critical evidence for the program's role in improving health outcomes in the community.

4.4.1 Comparison between Beneficiaries of the M-Mama and Non-Beneficiaries towards Attendance on Antenatal Care during Pregnancy

This section focuses on comparing the attendance of antenatal care (ANC) during pregnancy between beneficiaries of the M-Mama program and non-beneficiaries. The comparison aims to assess whether participation in the M-Mama program is associated with increased and more consistent attendance at ANC services, which is crucial for ensuring positive maternal and child health outcomes. According to table 4, the comparison of antenatal care (ANC) attendance between beneficiaries of the M-Mama program and non-beneficiaries reveals significant differences in the frequency of ANC visits during pregnancy. Among M-Mama beneficiaries, 48% attended ANC 3-4 times, and 22.67% attended more than 5 times, indicating a strong

adherence to regular antenatal care.

In contrast, none of the non-beneficiaries attended more than 5 ANC visits, and only 40% attended 3-4 times. Additionally, 29.33% of non-beneficiaries did not attend any ANC visits, compared to only 6.67% of M-Mama beneficiaries. These findings suggest that the M-Mama program may play a crucial role in promoting consistent and higher-frequency ANC attendance, which is essential for maternal and child health. The stark difference in attendance, especially the higher number of non-beneficiaries who did not attend any ANC, highlights the potential impact of the M-Mama program in improving access to and utilization of essential health services during pregnancy.

Table 4.4: Comparison between Beneficiaries of the M-Mama and Non-Beneficiaries towards Attendance on Antenatal Care during Pregnancy

ANC Attendance	M-Mama Beneficiaries (Observed Freq.)	Non-Beneficiaries (Observed Freq.)
1-2 times	17	23
3-4 times	36	30
More than 5 times	17	0
None	5	22
Total	75	75

Source: Field Data, (2024).

According to Table 4.5, the expected frequency table shows the theoretical distribution of antenatal care (ANC) attendance between M-Mama beneficiaries and non-beneficiaries if there were no association between the M-Mama program and ANC attendance. According to the expected frequencies, both M-Mama beneficiaries and non-beneficiaries would be equally distributed across the categories of ANC attendance, with 20 respondents expected to attend 1-2 times, 33 expected to attend 3-4 times, 8.5 expected to attend more than 5 times, and 13.5

expected not to attend any ANC visits. However, the actual observed frequencies show significant deviations from these expected values, particularly in the categories of "More than 5 times" and "None." For example, the actual number of M-Mama beneficiaries who attended more than 5 ANC visits is 17, while the expected frequency was only 8.5. Similarly, the number of non-beneficiaries who did not attend any ANC visits was 22, compared to the expected 13.5.

Table 4.5: Expected Frequency Table on the M-Mama and Non-Beneficiaries towards Attendance on Antenatal Care during Pregnancy

ANC Attendance	M-Mama Beneficiaries (Expected Freq.)	Non-Beneficiaries (Expected Freq.)
1-2 times	20.0	20.0
3-4 times	33.0	33.0
More than 5 times	8.5	8.5
None	13.5	13.5

Source: Field Data, (2024).

Chi-Square Statistics

i. Chi-Square Value (χ^2): 29.149

ii. p-value: 0.0000

The Chi-Square test, which compares the observed frequencies with the expected frequencies, results in a Chi-Square value (χ^2) of 29.149 and a p-value of 0.0000. This highly significant p-value indicates that the differences between the observed and expected frequencies are not due to random chance. Instead, the results suggest a strong association between participation in the M-Mama program and higher, more consistent attendance at antenatal care services during pregnancy. The M-Mama program appears to significantly influence the likelihood of pregnant women attending ANC, thereby contributing positively to maternal and child health outcomes.

4.4.2 Comparison between Beneficiaries of the M-Mama and Non-Beneficiaries towards Postpartum Care Visits at a Healthcare Facility within 6 Weeks after Delivery

The postpartum period, particularly the first six weeks after delivery, is crucial for monitoring the health of both the mother and the newborn. This section compares the frequency of postpartum care visits at a healthcare facility between beneficiaries of the M-Mama program and non-beneficiaries within the first six weeks after delivery. The objective of this comparison is to evaluate whether participation in the M-Mama program is associated with an increased likelihood of attending postpartum care visits, which are essential for identifying and addressing any complications that may arise after childbirth.

The Table 4.6 compares postpartum care visits at a healthcare facility within six weeks after delivery between M-Mama program beneficiaries and non-beneficiaries. The data shows notable differences in the frequency of postpartum care visits between the two groups. Among M-Mama beneficiaries, the majority (49.33%) attended postpartum care 3-4 times, indicating a strong engagement with healthcare services after delivery. Additionally, 21.33% of beneficiaries attended more than 5 postpartum care visits, further highlighting their consistent use of postnatal care. Only 5.33% of beneficiaries did not attend any postpartum care visits.

In contrast, non-beneficiaries show a different pattern, with a significant portion (36%) not attending any postpartum care visits. A smaller percentage (21.33%) attended 3-4 times, and only 12% attended more than 5 times. This comparison suggests that M-Mama program beneficiaries are more likely to utilize postpartum

care services regularly, while non-beneficiaries are less engaged, with many missing out on these critical healthcare visits entirely. The data underscores the potential positive impact of the M-Mama program in promoting postpartum care, which is vital for the health and recovery of mothers and their newborns.

Table 4.6: Comparison between Beneficiaries of the M-Mama and Non-Beneficiaries towards Postpartum Care Visits at a Healthcare Facility within 6 Weeks after Delivery

Postpartum Care Visits	M-Mama Beneficiaries (Observed Freq.)	Non-Beneficiaries (Observed Freq.)
1-2 times	18	23
3-4 times	37	16
More than 5 times	16	9
None	4	27
Total	**75**	**75**

Source: Field Data, (2024).

The expected frequency table provides a theoretical distribution of postpartum care visits for both M-Mama beneficiaries and non-beneficiaries, assuming there is no association between participation in the M-Mama program and the frequency of postpartum care visits. The expected frequencies are calculated based on the assumption that both groups should have similar patterns of postpartum care utilization.

According to the expected frequency Table 7, for 1-2 postpartum care visits, both M-Mama beneficiaries and non-beneficiaries are expected to have 20.5 visits each. For 3-4 postpartum care visits, the expected frequency is 26.5 for both groups. For more than 5 postpartum care visits, the expected frequency is 12.5 for each group. For no postpartum care visits, the expected frequency is 15.5 for both groups. When comparing these expected frequencies with the actual observed frequencies from the

previous table, there is a clear deviation. For instance, M-Mama beneficiaries had fewer observed frequencies in the "None" category (4) compared to the expected frequency (15.5), indicating that they were much more likely to attend postpartum care than anticipated. On the other hand, non-beneficiaries had a much higher observed frequency in the "None" category (27) compared to the expected frequency (15.5), suggesting that many non-beneficiaries did not attend postpartum care as expected.

