PERCEIVED EFFECTIVENESS OF HEALTH EDUCATION INITIATIVES ON THE HEALTH STATUS OF PREGNANT WOMEN ATTENDING WAJIR COUNTY REFERRAL HOSPITAL, WAJIR COUNTY, KENYA.

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DECLARATION AND APPROVAL

This research project is my original work and has not been presented for a degree/master's in any other university or for any other award.

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DEDICATION

This piece is dedicated to my beloved mother Habiba Alo. Special dedication to my sister Habon Ugas without her generous assistance, this won't have been possible.

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Above all, I am deeply grateful to Allah Ta'ala for giving me the courage, health, and tenacity I needed to start and finish this research. I am extremely appreciative to my instructors and supervisors, whose priceless advice, support, and enlightening criticism were crucial in helping me finish this thesis. Their assistance was crucial on this journey. I also want to express my sincere gratitude to the management and employees of Wajir County Referral Hospital for allowing me to conduct this study there and for helping me gather data. I also want to express my gratitude to the participants pregnant women who kindly took part in this study; their insights and collaboration were invaluable. I would especially like to thank my friends, coworkers, and classmates for their moral support, guidance, and encouragement throughout this study process.

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LIST OF ABREVIATIONSAND ACRONYMS

HEP	:	Health Education Program
MCHO	:	Maternal and Child Health Outcomes
WRH	:	Wajir Referral Hospital
WC	:	Wajir County
MOH	:	Ministry of Health
CBHEP	:	Community-Based Health Education Program
CDC	:	Child Development Center
MMR	:	Maternal Mortality Rate
NCDs	:	Non-Communicable Diseases
SDH	:	Social Determinants of Health
CHWs	:	Community Health Workers
ECD	:	Early Childhood Development
ANC	:	Antenatal Care
PNC	:	Postnatal Care
IMCI	:	Integrated Management of Childhood Illness
ICCM	:	Integrated Community Case Management
MDGs	:	Millennium Development Goals
SDGs	:	Sustainable Development Goals

FGM/C	:	Female Genital Mutilation/Cutting
KAP	:	Knowledge, Attitude, and Practice

DEFINITION OF OPERATIONAL TERMS

Health education initiatives	In order to boost capacity, these programs are made to ensure that the audience has received health-related knowledge on a range of topics, including physical exercise, medical exams, and general living habits.
Maternal mortality	"Maternal mortality" is defined as the death of a woman while pregnant or within forty-two days after delivering birth, regardless of the length or location of the pregnancy, from any cause related to or exacerbated by her pregnancy or its handling, but excluding accidental or incidental causes.
Maternal health	This is the state of health that a nursing or pregnant woman is in at any particular time.
Staffing	is the procedure used to assign competent candidates to positions inside a company or organization. Staffing, as used in management, is the practice of hiring new employees, evaluating their qualifications, and placing them in jobs that best fit their needs.
Financial Resources	This is the money used by the program or project to finance its activities, such as recruiting personnel and purchasing medical supplies and equipment.

Initiative awareness:	relates to the recipients' understanding and knowledge of the maternal health activities.

ABSTRACT

One of the main public health concerns is still maternal health, especially in disadvantaged and marginalized areas such as Wajir County in northeastern Kenya. Despite various interventions, maternal morbidity and mortality rates remain alarmingly high in this area. These adverse outcomes are largely attributed to low antenatal care (ANC) utilization, suboptimal dietary practices while pregnant, and inadequate preparedness for pregnancy outcomes. Health education initiatives have been recognized globally as key strategies to improve maternal health by empowering pregnant women with relevant knowledge, positive attitudes, and appropriate behaviors regarding pregnancy and childbirth. However, there is limited empirical data assessing how effective these health education programs are, especially within pastoralist communities like those found in Wajir County, where unique cultural and socioeconomic factors may influence health behaviors. This study was designed to evaluate the effectiveness of health education interventions on the health status of pregnant women attending ANC clinics at Wajir County Referral Hospital. The research focused on three specific objectives: (1) to assess the influence of health education on the uptake of antenatal care services, (2) to evaluate its impact on dietary practices during pregnancy, and (3) to determine the extent to which health education enhances pregnant women's preparedness for pregnancy outcomes. A descriptive cross-sectional survey approach was employed, using census sampling to include all pregnant women who attended the ANC clinic during the data collection timeframe. Data were gathered through structured questionnaires and subsequently analyzed using the Statistical Package for Social Sciences (SPSS) version 28. Both descriptive statistics and inferential tests were applied to interpret the findings. The study adhered strictly to all ethical guidelines, also permission to conduct the study was granted by the hospital administration. The results revealed low rates of ANC attendance among pregnant women, underscoring constant obstacles to receiving maternal health care in the region. Moreover, a significant portion of respondents lacked sufficient knowledge and did not practice recommended dietary habits, pointing to a critical gap in nutrition education that could potentially compromise maternal and fetal health outcomes. Despite these challenges, many women expressed a sense of preparedness for childbirth and possible complications, indicating that current health education efforts have had some positive influence in enhancing pregnancy outcome readiness. The investigation recommends a comprehensive strengthening and expansion of health education programs, with a focus on culturally sensitive messaging tailored to the pastoralist community's unique social context. There is a need for enhanced community engagement and outreach initiatives to boost ANC service uptake and improve nutritional behaviors. Additionally, it is crucial to establish continuous monitoring and evaluation systems within health facilities to evaluate the success of health education initiatives and direct any required modifications. Building healthcare providers' capacity—especially in communication and counseling skills—is also essential to ensure that pregnant women receive clear, relevant, and actionable health information. In conclusion, despite the fact that the health education programs at Wajir County hospital have achieved some progress, more systematic, well-resourced, and culturally adapted approaches are needed to maximize maternal health outcomes and reduce preventable pregnancy-related complications in this vulnerable population.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

The subsequent topics are highlighted in this chapter: the background, statement of the problem, purpose, research questions and objectives; the rationale; the study's importance; the research's scope; its limitations; and its assumptions.

1.1 Background information

Health education plays a vital role in public health by empowering individuals and communities with the knowledge and skills needed to make informed decisions about their health (WHO, 2022). Such initiatives provide essential information on various health topics, including prenatal care, nutrition, lifestyle adjustments, safe delivery practices, and proper use of healthcare services and medications. For pregnant women, especially those living in marginalized or underserved communities, timely access to accurate health information can greatly improve outcomes for both mother and child, often making a crucial difference in areas where maternal deaths remain a significant concern (Weller, 2017).