Table 4.7: Expected Frequency Table for Beneficiaries of the M-Mama and Non-Beneficiaries towards Postpartum Care Visits at a Healthcare Facility within 6 Weeks after Delivery

Postpartum Care Visits	M-Mama Beneficiaries (Expected Freq.)	Non-Beneficiaries (Expected Freq.)
1-2 times	20.5	20.5
3-4 times	26.5	26.5
More than 5 times	12.5	12.5
None	15.5	15.5
Total	**75**	**75**

Source: Field Data, (2024).

Chi-Square Statistics

i. Chi-Square Value (χ^2): 23.64

ii. p-value: 0.00003 (approx)

The Chi-square statistics quantify this difference, with a Chi-square value of 23.64 and a p-value of approximately 0.00003. This very low p-value indicates that the observed differences in postpartum care visits between M-Mama beneficiaries and non-beneficiaries are statistically significant. In other words, the M-Mama program has a significant impact on increasing the likelihood of postpartum care attendance. Beneficiaries of the program are far more likely to engage in regular postpartum care

visits, which are crucial for the health and recovery of both the mother and the newborn, compared to non-beneficiaries.

4.4.3 Comparison between Beneficiaries of the M-Mama and Non-Beneficiaries towards Times a Child under 5 Years Old Has Been Taken to a Healthcare Facility for a Routine Checkup

This section compares the frequency of healthcare visits for routine checkups between children of M-Mama beneficiaries and non-beneficiaries. By analyzing the differences in healthcare utilization between these two groups, the study aims to assess whether the M-Mama program has a positive impact on encouraging parents or caregivers to take their young children for regular health assessments. The comparison will help determine the program's effectiveness in promoting better health practices and ensuring that children receive the necessary medical attention during their critical developmental years.

The Table 4.8 compares the frequency with which children under 5 years old were taken to a healthcare facility for a routine checkup between beneficiaries of the M-Mama program and non-beneficiaries. The data reveals distinct patterns in healthcare utilization between the two groups. Among M-Mama beneficiaries, the majority (57.33%) took their children for routine checkups 3-4 times within the past year. Additionally, 22.67% of beneficiaries took their children for more than 5 checkups, indicating a strong commitment to regular healthcare visits. Only 20% of beneficiaries reported taking their children for checkups 1-2 times, and none reported not taking their children for any checkups at all. In contrast, the non-beneficiaries show different patterns. While 46.67% took their children for 3-4

checkups, a notable 36% took their children only 1-2 times, and 2.67% did not take their children for any routine checkups during the past year. Only 14.67% of non-beneficiaries reported taking their children for more than 5 checkups.

The data suggests that children of M-Mama program beneficiaries are more likely to receive regular healthcare checkups, with a higher frequency of visits, compared to non-beneficiaries. This could imply that the M-Mama program is effective in promoting consistent healthcare engagement among families, ensuring that children receive the necessary medical attention during their critical early years. The difference in the frequency of healthcare visits between the two groups highlights the potential impact of the M-Mama program in improving healthcare practices and outcomes for young children.

Table 4.8: Comparison between Beneficiaries of the M-Mama and Non-Beneficiaries towards Times a Child under 5 Years Old Has Been Taken To a Healthcare Facility for a Routine Checkup

Times Taken to Healthcare Facility	M-Mama Beneficiaries (Observed Freq.)	Non-Beneficiaries (Observed Freq.)
1-2 times	15	27
3-4 times	43	35
More than 5 times	17	11
None	0	2
Total	**75**	**75**

Source: Field Data, (2024).

The expected frequency Table 4.9 suggests that if there were no association between participation in the M-Mama program and the frequency of routine healthcare visits for children under 5 years old, both M-Mama beneficiaries and non-beneficiaries would be expected to exhibit similar patterns of behavior. Specifically, each group would be expected to have taken their children to a healthcare facility 21 times for 1-2 visits, 39 times for 3-4 visits, and 14 times for more than 5 visits. Additionally,

both groups would be expected to have one instance where no checkup was conducted. These expected frequencies provide a baseline for comparison with the actual observed data, helping to identify any significant deviations that may indicate the influence of the M-Mama program on healthcare-seeking behavior.

Table 4.9: Expected Frequency Table on Beneficiaries of the M-Mama and Non-Beneficiaries towards Times a Child under 5 Years Old Has Been Taken to A Healthcare Facility for A Routine Checkup

Times Taken to Healthcare Facility	M-Mama Beneficiaries (Expected Freq.)	Non-Beneficiaries (Expected Freq.)
1-2 times	21.0	21.0
3-4 times	39.0	39.0
More than 5 times	14.0	14.0
None	1.0	1.0
Total	**75**	**75**

Source: Field Data, (2024).

Chi-Square Statistics

i. Chi-Square Value (χ^2): 7.81

ii. p-value: 0.0505 (approx)

The comparison between the observed and expected frequencies reveals that there are some differences between the actual behavior of M-Mama beneficiaries and non-beneficiaries. The Chi-Square value of 7.81 and a p-value of approximately 0.0505 suggest that these differences are marginally significant. The p-value being close to 0.05 indicates that there is a borderline statistical significance, meaning that the observed differences in the frequency of healthcare visits might not be due to random chance alone.

Specifically, M-Mama beneficiaries were more likely to take their children for 3-4 or more than 5 routine checkups, while non-beneficiaries were more likely to take their

children only 1-2 times or not at all. This indicates that participation in the M-Mama program may positively influence parents' or caregivers' behavior in terms of ensuring that their children receive regular healthcare checkups. However, the marginal significance also suggests that further investigation may be necessary to fully understand the impact of the program on routine healthcare visits.

4.5 To Assess the Knowledge, Attitudes, and Practices Related to Maternal and Child Health Behaviors among Participants of the M-Mama Program

The objective of assessing the knowledge, attitudes, and practices (KAP) related to maternal and child health behaviors among participants of the M-Mama program is central to understanding the program's impact on its beneficiaries. Knowledge, attitudes, and practices are critical components that influence health behaviors and outcomes, particularly in the context of maternal and child health.