Maternal mortality remains a pressing global issue. Recent data indicate that nearly 295,000 women lose their lives each year due to complications arising from pregnancy and childbirth, with most of these deaths being preventable through effective healthcare interventions (WHO, 2022). According to Tann, Kizza & Morison (2018) the vast majority—over 94%—occur in low- and middle-income countries where access to quality maternal health services and education is limited. In response, the Sustainable Development Goal (SDG) 3.1 aims to reduce the global maternal mortality ratio to less than 70 deaths per 100,000 live births by 2030 (WHO, 2020). It has been acknowledged that health education is a key strategy in reaching this goal, particularly when programs are tailored to align with the cultural and regional characteristics of target populations.

Globally, research has demonstrated that by increasing awareness and promoting healthy behaviors during pregnancy, well-planned health education initiatives can enhance mother health. For example, community-based programs have been associated with reductions in severe maternal complications such as excessive bleeding after childbirth, obstructed labor, and infections—factors that significantly raise the risks of maternal death (Nawabi *et al.,* 2021). In countries with more resources, like New Zealand and the United States, coordinated maternal health education campaigns using both traditional outreach and digital communication have resulted in measurable improvements in maternal health outcomes, with some regions reporting a 15% improvement over the past decade.

Nonetheless, maternal mortality disproportionately affects women in Asia and sub-Saharan Africa. In many African countries, structural challenges such as poverty, weak healthcare systems, shortages of trained staff, and cultural norms that may discourage seeking modern medical care hinder effective delivery and uptake of maternal health education. A survey conducted across Ghana, Togo, and Benin found that inadequate knowledge about proper nutrition, exercise, and the risks of harmful behaviors such as smoking and drinking alcohol was strongly linked to negative maternal and newborn health outcomes. These findings highlight the urgent need to expand health education programs that are adapted to address both medical needs and cultural contexts.

In Kenya, maternal mortality rates remain high with stark differences between the rural and the urban areas (Odiwuor, Kimiywe & Waudo, 2022). While urban populations generally have better healthcare access, rural and arid counties, particularly in the northeast, experience poorer maternal health outcomes. The Kenya Demographic and Health Survey (KDHS) (2023) reports persistently high maternal deaths in counties like Wajir. Contributing factors include limited access to antenatal care, delays in seeking treatment, and insufficient reach of maternal health education programs. Despite ongoing government

and NGO campaigns, systemic issues such as low literacy, poverty, semi-nomadic lifestyles, and entrenched cultural beliefs continue to limit the effectiveness of these efforts.

Wajir County, mainly inhabited by pastoralist communities, exemplifies the challenges of delivering health education in remote and resource-limited areas. The county referral hospital, which serves a widely dispersed population across difficult terrain, offers health education as part of its maternal care services, but attendance remains low. Factors such as poor roads, long travel distances, and time constraints due to domestic and pastoral responsibilities reduce participation rates. Furthermore, budget constraints, inadequate community mobilization, and staffing shortages reported by the county health department limit the impact of both facility-based and outreach education efforts.

Maternal education must extend beyond childbirth to cover the postpartum period, also known as the "fourth trimester," a critical time involving many physical, emotional, and social adjustments for mother and infant. This phase, lasting approximately six weeks or more after delivery, requires focused education on topics such as exclusive breastfeeding, maternal hygiene, mental health, family planning, and newborn care (McGuire, 2016). Unfortunately, formal postpartum education is often lacking in many communities, leaving new mothers reliant on advice from family or traditional birth attendants, which can sometimes lead to unsafe practices.

To enhance maternal health education's reach and effectiveness, a comprehensive, multi-sectoral approach is needed. This includes integrating education programs within well-functioning healthcare systems supported by proper infrastructure, trained staff, and active community participation. Programs that respect cultural differences, involve relevant stakeholders, and adopt innovative delivery methods—like mobile health clinics or digital tools—can better reach remote populations. The Framework of Policy Transfer suggests that

the success of such interventions depends on factors like institutional preparedness, previous policy experience, and local socio-cultural environments. This understanding is especially relevant for maternal health programs in conservative rural settings such as Wajir.

Within this context, the aim of the current study is to assess the effectiveness of maternal health education initiatives in improving outcomes for pregnant women attending Wajir Referral Hospital. It will assess the availability and accessibility of these programs and explore their influence on antenatal care attendance, behavior changes among expectant mothers, and readiness for safe delivery. By combining empirical data with an understanding of local conditions, the study seeks to inform more effective maternal health policies and interventions for marginalized counties in Kenya.

1.2 Problem Statement

According to Michuki (2015*)* maternal health continues to be a significant challenge in Kenya, with maternal mortality rates remaining worryingly high despite various reforms and intervention efforts in the health sector. National statistics reveal a maternal mortality ratio of 342 deaths per 100,000 live births, underscoring the ongoing toll of pregnancy-related fatalities (KDHS, 2023). This issue is especially severe in marginalized areas, where disparities in access to healthcare services are more evident. For example, Wajir County in northeastern Kenya experiences maternal mortality rates reaching 676 per 100,000 live births, nearly twice the national average (Wajir County Health Department, 2023).

While maternal health education is integrated into facility-based services and community outreach initiatives, outcomes have not met expectations. In Wajir, only about 50% of pregnant women complete the recommended four or more antenatal care (ANC) visits, a figure lower than the national average of 68% (KDHS, 2023). Additionally, knowledge deficiencies remain widespread; fewer than 40% of women can identify major danger signs

during pregnancy, and a considerable number continue to deliver at home without professional assistance (UNFPA, 2022; Wajir County Health Report, 2023). These statistics suggest that existing health education approaches may not effectively influence health behaviors or enhance maternal health outcomes.

A variety of contextual factors limit the effectiveness of maternal health education in this region. Low literacy rates, entrenched cultural traditions, and the predominantly pastoralist way of life pose significant challenges to the dissemination and uptake of critical information on maternal health. Geographic challenges such as poor transport infrastructure and and lengthy commutes to medical centers further restrict women's ability to attend routine antenatal visits. Communication difficulties arising from language differences and a shortage of skilled health educators compound these challenges, diminishing the reach and impact of health education initiatives' impact and reach in rural Wajir.