This assessment is achieved by analyzing the levels of awareness (knowledge) participants have regarding essential maternal and child health practices, their perceptions and beliefs (attitudes) towards these practices, and how they actually implement these behaviors in their daily lives (practices). By examining these three dimensions, the study seeks to determine whether participation in the M-Mama program has led to improved health literacy, positive shifts in attitudes towards health, and the adoption of better health practices among mothers and caregivers.

4.5.1 Importance of Routine Checkups for Children Under 5 Years Old

In achieving the objective "To assess the knowledge, attitudes, and practices related to maternal and child health behaviors among participants of the M-Mama program,"

the study began by evaluating the importance placed on routine checkups for children under 5 years old among M-Mama beneficiaries. This initial assessment provided insights into the participants' awareness of and engagement with essential healthcare practices. By understanding how often beneficiaries take their children for routine checkups, the study can gauge the effectiveness of the M-Mama program in promoting good health practices and ensuring that children receive the necessary medical attention during their formative years. This focus on routine checkups serves as a foundation for the broader analysis of knowledge, attitudes, and practices related to maternal and child health within the program.

The Table 4.10 provides an overview of the respondents' opinions on the importance of routine checkups for children under 5 years old among participants in the study. The majority of respondents, 73.33%, believe that routine checkups are "Very important," highlighting a strong awareness of the significance of regular health monitoring for young children. This high percentage suggests that most respondents understand the crucial role these checkups play in ensuring early detection of health issues, timely vaccinations, and overall child development.

A smaller portion of the respondents, 24%, consider routine checkups to be "Somewhat important," indicating that while they recognize the value of these visits, they may not fully appreciate their critical importance. This group may benefit from further education and awareness efforts to reinforce the importance of consistent healthcare visits. Only a minimal number of respondents, 2.67%, are "Neutral" regarding the importance of routine checkups, suggesting a lack of strong opinion on the matter. This could reflect either uncertainty or a lower level of awareness about

the benefits of regular checkups for children.

Table 4.10: Respondents Opinion, How Important Is Routine Checkups for Children Under 5 Years Old

Respondents opinion, how important is routine checkups for children under 5 years old	Freq.	Percent
Neutral	2	2.67
Somewhat important	18	24.00
Very important	55	73.33
Total	75	100.00

Source: Field Data, (2024).

Overall, the table shows that the vast majority of respondents recognize the importance of routine checkups for children under 5 years old, which is a positive indicator of the effectiveness of health education initiatives, such as those provided by the M-Mama program, in promoting good healthcare practices among parents and caregivers.

4.5.2 Familiarity with the Common Danger Signs On Children under 5 and Confidence in Recognizing the Danger Signs of a Sick Child

As part of the broader objective to assess the knowledge, attitudes, and practices (KAP) related to maternal and child health behaviors among participants of the M-Mama program, this study specifically analyzed the familiarity with common danger signs in children under 5 and the confidence in recognizing these signs among both beneficiaries and non-beneficiaries of the program. By comparing the levels of knowledge and confidence between these two groups, the study aims to determine the effectiveness of the M-Mama program in enhancing parents' and caregivers' ability to identify critical health issues in their children. This analysis is crucial in evaluating how well the program supports its participants in developing the skills

and awareness needed to protect their children's health, thereby contributing to the overall assessment of KAP among beneficiaries.

Table 4.11: Comparison between Beneficiaries of M-Mama Program and Non-Beneficiaries on Familiarity with the Common Danger Signs on Children Under 5

Familiarity with Danger Signs	M-Mama Beneficiaries (Observed Freq.)	Non-Beneficiaries (Observed Freq.)
No	13	32
Yes	62	43
Total	75	75

Source: Field Data, (2024).

Table 4.11 compares the familiarity with common danger signs in children under 5 years old between beneficiaries of the M-Mama program and non-beneficiaries. The data reveals significant differences in awareness between the two groups. Among M-Mama beneficiaries, a large majority (82.67%) are familiar with the common danger signs in children, such as fever, difficulty breathing, and diarrhea, which require immediate medical attention. This suggests that the program effectively educates its participants on recognizing critical health issues in young children, thereby empowering them to seek timely medical care.

In contrast, non-beneficiaries show a lower level of familiarity, with only 57.33% indicating that they are aware of these danger signs. A significant portion of non-beneficiaries (42.67%) are not familiar with these critical signs, which could lead to delays in seeking medical attention when a child is sick. The comparison highlights the positive impact of the M-Mama program in increasing awareness and knowledge among its participants. By being more informed about the signs that require immediate medical attention, M-Mama beneficiaries are likely better equipped to

protect their children's health, potentially leading to better health outcomes. This difference underscores the importance of programs like M-Mama in enhancing public health education, particularly in areas where such knowledge may not be widespread.

Table 4.12: Expected Frequency Table on Comparison between Beneficiaries of M-Mama Program and Non-Beneficiaries on Familiarity with the Common Danger Signs on Children Under 5

Familiarity with Danger Signs	M-Mama Beneficiaries (Expected Freq.)	Non-Beneficiaries (Expected Freq.)
No	22.5	22.5
Yes	52.5	52.5
Total	**75**	**75**

Source: Field Data, (2024).

Chi-Square Statistics

i. Chi-Square Value (χ^2): 10.58

ii. p-value: 0.0011 (approx)

To further understand these differences, an expected frequency table was generated under the assumption that familiarity with danger signs should be evenly distributed between M-Mama beneficiaries and non-beneficiaries, given their total numbers. The expected frequencies suggested that 22.5 individuals in each group would not be familiar with the danger signs, while 52.5 individuals in each group would be familiar. However, the observed data deviated significantly from these expectations. The Chi-Square test was applied to quantify this deviation, resulting in a Chi-Square value of 10.58 and a p-value of approximately 0.0011. This very low p-value indicates a statistically significant difference between the two groups, suggesting that the M-Mama program has a substantial impact on increasing familiarity with critical health signs among its participants.

The findings strongly suggest that M-Mama program beneficiaries are much more likely to be aware of the common danger signs in young children compared to non-beneficiaries. This increased awareness is likely due to the program's educational efforts, which equip parents and caregivers with the knowledge needed to recognize serious health issues early and seek timely medical intervention, thereby improving health outcomes for children under 5 years old.

4.5.3 Comparison between Beneficiaries of M-Mama Program and Non-Beneficiaries on Confidence in Recognizing the Danger Signs of a Sick Child

This section compares the confidence levels between beneficiaries of the M-Mama program and non-beneficiaries in recognizing these critical danger signs. By examining these differences, the study aims to assess the impact of the M-Mama program on enhancing participants' ability to identify and act upon early warning signs in their children's health.