Despite ongoing efforts by governmental and non-governmental organizations employing health talks, mass media, and mobile health outreach, there remains a lack of comprehensive evidence demonstrating whether these initiatives have succeeded in improving maternal health knowledge and behaviors. There is a particular gap in systematic evaluations that assess whether educational interventions are effectively empowering expectant mothers to seek care as soon as possible and make safer delivery decisions.

In response to these concerns, this investigation sought to assess the actual effectiveness of education programs on maternal health on the well-being of pregnant women attending Wajir County Hospital. By examining levels of maternal knowledge, health-seeking practices, and preparedness for childbirth, the research intends to generate practical insights. These findings will help inform policymakers, health practitioners, and community stakeholders on how to refine and strengthen maternal health education strategies,

ultimately contributing to improved pregnancy outcomes and reductions in avoidable maternal mortality within Wajir and comparable underserved contexts.

1.3 Justification

Maternal health plays a fundamental role in shaping not only the quality of a country's healthcare system but also its overall social and economic development (WHO, 2022). This is particularly critical in low- and middle-income countries, where maternal mortality remains a serious concern despite ongoing global and national interventions aimed at improving maternal outcomes (Mrisho, 2018). In Kenya, the maternal mortality ratio currently stands at approximately 342 deaths per 100,000 live births, highlighting persistent challenges in achieving universal access to safe maternity care (Kenya Demographic and Health Survey [KDHS], 2023). The situation in Wajir County is even more severe, with reported maternal mortality rates reaching as high as 676 per 100,000 live births—nearly double the national estimate (Wajir County Health Department, 2023). These concerning statistics highlight the pressing need for evidence-based, locally relevant therapies that are customized.

Kinyua (2023) in his study concludes that one of the major contributors to the high maternal mortality rate in Wajir is the limited reach and inconsistent application of maternal health education programs. Although improving maternal health is a stated priority in the Ministry of Health's strategic agenda (Adebowale *et al.,* 2023), and while development partners have supported various initiatives at the county level, many women in pastoralist and remote communities continue to lack access to comprehensive and practical maternal health information. Moreover, the effectiveness of these educational programs remains largely undocumented, making it difficult to assess whether they are fulfilling their purpose of

increasing awareness, encouraging health-seeking behavior, and ultimately improving maternal health outcomes.

Research from other contexts demonstrates the essential part that health education plays in enhancing maternal health (WHO, 2023). When women are informed about antenatal care (ANC), nutrition, hygiene, danger signs during pregnancy, childbirth preparedness, and postpartum care, they are more likely to utilize healthcare services, adopt safer health practices, and recognize complications early enough to seek timely intervention (World Health Organization [WHO], 2023; United Nations Population Fund [UNFPA], 2022). However, audits and reports from Wajir County suggest that these benefits are not being fully realized. ANC attendance remains low—below 60%—and many expectant women still give birth at home without skilled attendants. Furthermore, a considerable proportion of women report receiving little or no information on crucial maternal health topics (Wajir County Health Report, 2023).

These conditions raise a critical question: How effective are the current maternal health education strategies in Wajir County? While interventions such as mobile clinics, health talks, and community-based outreach have been rolled out, there has been little empirical assessment to determine their actual impact. Without such evaluation, it is unclear whether these initiatives are truly attending to expectant mothers' needs in this unique and often underserved region.

This research, therefore, seeks to examine the practical outcomes of maternal health education interventions among expectant women attending services at Wajir County Referral Hospital. The investigation purposes to explore the he degree to which these programs enhance knowledge, influence maternal behaviors, and improve preparedness for childbirth. By generating evidence specific to this context, the research intends to offer

valuable insights that can guide the refinement and expansion of maternal health education programs in Wajir and similar settings.

Moreover, the study aligns with SDG 3, which seeks to lower maternal mortality worldwide and promote access to quality maternal and reproductive healthcare. It also supports the objectives of Kenya's Community Health Strategy (2020–2025), which emphasizes the importance of behavior change and health promotion communication at at the grassroot level. The study will utilize theoretical frameworks such as the Policy Transfer Model to evaluate how effective interventions from other regions might be adapted to the sociocultural and infrastructural realities of Wajir County.

In summary, this research is both timely and essential. By producing context-specific and actionable data, it aims to inform more effective, culturally appropriate, and accessible maternal health education strategies. Ultimately, the results could improve the health and well-being of women in Wajir and other underprivileged areas of Kenya and lower avoidable maternal deaths.

1.4 Study Purpose

This study aimed to evaluate how health education programs influence the health outcomes of pregnant women receiving care at Wajir County Referral Hospital in Wajir County, Kenya."

1.5 Research objectives

1.5.1 General objectives

To investigate the perceived effectiveness of health education initiatives on the health status of pregnant women attending Wajir County Referral Hospital, Wajir County, Kenya.

1.5.2 Specific objectives

i. To assess how maternal health education programs affect the utilization of antenatal care services by expectant women seeking care at Wajir County Referral Hospital.

ii. To investigate the impact of health education efforts on the nutritional behaviors of pregnant women receiving services at Wajir County Referral Hospital.

iii. To analyze the role of health education in enhancing pregnancy preparedness among women attending antenatal clinics at Wajir County Referral Hospital.

1.6 Research questions

I. What is the influence of health education initiatives on the uptake of antenatal care services among pregnant women attending Wajir County Referral Hospital?

II. How do health education initiatives influence dietary practices among pregnant women attending Wajir County Referral Hospital?

To what extent do health education initiatives affect birth preparedness practices among pregnant women attending Wajir County Referral Hospital?

1.7 Significance of the study

The investigation findings and recommendations are expected to yield detailed empirical and statistical insights regarding the incidence of illness and mortality among pregnant women, as well as the rate of health care education interventions care efficacy. These findings and conclusions will be valuable to both national and international health organizations, guiding evidence-based decision-making on matters related to maternal health and the implementation of educational programs. Furthermore, the study is anticipated to inform government policies, particularly those focused on enhancing healthcare delivery through effective, large-scale maternal health education initiatives. The Wajir County Department of Health may also use these findings to refine and strengthen its strategies, ensuring that expectant mothers benefit from accessible and impactful educational support throughout their pregnancy.

This research will offer practical recommendations to improve maternal health education efforts, particularly in rural and underserved areas. Beyond its immediate application, the investigation serves as a basis for further future academic inquiry, potentially informing studies in related or entirely different areas of public health. In essence, the theoretical and practical contributions of this research will improve the overall service quality on reproductive health and support community-based efforts purposing to safeguarding both mother and child health. Consequently, the study holds the potential to positively impact not only the well-being of individual pregnant women but also the broader public health landscape.