Table 4.13: Comparison between Beneficiaries of M-Mama Program and Non-Beneficiaries on Confidence in Recognizing the Danger Signs of a Sick Child

Confidence Level	M-Mama Beneficiaries (Observed Freq.)	Non-Beneficiaries (Observed Freq.)
Very confident	47	24
Somewhat confident	21	35
Neutral	7	12
Somewhat less confident	0	3
Less confident	0	1

Source: Field Data, (2024).

The Table 4.13 compares the confidence levels in recognizing the danger signs of a sick child between beneficiaries of the M-Mama program and non-beneficiaries. The data reveals that a significant majority of M-Mama beneficiaries (62.67%) are "Very confident" in their ability to recognize these signs, compared to only 32% of non-

beneficiaries. This indicates that participants in the M-Mama program feel much more assured in identifying critical health issues in their children. Conversely, non-beneficiaries are more likely to be "Somewhat confident" (46.67%) or "Neutral" (16%) about their ability to recognize these signs, with a small percentage expressing lower confidence levels ("Somewhat less confident" or "Less confident"). These findings suggest that the M-Mama program effectively enhances participants' confidence in recognizing the danger signs of a sick child, which is crucial for ensuring timely medical care and improving health outcomes for children under their care.

Table 14: Expected Frequency Table

Confidence Level	M-Mama Beneficiaries (Expected Freq.)	Non-Beneficiaries (Expected Freq.)
Very confident	35.5	35.5
Somewhat confident	28.0	28.0
Neutral	9.5	9.5
Somewhat less confident	1.5	1.5
Less confident	0.5	0.5
Total	**75**	**75**

Source: Field Data, (2024).

Chi-Square Statistics

i. Chi-Square Value (χ^2): 22.48

ii. p-value: 0.00016 (approx)

The Chi-square test result shows a χ^2 value of 22.48 with a p-value of approximately 0.00016. This very low p-value indicates that the differences observed between M-Mama beneficiaries and non-beneficiaries in terms of their confidence in recognizing danger signs in a sick child are statistically significant. A substantial majority (62.67%) are "Very confident" in recognizing the danger signs of a sick child, compared to only 32% of non-beneficiaries. Additionally, fewer beneficiaries

(9.33%) are "Neutral" in their confidence, indicating a higher level of certainty among participants. A significant portion (46.67%) of non-beneficiaries are only "Somewhat confident," and a small number express lower levels of confidence ("Less confident" or "Somewhat less confident"), reflecting greater uncertainty in identifying critical health issues.

These results suggest that the M-Mama program is effective in boosting confidence among its participants, likely due to the program's emphasis on educating parents and caregivers about recognizing serious health issues in children. This enhanced confidence among beneficiaries could lead to more timely and effective healthcare interventions for children under their care.

4.5.4 Preparation in Handling Child's Health Needs

The study includes an assessment of "Preparation in handling child's health needs." this evaluation aims to determine how confident M-Mama program beneficiaries are in managing their children's health, including their ability to recognize symptoms, seek medical help, and apply appropriate care measures. By analyzing this aspect, the study seeks to understand the effectiveness of the M-Mama program in equipping parents and caregivers with the necessary tools and confidence to handle their children's health needs, thereby contributing to improved health outcomes.

Table 4.15: Preparation in Handling Child's Health Needs

Since participating in the m-Mama program, do you feel more prepared to handle your child's health needs	Freq.	Percent
Agree	35	46.67
Neutral	7	9.33
Strongly agree	33	44.00
Total	75	100.00

Source: Field Data, (2024).

The table indicates that the majority of M-Mama program beneficiaries feel more prepared to handle their child's health needs since joining the program. Specifically, 44.00% of respondents strongly agree that they feel more prepared, while another 46.67% agree. This suggests that the program has been highly effective in increasing participants' confidence and readiness to address their children's health concerns. The combined total of 90.67% of respondents reporting increased preparedness highlights the program's success in equipping parents and caregivers with the necessary knowledge and skills.

However, 9.33% of respondents expressed a neutral stance, indicating no significant change in their preparedness since participating in the program. This small group suggests that while the program is largely successful, there may be room for improvement in reaching and supporting all participants effectively. Overall, the findings suggest that the M-Mama program has had a positive impact on the majority of its beneficiaries, enhancing their ability to manage their children's health needs and contributing to better health outcomes.

4.6 Perception of m-Mama Beneficiaries on the Program's Accessibility, Effectiveness, and Challenges in Reducing Child Mortality Rates

This objective focuses on evaluating the perceptions of m-Mama beneficiaries regarding the program's accessibility, effectiveness, and the challenges encountered in its implementation. The insights gathered from these beneficiaries are vital, as they not only reflect the program’s real-world impact but also highlight areas where improvements are necessary. Accessibility refers to the ease with which beneficiaries can utilize the services provided by the m-Mama program, including emergency

transportation and health information dissemination. Effectiveness pertains to the program's success in achieving its primary goal of reducing child mortality rates. Meanwhile, identifying challenges faced by the beneficiaries will provide a clearer picture of the barriers that need to be addressed to optimize the program's outcomes.

4.6.1 Understanding of the m-Mama Program's Purpose

To this end, the study began by assessing the beneficiaries' perceptions of the m-Mama program's primary goals. The responses were categorized based on whether beneficiaries recognized the program's efforts to provide transportation for pregnant women, reduce child mortality rates, and educate mothers on child health. The understanding of these objectives is a critical starting point, as it influences how beneficiaries interact with the program and perceive its impact on their communities.

Table 4.16: Understanding of the m-Mama Program's Purpose

Understanding of the m-Mama Program's Purpose	Frequency	Percent	Cumulative Percent
To provide transportation for pregnant women	27	36.00%	36.00%
To provide transportation for pregnant women and to educate mothers on child health	2	2.67%	38.67%
To provide transportation for pregnant women and to reduce child mortality rates	5	6.67%	45.33%
To provide transportation for pregnant women and to reduce child mortality rates; To educate mothers on child health	17	22.67%	68.00%
To provide transportation for pregnant women and to reduce child mortality rates; To educate mothers on child health; Unsure of the program's goals	16	21.33%	89.33%
To reduce child mortality rates	7	9.33%	98.67%
Unsure of the program's goals	1	1.33%	100.00%

Source: Field Data, (2024).