1.8 Study Scope

This investigation was completed in Wajir County at the Referral Hospital, targeting women who were pregnant attending the health facility for ANC services. Data gathering was conducted during the course of two months, from September to Novemeber 2024, while the full research process spanned five months. The investigation focused on assessing the health education initiatives effectiveness provided at the health facility. It specifically examined three key variables: uptake of ANC services, pregnant women dietary practices, and preparedness for expectancy outcomes. Additionally, the study incorporated a review of existing literature, including both cross-sectional and comparative studies, to contextualize the findings and support analysis. The research aimed to generate insights that could help improve maternal health education strategies in similar healthcare settings.

1.9 : Limitation

Since the study was restricted to Wajir County Referral Hospital, it might not accurately represent the experiences of Wajir County pregnant women or other areas thus posing a limitations to the study.

Self-reported information was used for data collection, which could have possibly been influenced by social desirability or recollection bias, which could have compromised the responses' accuracy.

The short data collection period (two months) limited the ability to observe seasonal variations in antenatal service uptake and health behaviors.

Logistical challenges, including limited access to remote or rural areas, may have restricted the diversity of participants.

Language barriers during data collection may have impacted communication and the depth of information obtained from some respondents.

1.10 Delimitations

The investigation was limited to the county of Wajir in the Referral Hospital, where 100 pregnant women participated from a sample of the entire targeted pregnant women population under study.

The data collected was highly accurate as a result of the adoption and application of questionnaires, which also saved the researcher time because less time was needed for data collection.

1.11 Study assumptions

This study was built on several foundational assumptions that were considered essential for the validity and reliability of its process and outcomes. Firstly, it was assumed that participants provided responses that were truthful and reflective of their actual experiences. The credibility of the data heavily relied on the willingness of pregnant women to answer questions openly and without distortion.

Secondly, the study assumed that the data collection phase, planned to take place over a two-month period, proceeded without significant interruptions. It was expected that there would be no major barriers such as health worker strikes, staff shortages, or unexpected emergencies that could have disrupted access to respondents or compromised the quality of the data collected.

Furthermore, it was presumed that the information gathered from Wajir County Referral Hospital could reasonably represent the broader maternal health context in other similarly ranked health facilities within the county. This assumption was based on the belief that health education services and maternal care practices were largely standardized across public hospitals of the same level within Wajir.

These assumptions were crucial in framing the study's methodology and shaped how the findings were analyzed and interpreted. Any deviation from these assumptions could potentially influence the generalizability or applicability of the results beyond the immediate study setting.

CHAPTER TWO: LITERATURE REVIEW

1.0 Introduction

Maternal health serves as a vital benchmark for assessing a population's overall health and continues to be a central concern in global public health. This is especially true in low- and middle-income countries, where the burden of maternal deaths and complications remains disproportionately high. As reported by the World Health Organization (2023), nearly 295,000 women around the world lost their lives in 2020 due to causes related to pregnancy and childbirth—most of which were preventable. A staggering 94% of these fatalities were concentrated in developing regions, including sub-Saharan Africa. In Kenya, while healthcare coverage and maternal health policies have improved in recent years, maternal mortality continues to pose a significant health challenge. This is particularly evident in underserved regions like Wajir County, where maternal health indicators fall well below national targets (KDHS, 2023).

Health education is widely accepted as one of the most effective strategies for improving maternal outcomes. It enables pregnant women to gain knowledge about antenatal care, proper nutrition, hygiene, and the warning signs of pregnancy complications. Furthermore, it equips them with the tools needed for birth preparedness and informed decision-making regarding delivery and postpartum care (Andrews & Boyle, 2019; WHO, 2020). When effectively delivered, health education promotes timely antenatal visits, encourages safe dietary and hygiene practices, and contributes to safer deliveries and improved maternal and newborn health outcomes.

However, despite the established value of health education in maternal care, its practical effectiveness remains unclear in many marginalized settings. In rural Kenya—and particularly in Wajir County—there is limited evidence on whether maternal health education initiatives are reaching their intended audiences. Several reports suggest that

many pregnant women in these areas continue to have inadequate knowledge about pregnancy risks and do not utilize antenatal services effectively (UNFPA, 2022; Wajir County Health Department, 2023). This raises concerns about whether current health education approaches are contextually relevant, culturally sensitive, and accessible to women in remote and nomadic communities.

The purpose of this literature review is to critically examine current studies and data relating to maternal health education and its influence on key maternal health outcomes. Specifically, the review focuses on three interconnected areas that are central to this study: the uptake of antenatal care services, dietary behavior during pregnancy, and preparedness for childbirth. These variables are essential for evaluating maternal well-being and directly impact both maternal and neonatal survival rates.

The structure of this chapter begins by outlining the conceptual framework that guides this investigation, highlighting how the core variables interact within the broader maternal health context. Next, theoretical perspectives are presented to explain the mechanisms through which health education can lead to behavior change among pregnant women. This is followed by an empirical review of studies conducted globally, across sub-Saharan Africa, East Africa, and within Kenya, to understand how maternal health education has been implemented and evaluated in similar settings. Particular attention is given to challenges faced in rural and pastoralist regions, where health systems often struggle with limited infrastructure, low literacy rates, and cultural barriers.

Finally, this chapter identifies existing gaps in the literature—such as the limited context-specific data available for counties like Wajir—and outlines how the current study will help address those gaps. By providing locally grounded evidence, this research aims to strengthen the knowledge base on maternal health education effectiveness and support the

development of strategies tailored to improve maternal health outcomes in resource-constrained environments.

In sum, this literature review establishes a solid academic foundation for the research. It connects theoretical insights with real-world applications and prepares the groundwork for evaluating how health education efforts have influenced the health status of pregnant women attending Wajir County Referral Hospital.

2.1.0 THEORETICAL FRAMEWORK

A theoretical framework forms the backbone of any research study, offering a structured lens through which the research problem is examined. It plays a vital role in guiding the design of the study, informing the methods of data collection, and shaping the analysis and interpretation of findings. By linking established theories to the research problem, the framework helps clarify relationships among variables and supports the rationale behind the chosen research approach (Mugenda & Mugenda, 2018).