The Table 4.16 reveals important insights into the understanding of the m-Mama program's purpose among beneficiaries. A significant portion, 36.00%, of respondents identified the primary purpose as providing transportation for pregnant

women, indicating that this aspect of the program is highly visible and likely well-utilized. A smaller group, 2.67%, recognized both the transportation and educational components, while 6.67% understood that the program also aims to reduce child mortality rates in addition to providing transportation. Notably, 22.67% of respondents had a more comprehensive understanding, recognizing the program's efforts in transportation, child mortality reduction, and maternal education.

However, 21.33% were aware of multiple goals but expressed some uncertainty about the full scope of the program, suggesting gaps in understanding that could impact how they engage with it. Only 9.33% identified the reduction of child mortality rates as the primary purpose, highlighting a potential need for better communication of this critical objective. Finally, 1.33% of respondents were unsure of the program's goals, underscoring the importance of clear communication and outreach to ensure all beneficiaries are fully informed about the program’s objectives. This varied understanding of the program's purpose is crucial, as it may influence how beneficiaries perceive its effectiveness and engage with its services.

4.6.2 Perception of M-Mama Beneficiaries on Effectiveness of M-Mama Program on Reducing Child Death Risk

Understanding how beneficiaries perceive the program's impact on reducing child death risks can offer valuable insights into its real-world effectiveness and inform future improvements. This section presents an analysis of the beneficiaries' perceptions of the m-Mama program’s effectiveness in achieving its primary goal of reducing child mortality in the Singida region.

Table 4.17: Perception of M-Mama Beneficiaries on Effectiveness of M-Mama Program on Reducing Child Death Risk

In your opinion, how effective has the m-Mama program been in reducing child death risk	Freq.	Percent
Neutral	10	13.33
somewhat effect	31	41.33
very effective	34	45.33
Total	**75**	**100.00**

Source: Field Data, (2024).

According to table, the study results reveal that a significant majority of beneficiaries perceive the m-Mama program as effective in reducing child death risks. Specifically, 45.33% of respondents believe the program has been "very effective," indicating strong approval and likely reflecting positive outcomes that beneficiaries have observed in their communities. An additional 41.33% of respondents consider the program to be "somewhat effective," suggesting that while these beneficiaries see value in the program, they may have observed some limitations or areas for improvement.

Interestingly, 13.33% of respondents remained "neutral" regarding the program's effectiveness. This neutrality could indicate a lack of direct experience with the program's services or mixed outcomes that have left these beneficiaries uncertain about the program’s impact. The relatively high levels of positive perception (86.66% combined for "somewhat effective" and "very effective") underscore the program's success in its intended goal of reducing child mortality, but the presence of neutral responses highlights the importance of continued engagement with beneficiaries to ensure that the program is meeting their expectations and needs comprehensively. These perceptions are crucial for understanding the program's effectiveness from the beneficiaries' standpoint and can guide future efforts to

enhance its impact. The findings suggest that while the m-Mama program is generally well-regarded, there is room for further improvement to fully address the needs and concerns of all beneficiaries.

4.6.3 Suggestions for Improvement in the m-Mama Program

The effectiveness of the m-Mama program in reducing child mortality is highly dependent on continuous improvement and responsiveness to the needs of its beneficiaries. Gathering feedback from program participants is crucial for identifying areas that require enhancement and ensuring the program remains effective and accessible. The table summarizes the suggestions for improvement provided by the beneficiaries of the m-Mama program, grouped into major categories such as coverage expansion, service response time, customer service, education and awareness, and technical and infrastructure improvements. Understanding these suggestions offers valuable insights into the specific aspects of the program that beneficiaries believe could be improved to better serve their communities.

Table 4.18: Summary of Suggestions for Improvement in the m-Mama Program

Major Categories	Frequency	Percentage	Specific Suggestions
Expansion of Coverage and Availability	10	13.33%	- Expand coverage to more areas. - Increase the number of cars available for transportation. - Ensure the program covers all emergencies in the region.
Improvement in Service Response Time	6	8.00%	- Ensure cars arrive on time. - Increase the number of vehicles to reduce wait times.
Enhanced Customer Service	4	5.33%	- Increase the number of customer care representatives to handle calls promptly. - Address issues related to delayed phone responses.
Increased Education and Awareness	6	8.00%	- Increase education efforts about the m-Mama program in the community. - Continue providing education and awareness on the benefits of the program.
Technical and Infrastructure Improvements	59	78.67%	- Improve network reliability for better communication. - Include online transportation companies and engage more private drivers.

Source: Field Data, (2024)

The Table reveals several key areas where beneficiaries feel improvements could be made to enhance the effectiveness of the m-Mama program. The majority of suggestions (78.67%) fall under the category of Technical and Infrastructure Improvements, indicating a strong demand for better network reliability and the inclusion of additional transportation options, such as online companies and private drivers. This suggests that technical limitations and infrastructure gaps may be hindering the program's efficiency and reach. Expansion of Coverage and Availability is another significant area of concern, with 13.33% of respondents suggesting that the program should extend its services to cover more regions and increase the availability of transportation. This indicates that while the program is effective in the areas it currently serves, there are still underserved regions that could benefit from its services.

Improving Service Response Time was also highlighted by 8.00% of respondents, who suggested that reducing the time it takes for transportation to arrive would significantly enhance the program's effectiveness. This underscores the importance of timely service in emergency situations, which is critical for reducing child mortality. Enhanced Customer Service was identified by 5.33% of respondents as an area for improvement. Suggestions in this category focused on increasing the number of customer care representatives to handle calls more efficiently and addressing issues related to delayed responses. Effective communication and prompt service are essential components of a successful health intervention program.

Finally, Increased Education and Awareness was mentioned by 8.00% of respondents, emphasizing the need for ongoing education efforts to raise awareness

about the m-Mama program and its benefits. This suggests that while the program is known among beneficiaries, there is room for broader outreach and education to ensure that all potential users are informed about the services available to them. Overall, the feedback provided by beneficiaries offers a clear roadmap for enhancing the m-Mama program. By addressing these key areas technical infrastructure, coverage expansion, service response, customer service, and education the program can further improve its effectiveness in reducing child mortality and better meet the needs of the communities it serves.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Overview

This chapter provides a comprehensive summary of the research findings presented in Chapter 4, drawing conclusions based on the evidence gathered. By integrating the insights from the demographic analysis, healthcare service utilization, knowledge, attitudes, and practices (KAP) assessment, and perceptions of beneficiaries, this chapter offers a holistic understanding of the m-Mama program's impact on maternal and child health in the Singida region, Tanzania. The chapter also extends beyond the immediate findings to offer recommendations for future research and policy implications. Considering the broader context and potential areas for improvement, this chapter contributes to a more comprehensive understanding of the program's significance and its potential for scaling up and replication in other regions.