This study is grounded in Social Cognitive Theory (SCT), initially developed by Albert Bandura in 2008. SCT provides a valuable perspective for understanding how individuals acquire, adopt, and sustain health-related behaviors. The theory emphasizes the interplay between personal attributes, behavioral actions, and environmental influences. It is particularly relevant to this research, which investigates how health education interventions impact pregnant women's behaviors in Wajir County—a setting characterized by unique socio-cultural and environmental dynamics.

SCT highlights that behavior change does not result from individual knowledge alone but from interactions within one's social and physical environment. People learn not only through personal experience but also by observing others and interpreting the outcomes of

different behaviors. Several core elements of SCT are highly applicable to maternal health education and form the basis of this study:

Observational Learning (Modeling): Individuals can adopt new behaviors by watching others demonstrate them. In the context of this study, pregnant women may be influenced by health workers, community health volunteers, or peers who model positive behaviors such as attending antenatal clinics, eating nutritious food, or preparing for childbirth.

Self-efficacy: This refers to a person's confidence in their ability to perform a specific behavior. Health education initiatives aim to build self-efficacy among pregnant women by equipping them with the necessary knowledge, practical skills, and emotional support. When women believe in their ability to seek care, maintain proper nutrition, or prepare for delivery, they are more likely to engage in those behaviors.

Outcome Expectations: This construct relates to the anticipated results of a particular behavior. If pregnant women expect that attending ANC will lead to safer deliveries or healthier babies, their motivation to seek care improves. Health education must therefore clearly communicate the benefits of key maternal practices to positively influence outcome expectations.

Reciprocal Determinism: SCT recognizes that human behavior is shaped by a continuous, bidirectional interaction among personal factors, environmental conditions, and the behavior itself. In Wajir County, factors such as family dynamics, cultural expectations, community norms, and accessibility to healthcare services can either encourage or limit the adoption of health-promoting behaviors.

2.2.1 Application of Social Cognitive Theory in the Study

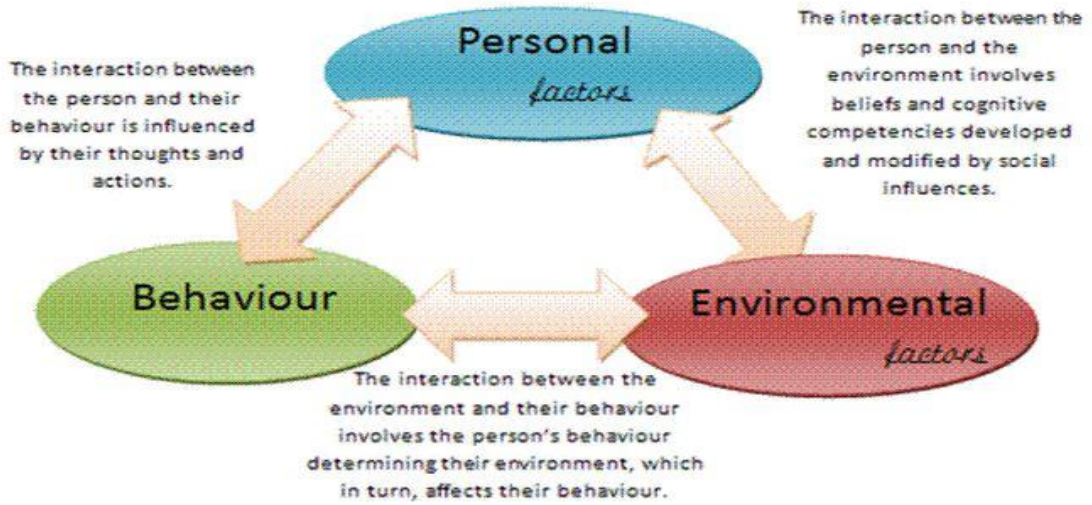
This research applies SCT to analyze how maternal health education initiatives at Wajir County Referral Hospital affect health-seeking behaviors among pregnant women. The theory guides the exploration of:

How exposure to role models (e.g., health workers, peer mothers) encourages the adoption of recommended practices.

How structured health education sessions and counseling build women's confidence (self-efficacy) to make informed decisions about their health.

How highlighting the positive outcomes of antenatal care, proper nutrition, and delivery preparation motivates behavioral change.

How environmental and social influences, including cultural beliefs, family support, and access to care, either support or hinder health behavior adoption.By utilizing SCT, the study goes beyond the transfer of information and delves into the broader context in which behavior change occurs. This makes it a suitable and comprehensive theoretical lens for evaluating the effectiveness of maternal health education in the complex setting of Wajir County**.**



AN ILUSTRATION OF SCT

2.2.0: Empirical review

This section provides a structured review of empirical studies related to the effectiveness of health education initiatives on the health status of pregnant women. The literature is organized under five geographical levels: global, African, Eastern African, Kenyan, and Wajir County. This structure enhances contextual understanding of the existing knowledge, gaps, and the relevance of the study**.**

This section critically examines previous empirical studies conducted globally, in Africa, East Africa, Kenya, and specifically in Wajir County, regarding the impact of health education initiatives on maternal health outcomes. The purpose is to contextualize existing findings, draw comparisons, and highlight gaps relevant to the current study. The review is aligned with the three specific objectives of the study: uptake of antenatal services, dietary practices, and pregnancy outcome preparedness among pregnant women.

2.2.1 Global Empirical Review

Across the globe, health education has been identified as a key strategy in improving both maternal and neonatal health outcomes. The World Health Organization (WHO, 2022) recommends a minimum of eight antenatal care (ANC) contacts for each pregnancy, emphasizing the role of informed decision-making and knowledge in encouraging the uptake of skilled care and preventive behaviors. Despite this global push, many resource-limited regions, including parts of South Asia and Latin America, still report low levels of early ANC attendance, suggesting persistent gaps in maternal awareness and health literacy. In Indonesia, Permatasari et al. (2021) observed that only 35% of women initiated ANC in the first trimester, even though maternal healthcare services were available at no cost. This trend was largely linked to insufficient understanding of pregnancy-related risks and poor nutritional habits, both attributed to inadequate health education. Similarly, Kuwawenaruwa

et al. (2019) argued that the impact of antenatal education relies not only on availability but also on the quality, clarity, and contextual relevance of the information provided.

A study conducted in China by Jiganha (2021) revealed that regular participation in maternal health classes led to improved dietary practices and better preparedness for childbirth. In the United States, Qadrin and Kylan (2023) found that comprehensive maternal education programs were associated with a 23% reduction in stillbirth rates and a 31% improvement in postnatal care uptake. Additionally, targeted campaigns in India were linked to a rise in hospital deliveries—from 22% to 45.5%—within one year (Prusty et al., 2021).

These studies reflect a global consensus on the value of maternal health education in enhancing pregnancy outcomes. However, significant barriers—such as limited infrastructure, socioeconomic disparities, and cultural beliefs—still undermine the success of these initiatives in low-income settings.

2.2.2 African Empirical Review

Maternal mortality remains a significant concern in Sub-Saharan Africa, where many countries report ratios exceeding 400 deaths per 100,000 live births (WHO, 2022). While several African nations have made efforts to incorporate maternal education into their community health programs, the results have been inconsistent, often due to structural and cultural challenges.

Research by Sachs et al. (2022) showed that despite increased access to antenatal services, utilization remains uneven across regions. In countries such as Uganda and Zimbabwe, CDC Africa (2022) documented pregnancy complications—including low birth weight, preterm delivery, and maternal infections—in approximately 12–13% of pregnancies. These outcomes were linked to poor understanding of maternal risks, indicating that awareness gaps persist even in areas with existing education programs.

Fatma et al. (2022) reported that socioeconomic status played a crucial role in determining the effectiveness of nutritional education in Egypt. Women from lower-income households were less likely to follow recommended dietary practices, resulting in elevated rates of maternal complications. This underscores the need for health education programs to consider social determinants such as poverty and literacy.

Hajiga et al. (2022) also highlighted a concerning trend in some African contexts, where even well-educated women disregarded early warning signs of complications due to a lack of trust in formal healthcare systems or continued reliance on traditional birth attendants. This suggests that health education must not only inform but also engage with cultural beliefs and address systemic mistrust to drive meaningful behavior change.

2.2.3 East African Empirical Review

In East Africa, countries such as Ethiopia, Tanzania, and Burundi have implemented maternal health education programs largely delivered through Community Health Workers (CHWs). These initiatives have helped increase awareness among pregnant women, but their impact remains limited by poverty, difficult terrain, and traditional gender roles.

Research by Kuwawenaruwa et al. (2019) in Tanzania found that communities with active CHWs experienced higher antenatal care (ANC) attendance and earlier first visits. Women in these areas were also more aware of labor warning signs and how to prepare for delivery. However, obstacles like limited transportation options, low literacy levels, and male-dominated household decision-making continued to reduce the overall reach and success of these programs.

In Ethiopia, Yoseph et al. (2024) underscored the importance of introducing reproductive health education in schools. Girls exposed to health topics early were more likely to make informed dietary and pregnancy-related choices in adulthood. Nevertheless, rural populations lagged behind their urban counterparts in accessing such information.

In Burundi, according to the Ministry of Education (2022), fewer than half of women had completed secondary education, reducing their engagement with health information. Similarly, Jamin (2020) noted that cultural norms in pastoralist and polygamous families contributed to low ANC uptake and poor maternal nutrition, despite ongoing awareness efforts.

2.2.4 Kenyan Empirical Review

Maternal mortality continues to pose a significant public health challenge in Kenya, with notable disparities across regions. The Kenya Demographic and Health Survey (KDHS, 2023) indicates that only 57% of women completed the recommended four antenatal care (ANC) visits, representing a decline from 78% in 2018. This drop raises questions about the effectiveness and reach of current health education programs.

Research by Magadi et al. (2021) highlights that socioeconomic status greatly affects ANC attendance. Women from wealthier households are more likely to access regular maternal care and benefit from health education messages. Conversely, Omollo (2019) found that despite ANC services being free, utilization remains low among women in poorer communities, especially in arid and semi-arid counties where access barriers are more pronounced.

Cultural practices also influence maternal health behaviors. Odiwuor, Kimiywe, and Waudo (2022) reported that in areas like Kajiado and Kwale, traditional customs often take precedence over medical advice. These customs may restrict women's movement,

discourage male partner involvement in maternal health, and contribute to stigma against facility-based deliveries.

Additionally, systemic challenges undermine health education efforts. Jilma et al. (2021) documented healthcare staff negligence, lack of female providers, and poor communication as factors that reduce trust in health facilities. Omollo (2019) further notes that only 44.6% of healthcare workers are fully competent in maternal care, limiting the impact of education programs.

2.2.5 Wajir County Empirical Review

Wajir County is among Kenya's most underserved regions regarding maternal health, with one of the highest maternal mortality ratios nationally, estimated at 1,683 deaths per 100,000 live births (KDHS, 2019). The critical situation calls for urgent and effective interventions. Despite efforts such as outreach programs, counseling at health facilities, and mobile clinics, the utilization of maternal health services remains low. Teenage pregnancies are notably high, with more than 10% of girls aged 15 to 19 giving birth each year. Factors such as limited decision-making power among women, early marriage, and widespread illiteracy hinder the successful delivery and uptake of maternal health education.

Magadi et al. (2021) found a positive link between health education and lowered maternal illness rates in counties including Wajir. However, challenges remain. Jilma et al. (2021) reported that many expectant mothers do not follow dietary advice despite repeated counseling sessions, which contributes to problems like poor fetal growth, low birth weight, and avoidable birth complications.

Further complicating matters, Odiwuor, Kimiywe, and Waudo (2022) pointed out that political instability, religious conservatism, and inadequate infrastructure reduce both the

availability and effectiveness of health education. Skilled personnel facilitate only about 30% of these initiatives, limiting their reach.

Pregnancy preparedness also remains low. According to Fatma et al. (2022), over 15% of women admitted to Wajir health facilities experience complications linked to poor nutrition and lack of delivery planning, despite ongoing awareness campaigns.

SUMMARY OF EMPIRICAL LITERATURE AND RELEVANCE TO THE CURRENT STUDY

Across various levels—from global to local—existing research consistently highlights the crucial role of maternal health education in improving antenatal care attendance, nutrition during pregnancy, and readiness for childbirth. Despite widespread availability of health information, a significant gap remains between knowledge dissemination and actual behavior change, especially in resource-poor areas such as Wajir County.

The reviewed literature points to multiple factors that affect the success of health education programs, including deeply rooted cultural beliefs, literacy levels, the skills and attitudes of healthcare providers, and the ease of accessing maternal health services. While many global and national initiatives strive to promote maternal health, the specific social, economic, and infrastructural challenges in Wajir require tailored and culturally sensitive approaches.