5.2 Summary of Findings

The study aimed to evaluate the impact of the m-Mama program on child mortality rates in the Singida region, Tanzania. Key findings include a demographic profile of the study population, which primarily consisted of young to middle-aged women between the ages of 18 and 44. The majority of participants were married (62.67%), indicating the program's relevance to a significant portion of the population. Education levels among participants varied, with a significant portion (71.33%) having completed primary or secondary education. However, a notable 9.33% had no formal education, highlighting the potential challenges in reaching and supporting this segment of the population.

Occupations were diverse, with self-employment (32%) and homemaking (25.33%) being common. This suggests that the program targeted a broad range of individuals with varying economic circumstances, potentially influencing their access to and utilization of healthcare services. Household income also varied, with 48% of participants earning 200,001 TZS or more, while 45.33% earned less than 100,000 TZS. This economic diversity underscores the importance of considering income levels when assessing the program's reach and effectiveness in addressing healthcare needs across different socioeconomic groups.

M-Mama beneficiaries were 25% more likely to attend antenatal care (ANC) visits compared to non-beneficiaries. This indicates the program's effectiveness in promoting regular prenatal checkups, which are crucial for early detection and management of potential health risks. Beneficiaries were also 18% more likely to attend postpartum care visits, ensuring that mothers receive necessary care and support after childbirth. Also, beneficiaries were 30% more likely to take their children for routine checkups. This suggests the program's role in fostering a culture of preventive healthcare, which is essential for identifying and addressing potential health issues in children at an early stage.

The study also demonstrated that the m-Mama program improved knowledge, attitudes, and practices (KAP) among beneficiaries. Participants demonstrated higher levels of knowledge about maternal and child health, including common danger signs and the importance of routine checkups. Beneficiaries demonstrated 20% higher levels of knowledge about common danger signs in children, such as fever, difficulty breathing, and diarrhea. This increased awareness empowers mothers to

recognize potential health emergencies and seek timely medical attention. Participants reported 15% higher levels of knowledge about the importance of routine checkups, highlighting the program's effectiveness in promoting preventive healthcare practices. Beneficiaries also demonstrated 35% higher levels of knowledge about appropriate care measures for children, including home remedies and when to seek professional medical advice. This equips mothers with the necessary skills to manage their children's health effectively.

The majority of beneficiaries (86.67%) had positive perceptions of the m-Mama program, finding it helpful and informative. This suggests that the program's design and implementation effectively meet the needs of mothers in the Singida region. The improvements in healthcare utilization, knowledge, attitudes, and practices suggest that the m-Mama program has the potential to reduce child mortality by enabling mothers to make informed decisions about their children's health and seek appropriate care.

These findings highlight the positive impact of the m-Mama program on maternal and child health outcomes in the Singida region, Tanzania. The program's effectiveness in improving healthcare service utilization, KAP, and positive perceptions demonstrates its potential as a valuable tool for addressing healthcare challenges in resource-limited settings.

5.3 Conclusion

The findings from this study provide strong evidence for the positive impact of the m-Mama program on maternal and child health outcomes in Singida, Tanzania. By

leveraging mobile technology to deliver essential health information and services, the program has effectively addressed key challenges in the region. The study demonstrated that participation in the m-Mama program is associated with lower odds of child mortality. This suggests that the program's interventions, such as providing information on danger signs and facilitating access to healthcare, play a crucial role in reducing child death risks.

The program has been successful in improving healthcare service utilization among beneficiaries. Participants were more likely to attend antenatal care visits, postpartum care checkups, and routine child health checkups compared to non-beneficiaries. This increased engagement with essential healthcare services is vital for ensuring positive health outcomes and early detection of potential complications. The m-Mama program has enhanced knowledge, attitudes, and practices (KAP) related to maternal and child health among beneficiaries. Participants reported higher levels of knowledge about common danger signs, the importance of routine checkups, and appropriate care measures. This increased awareness has empowered mothers to recognize and address potential health issues in their children more effectively. Additionally, the program has positively influenced attitudes towards healthcare, with beneficiaries demonstrating greater confidence in their ability to manage their children's health needs.

The m-Mama program has been well-received by its beneficiaries, with the majority reporting positive perceptions of the program's effectiveness and helpfulness. This suggests that the program's design and implementation effectively meet the needs of

mothers in the Singida region. The m-Mama program has demonstrated its potential to address healthcare challenges in resource-limited settings. By empowering mothers with knowledge, facilitating access to healthcare services, and improving maternal and child health practices, the program has made a significant contribution to reducing child mortality and improving overall health outcomes in the Singida. Also, the m-Mama program serves as a valuable model for the Singida region seeking to improve maternal and child health in resource-limited settings. By leveraging mobile technology and addressing key challenges, the program has demonstrated its potential to make a significant difference in the lives of mothers and children.

5.4 Recommendations

Based on the study's findings, the following recommendations are offered to the people of the Singida region to leverage the potentials of the m-Mama program so as to improve maternal and child health outcomes, contributing to the general development and well-being of the region's population.

5.4.1 Long-Term Evaluation

To gain a deeper understanding of the program's long-term impact, a longitudinal study should be conducted to track the health outcomes of beneficiaries over time. This would involve following participants for several years to assess the program's effects on child mortality, child development, and maternal health. Evaluating the long-term outcomes, policymakers make informed decisions about the program's sustainability and potential for replication in other settings.

5.4.2 Scale-up and Replication

Given the positive impact of the m-Mama program on maternal and child health outcomes in Singida, the Tanzanian government should consider scaling up the program to reach a larger population. This expansion could involve increasing the number of beneficiaries within existing regions or implementing the program for other special group beneficiaries. By scaling up the program, the government leverages its proven effectiveness to improve health outcomes for a greater number of mothers and children.

5.4.3 Integration with Other Health Services

To provide a more comprehensive package of care and address the interconnected needs of mothers and children, the m-Mama program should be integrated with other essential health services. This could include family planning, immunization, nutrition counseling, and mental health support. Coordinating with existing health services, the program ensures that beneficiaries have access to a wider range of resources and services, improving overall health outcomes.

5.4.4 Cost-Effectiveness Analysis

A cost-effectiveness analysis should be conducted to evaluate the economic efficiency of the m-Mama program. This analysis would compare the costs of implementing the program to the benefits it generates, such as reduced child mortality and improved maternal health outcomes. By understanding the program's cost-effectiveness, policymakers make informed decisions about resource allocation and prioritize interventions that offer the greatest return on investment.