This study seeks to expand on the existing body of evidence by focusing on how health education programs at Wajir County Referral Hospital impact three key areas: antenatal care utilization, dietary behaviors during pregnancy, and preparedness for delivery. The results are expected to inform improvements in maternal health interventions not only in Wajir but also in other underserved, hard-to-reach communities in Kenya and the broader East African region.

2.2.6: Influence of Health Education Initiatives on Uptake of Antenatal Services Among Pregnant Women

Globally, health education has become an essential strategy for improving maternal and child health outcomes, with a particular focus on increasing the uptake of antenatal care (ANC) services. The World Health Organization (WHO, 2021) emphasizes that ANC is vital for early identification and management of pregnancy-related risks. In 2019, WHO updated its guidelines to recommend a minimum of eight ANC visits throughout pregnancy, an increase from the previous standard of four visits. Despite these guidelines, many regions around the world struggle with low ANC attendance, especially fragile and conflict-affected areas where health systems are weak or disrupted. According to the United Nations Development Programme (UNDP, 2022), over 930 million people live in such fragile states, where political instability, poor governance, and resource limitations hinder the provision of essential health education and services (WHO, 2023).

Education is a critical determinant of ANC utilization. Studies in high-income countries demonstrate this clearly. For example, Asada and Kephart (2021) in Canada found that women with higher levels of education are more likely to seek health information and use healthcare services regularly. Similarly, research in the United States by Hendryx (2018) showed that women with more years of schooling tended to be more proactive about engaging with ANC services, recognizing the importance of routine checkups for maternal and fetal health.

In Africa, maternal mortality rates remain alarmingly high, with low ANC attendance being one of the primary contributing factors. The WHO (2020) identifies poor maternal health education as a major barrier to adequate ANC utilization. Gabrysch and Campbell (2019) highlight that ANC visits present crucial opportunities for healthcare workers to educate

pregnant women on birth preparedness and complication readiness. However, in sub-Saharan Africa, about 20% of women attending ANC reportedly do not receive any form of maternal health education, greatly reducing the potential benefits of these visits (WHO, 2020).

Evidence from Haiti illustrates how integrating ANC within community health systems can increase service uptake. Gage and Guirlene (2020) reported that community-based approaches, where ANC services are closely linked with local outreach efforts, led to higher attendance rates. Likewise, Yanagisawa and Wakai (2020) found that targeted maternal health education programs successfully boosted access to and utilization of maternal health services.

In East Africa, particularly Uganda, studies show that inadequate health education contributes significantly to poor ANC attendance. Tann et al. (2018) found that many women in public hospitals lacked sufficient information to make informed decisions about their pregnancies and deliveries. The study emphasized the need to empower healthcare workers to deliver structured and culturally appropriate maternal education sessions during ANC visits to improve health outcomes.

Within Kenya, the Kenya Demographic and Health Survey (KDHS, 2022) reveals significant regional disparities in ANC utilization. The northeastern part of the country, including counties like Wajir, consistently shows lower than average ANC attendance. National programs such as the "Linda Mama" initiative have sought to improve maternal health by offering free maternity services accompanied by health education. Nevertheless, challenges such as low literacy levels, cultural barriers, and limited outreach efforts continue to restrict the success of these programs in reaching vulnerable populations.

Wajir County faces particularly high maternal mortality rates, which are largely attributed to low ANC attendance and poor maternal health education. Odiwuor, Kimiywe, and

Waudo (2022) identified insecurity, entrenched cultural practices, and inadequate infrastructure as significant obstacles preventing women from accessing ANC services. Despite these challenges, recent interventions have shown some promise. According to AMREF (2023), health education programs implemented between 2021 and 2022 resulted in a 12% increase in compliance with recommended ANC visits. The involvement of community health workers has been crucial in delivering health education in remote and pastoralist areas, suggesting that locally tailored strategies can improve maternal health service uptake and outcomes in Wajir and similar hard-to-reach regions.

2.2.7 Influence of Health Education Initiatives on Dietary Practices Among Pregnant Women

Global Context Nutrition education during pregnancy plays a crucial role in promoting the health of both mother and fetus. Research by Black et al. (2022) highlights that health education focusing on dietary diversity can reduce the risks of complications such as anemia, preterm births, and low birth weight infants. In the United States, Byerly et al. (2020) demonstrated that pregnant women who received structured nutritional education made healthier food choices throughout their pregnancies. Additionally, Lutter (2021) argued that meaningful dietary changes are more likely to be maintained when nutrition education is integrated consistently into routine prenatal care visits, emphasizing the importance of continuous engagement with pregnant women.

In sub-Saharan Africa, inadequate nutrition during pregnancy remains a widespread issue largely due to poor access to effective nutrition education. Asada and Kephart (2022) found that adolescent girls often enter pregnancy with compromised nutritional status, which tends to deteriorate further during gestation. Early pregnancies, which are common in many African countries, contribute significantly to poor nutritional outcomes (Langille, 2007).

Research conducted in Sudan (AbuBaker, 2022) and South Sumatera, Indonesia (Rahmiwati, 2021), supports the notion that nutrition education provided during prenatal visits improves dietary diversity and maternal nutrition.

In Ethiopia, AbuBaker (2021) reported that community-based nutrition education programs had limited success, largely due to weak engagement between pregnant women and visiting nutritionists. Although health infrastructure exists, the study suggested that outreach efforts were insufficient, pointing to the need for more effective and interactive community approaches that better connect health educators with expectant mothers.

The Kenyan government's "Linda Mama" program has incorporated maternal nutrition education, particularly in counties such as Kitui, Kakamega, and Laikipia. Kiregi and Ohanda (2023) found that women in these areas showed improved knowledge and nutritional practices after participating in the initiative. However, persistent challenges such as adolescent pregnancies and early marriages continue to negatively affect maternal nutrition outcomes. The Kenya Demographic and Health Survey (KDHS, 2022) reported that approximately 18% of girls aged 15 to 19 are either pregnant or have children, yet many of these young mothers lack sufficient dietary education, placing them at greater risk for pregnancy complications.

Wajir County faces particularly severe maternal malnutrition issues. The KDHS (2019) found that about 8.2% of pregnant women in the county had a Mid-Upper Arm Circumference (MUAC) below 21 cm, indicating acute undernutrition. Health education campaigns led by AMREF (2023) demonstrated a 15% decrease in adverse pregnancy outcomes, which was attributed to enhanced nutrition knowledge among pregnant women. Nurses and midwives played a key role in disseminating nutrition information, showing that facility-based educational efforts can be effective even in challenging environments such as

Wajir. This highlights the potential for well-coordinated health education to improve maternal nutritional status and pregnancy outcomes in the region.