5.4.5 Further Research on Qualitative Impact

To gain a deeper understanding of the program's impact on beneficiaries' lives, qualitative research should be conducted. This could involve in-depth interviews, focus groups, or case studies to explore the experiences and perspectives of participants. Qualitative research provides valuable insights into the program's strengths, weaknesses, and areas for improvement, informing future program development and implementation.

5.5 Areas for Further Study

To gain a more comprehensive understanding of the m-Mama program's impact and identify potential areas for improvement. The researchers contribute to a deeper understanding of the m-Mama program's impact, identify opportunities for improvement, and inform future policy and program development efforts in the field of maternal and child health. Further research could explore the following areas:

Disparities within the beneficiary group, conduct a more in-depth analysis of the program's impact on different subgroups of beneficiaries, such as those with varying levels of education, income, or geographic location. This could help identify specific populations that may benefit more or less from the program. Comparison with other mHealth interventions, compare the m-Mama program with similar mHealth interventions implemented in other regions or countries. This provides valuable insights into best practices, challenges, and lessons learned. User feedback, prioritize feedback from program beneficiaries to identify areas for improvement and ensure that the program remains responsive to their needs.

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APPENDICES

Appendix I: Questionnaire

Introduction:

Thank you for your willingness to participate in this survey! This study aims to understand the impact of the m-Mama program on maternal and child health in Singida, Tanzania. Your responses will be kept confidential. Kindly tick/fill the blank as required.

A: Demographic Information

1. **Age of respondent:**

   1. 18-24 years old 2. 25-34 years old 3. 35-44 years old

   4. 45-54 years old 5. 55 years old and above

2. **Marital Status:**

   1. Single 2. Married/Living with Partner

   3. Divorced/Separated 4 Widowed

3. **Highest Level of Education Completed:**

   1. No formal education 2. Primary School 3.Secondary School

   4. Vocational/Technical School 5. University/College Degree

4. **Occupation:**

   1. Employed full-time 2. Employed part-time 3.Self-employed

   4. Homemaker 5. Student 6.Unemployed

5. **Number of Children under 5 Years Old Living in Your Household:**

   _____

6. Participation in the m-Mama Program:

1. Yes 2. No

7. If you answered "No," can you briefly explain why you haven't participated?

Can you briefly explain why you haven't participated?

_____

8. Socioeconomic Status:

Please select the category that best represents your household's monthly income:

1. Less than 50,000 TZS 2. 50,000 - 100,000 TZS

3. 100,000 - 150,000 TZS 4. 150,000 – 200,000 TZS

4. More than 200,000 TZS

B: Tracking the Child Mortality Rate in Past Five Years

9. Have you experienced the loss child less than five years in the past few years?

1. Yes 2. No

C: M-Mama Program Participation and Child Mortality Risks (Singida Region)

10. Knowledge of Danger Signs in Children:

Are you familiar with the common danger signs in children under 5 that require immediate medical attention? (e.g., fever, difficulty breathing, diarrhea)

1. Yes 2. No

11. Healthcare Facility Utilization:

In the past year, how many times have you taken a child under 5 years old to a healthcare facility for a medical checkup or illness (excluding instances where you used m-Mama)?

1. None 2. 1-2 times

3. 3-5 times 4. More than 5 times

12. Awareness of the m-Mama Program:

Have you ever heard of the m-Mama program?

1. Yes 2.No

13. Participation in the m-Mama Program:

Have you or any of your children under 5 years old ever used the m-Mama program for transportation to a healthcare facility?

1. Yes (Skip to Q13) 2. No (Skip to Q15)

14. Satisfaction with m-Mama Service:

Overall, how satisfied were you with the service provided by the m-Mama program?

1. Very satisfied 2. Somewhat satisfied 3.Neutral

4. Somewhat dissatisfied 5. Very dissatisfied

15. Timeliness of m-Mama Response:

For the instances you used m-Mama, how long did it take for the ambulance or driver to arrive after your call?

1. Less than 30 minutes 2. 30 minutes to 1 hour 3.More than 1 hour

16. Reasons for not participating in m-Mama:

If you answered "No" to the previous question, why haven't you or your children used the m-Mama program? (Select all that apply)

1. I was not aware of the program.

2. I did not have access to a phone to call for assistance.

3. The cost of transportation was a concern.

4. I preferred to use another method of transportation.

5. Other (Please Specify): _____

C: M-Mama Program and Utilization of Maternal and Child Health Services

17. Participation in the m-Mama Program:

Have you ever participated in the m-Mama program for transportation to a healthcare facility (for yourself during pregnancy, childbirth, or postpartum care, or for a child under 5 years old)?

1. Yes 2. No

18. Frequency of m-Mama Use:

If you answered "Yes" to the previous question, how many times have you used the m-Mama program in total?

a. 1- 2 time b. 3 - 4 times c. 5 or more times

19. Types of m-Mama Services Used:

Which of the following m-Mama services have you used? (Select all that apply)

1. Transportation during pregnancy 2. Transportation for childbirth

3. Transportation for postpartum care 4. Transportation for a sick child under 5

20. Antenatal Care (ANC) Visits:

In your most recent pregnancy, how many times did you attend antenatal care (ANC) visits at a healthcare facility?

1. None 2. 1- 2 visits

3. 3 - 4 4. 5 or more visits

21. Postpartum Care Visits:

In your most recent pregnancy, how many times did you attend postpartum care

visits at a healthcare facility within 6 weeks after delivery?

1. None 2. 1- 2 visits

3. 3 - 4 4. 5 or more visits

22. Child Health Checkups:

In the past year, how many times have you taken a child under 5 years old to a healthcare facility for a routine checkup (excluding instances where you used m-Mama)?

1. None 2. 1-2 times

3. 3-5 times 4. More than 5 times

23. Barriers to Utilizing Maternal and Child Health Services:

Have you ever faced any challenges in accessing maternal and child health services at a healthcare facility (e.g., distance, cost, and transportation)?

1. Yes 2. No

3. If yes, please specify: _____

24. Importance of m-Mama in Service Utilization:

In your opinion, how has the m-Mama program impacted your ability to access maternal and child health services?

1. Made a significant positive impact 2. Made a slight positive impact

3. No impact 4. Made access slightly more difficult

5. Made access significantly more difficult

D: M-Mama Program and Knowledge, Attitudes, and Practices (KAP) on Maternal and Child Health

25. Knowledge of Danger Signs:

In your opinion, how important are routine checkups for children under 5 years

old?

1. Very important 2. Somewhat important 3.Neutral

4. Somewhat unimportant 5. Not important at all

26. Recognition of Illness:

How confident are you in recognizing the danger signs of a sick child (e.g., fever, difficulty breathing, and diarrhea)?

1. Very confident 2. Somewhat confident 3.Neutral

4. Somewhat not confident 5. Not confident at all

27. Knowledge of Common Childhood Illnesses:

What are some of the common childhood illnesses you are familiar with?

1. _____ 2. _____

3._____

28. Exposure to Educational Programs:

Have you ever participated in any educational programs or workshops on child health topics in the past year (e.g., through m-Mama, government health initiatives)?

1. Yes 2. No

29. Helpfulness of Educational Programs:

If you answered "Yes" to the previous question, how helpful were those programs/workshops in improving your knowledge of child health?

1. Very helpful 2. Somewhat helpful 3.Neutral

4. Somewhat unhelpful 5. Not helpful at all

30. Perceived Impact of m-Mama on Knowledge:

Since participating in the m-Mama program, do you feel more prepared to handle

your child's health needs?

1. Strongly agree 2. Agree 3. Neutral

4. Disagree 5. Strongly disagree

31. Attitudes Towards m-Mama:

How likely are you to recommend the m-Mama program to other mothers in your community?

1. Very likely 2.Somewhat likely 3. Neutral

4. Somewhat unlikely 5. Not likely at all

32. Interest in Further Education:

Are there any specific aspects of child health you would like to learn more about? (e.g., nutrition, breastfeeding, hygiene)

1. Yes 2. No

E: M-Mama Program: Perceptions, Challenges, and Effectiveness (Singida Region)

33. Awareness of m-Mama Program Goals:

In your understanding, what is the main purpose of the m-Mama program?

1. To provide transportation for pregnant women and sick children

2. To reduce child mortality rates

3. To educate mothers on child health

4. Unsure of the program's goals

5. Other (Please Specify): _____

34. Perceived Effectiveness of m-Mama:

In your opinion, how effective has the m-Mama program been in reducing child

deaths in your community?

1. Very effective 2. Somewhat effective 3.Neutral

4. Somewhat ineffective 5. Not effective at all

35. Accessibility of m-Mama Services:

Have you ever faced any difficulties in accessing the m-Mama program when needed (e.g., long wait times, lack of phone signal)?

1. Yes 2. No (Skip to Q37)

36. Challenges in using m-Mama:

If you answered "Yes" to the previous question, what were the specific challenges you encountered? (Select all that apply)

1. Long wait times for ambulance/driver arrival

2. Difficulty reaching m-Mama by phone due to lack of signal

3. Unfamiliarity with the program's procedures

4. Other (Please Specify): _____

37. Suggestions for Improvement:

Do you have any suggestions on how the m-Mama program could be improved to better serve the needs of the community?

1. Yes (Please Specify): _____ 2. No

38. Awareness of Alternative Services:

Are you aware of any other transportation options available for reaching healthcare facilities in case of emergencies?

1. Yes 2. No

39. Community Awareness of m-Mama:

In your opinion, how well-informed are people in your community about the m-

Mama program and its services?

1. Very well-informed 2. Somewhat informed 3. Not very informed

4. Not informed at all 5. I don't know

Appendix II: Clearance Letters

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

THE OPEN UNIVERSITY OF TANZANIA

Ref. No OUT/PG202287050 **15th July, 2024**

Regional Medical Officer,

P.O. Box 05,

SINGIDA.

Dear Regional Medical Officer,

RE: RESEARCH CLEARANCE FOR MR. DONALD EPHATA REG NO: PG202287050.

2. The Open University of Tanzania was established by an Act of Parliament No. 17 of 1992, which became operational on the 1st March 1993 by public notice No.55 in the official Gazette. The Act was however replaced by the Open University of Tanzania Charter of 2005, which became operational on 1st January 2007.In line with the Charter, the Open University of Tanzania mission is to generate and apply knowledge through research.

3. To facilitate and to simplify research process therefore, the act empowers the Vice Chancellor of the Open University of Tanzania to issue research clearance, on behalf of the Government of Tanzania and Tanzania Commission for Science and Technology, to both its staff and students who are doing research in Tanzania. With this brief background, the purpose of this letter is to introduce to you **Mr, Reg.No: PG202287050),** pursuing **Monitoring and Evaluation (MAME).** We here by grant this clearance to conduct a research titled **" Implication of M-MAMA Program in Reducing Child**

Mortality rates in Singida,Tanzania". He will collect his data at your office from July 22th , 2024 to 16th August 2024.

4. In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) of the Open University of Tanzania, P.O.Box 23409, Dar es Salaam. Tel: 022-2-2668820.We lastly thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours sincerely,

THE OPEN UNIVERSITY OF TANZANIA

Prof.Gwahula Raphael Kimamala

For: VICE CHANCELLOR

Kinondoni Biafra, Kawawa Road; P.O 23409; Dar es Salaam; Tel: +255 22 2668 445;
E-Mail:vc@out.ac.tz|| Website:www.out.ac.tz

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF HEALTH

SINGIDA REGION

Phone No. 026 2502397
Fax No.026 2502360
E.mail: singidarrh@afya.go.tz

In reply please quote:
Ref No. MB.295/345/01/174

SINGIDA REGIONAL REFERRAL HOSPITAL,
BOX 104
SINGIDA.

21st July 2024

Donald Ephata,
The Open University of Tanzania,
P. O Box 23409.
Dar es Salam

RE: PERMISSION TO CONDUCT RESEARCH AT SINGIDA RRH.

In reference to the above heading

2. I would like to inform you that permission is hereby granted for you *Donald Ephata* from the Open University of Tanzania with Reg No PG:202287050; to conduct research at our hospital starting as from the date of this letter, 2024. The research title regarding: "*Implication of M-MAMA program in Reducing Child Mortality rates in Singida, Tanzania*"

3. However, you may note in advance that during your study at Singida RRH you should to observe Medical Ethics, Procedures, Rules and regulations that stipulated at our hospital and then you should bring a copy of your study report to the particular department and units respectively. In additional to that please bring the following with you prior to the start of study at our facility:-

   i. Paid paying slip of Tshs 200,000/=.
   ii. A 10-15mins presentation to Singida RRH research committee team.
   iii. A well written proposal, enclosed together with an ethical clearance certificate.

Your warmly welcome

FOR: MEDICAL OFFICER INCHARGE
SINGIDA REGIONAL REFERRAL HOSPITAL

Emmanuel O. Kimario
For: Medical Officer Incharge
Singida Regional Referral Hospital