2.2.8 Influence of Health Education Initiatives on Pregnancy Outcome Preparedness Among Pregnant Women

Health education plays a critical role in preparing pregnant women for childbirth and potential emergencies. By increasing awareness of danger signs during pregnancy, encouraging birth planning, and promoting emergency readiness, health education helps improve pregnancy outcomes. Redman (2021) highlighted that community-based health education initiatives are particularly effective in enhancing maternal preparedness, especially in rural and underserved populations. The Alma Ata Declaration of 1978 underscored the importance of health education as a foundational element of primary healthcare, advocating for its integration into national health systems worldwide to improve maternal and child health outcomes.

In many African countries, maternal health education efforts face significant challenges. In Nigeria, for example, Jadan, Pulleng, and Ezeoha (2022) identified that a shortage of trained healthcare personnel and inadequate health infrastructure limited the effectiveness of maternal education programs. These gaps often leave women unprepared for labor complications and reduce their ability to respond to emergencies. The World Health Organization (2020) emphasizes that reproductive health education, particularly when provided early in pregnancy, is strongly linked to better pregnancy preparedness and outcomes. Early education enables women to recognize complications promptly and take necessary action.

Within East Africa, several factors influence a woman's readiness for childbirth. Michuki (2015), analyzing data from the Kenya Demographic and Health Survey (2020), found that

a woman's level of education, household income, and access to media information significantly impact her ability to prepare for delivery and potential complications. Women who are better informed tend to plan ahead by saving money for delivery costs, identifying skilled birth attendants, and understanding when to seek medical care, which contributes to safer childbirth experiences.

Pregnancy preparedness programs have been incorporated into Kenya's maternal health policies, but their reach and success vary across regions. According to the 2022 KDHS report, women with lower levels of formal education, particularly those with only primary education or less, are less likely to make delivery plans or prepare for complications. Additionally, cultural beliefs and limited awareness continue to hinder the adoption of effective birth preparedness practices. These challenges underscore the need for tailored education strategies that address regional and socio-cultural differences.

Wajir County exemplifies the difficulties in improving pregnancy preparedness in marginalized settings. Poverty, entrenched cultural practices, and low literacy levels restrict women's engagement with antenatal care and birth planning. Bule (2020) noted that many women in Wajir delay their initial ANC visits, do not develop clear delivery plans, and remain unaware of emergency care options. However, targeted health education programs have shown promise; for instance, AMREF (2023) documented an 18% increase in birth preparedness following focused maternal education interventions. These successful programs often involve collaboration with local community leaders and community health volunteers, demonstrating that culturally sensitive and community-driven approaches are more effective in increasing pregnancy outcome preparedness in Wajir County.

2.2.9 Health Education Initiatives on Pregnancy Outcome Preparedness Among

Things such as preterm birth, stillbirth, and neonatal death are strongly influenced by a woman's knowledge, preparedness, and access to appropriate health education. Globally,

research underscores that educating expectant mothers leads to significant improvements in pregnancy results. For instance, a study by Yuanpa (2023) in China demonstrated that maternal education contributed to an 11% reduction in adverse pregnancy outcomes. This aligns with guidance from the World Health Organization (WHO, 2022), which highlights that higher educational attainment among women correlates with healthier maternal behaviors, timely use of healthcare

services, and a lowered risk of complications.

Across Africa, poor pregnancy outcomes remain a pressing challenge, particularly where education on well often insufficient. The Centers for Disease Control and Prevention (CDC, 2022) reported in Chad and Burundi that limited access to maternal education directly contributes to increased rates of stillbirth and neonatal mortality. Kaimer (2021) also emphasized that many women in economically disadvantaged areas lack essential knowledge on pregnancy management, prenatal care, and danger signs. Moreover, Lule et al. (2020) identified HIV and AIDS as critical health threats to pregnant women in sub-Saharan Africa and stressed that integrating preventive education for women of reproductive age is vital to reduce maternal and infant morbidity and mortality.

African nations account for a considerable proportion of stillbirth cases reported globally.Margen et al. (2020) found that this region accounts for approximately 25% of the world's stillbirths, with much of this attributable to late or inadequate engagement with healthcare services and limited health education. Cutler et al. (2021) recommended the implementation of comprehensive reproductive health education programs to improve maternal knowledge, encourage early antenatal care attendance, and enhance pregnancy outcomes across East Africa.

Within Kenya, pregnancy outcomes vary widely by region, with high rates of stillbirth and preterm birth persisting in marginalized counties. Jamain (2020) categorized pregnancy outcomes into live births, preterm births, and pregnancy loss. The Kenya Demographic and Health Survey (KDHS, 2022) estimated that the country experiences over 300 stillbirths every day, a statistic that underscores ongoing maternal health challenges. Areas such as Turkana and Mandera counties have recorded worsening trends, which have been linked to limited maternal education and weak healthcare infrastructure, further complicating efforts to improve pregnancy outcomes.

Wajir County represents one of Kenya's most economically disadvantaged and underserved areas, which correlates with poor maternal and neonatal outcomes. Siafudin (2022) found that preterm births were more prevalent among women with low education levels and limited income in Wajir. However, health education delivered through prenatal clinics has shown promise in enhancing women's knowledge of pregnancy risks and encouraging timely healthcare-seeking behavior. Notably, AMREF (2023) documented a 12% reduction in stillbirth rates following the introduction of maternal health education campaigns in Wajir County. These findings suggest that sustained and locally tailored health education programs are essential to improving pregnancy outcomes in this vulnerable population.

2.3 Critical review.

Participatory approaches that encourage active involvement of expectant populations in learning and decision-making have contributed significantly to improved maternal health outcomes worldwide. Countries such as Canada, Germany, and Russia attribute their successes in maternal health to well-structured healthcare systems that provide consistent and comprehensive health education (WHO, 2019). However, in many African nations, particularly those still developing economically, limited resources hinder the implementation and reach of maternal health education. This lack of funding and

infrastructure creates barriers that prevent pregnant women from accessing essential information on birth preparedness, proper nutrition, and physical activity during pregnancy (AMREF, 2023).

In Kenya, despite government efforts to promote health education through medical facilities such as dispensaries and clinics, access remains uneven, especially in rural and remote areas. For instance, over 30% of pregnant women in regions like Kapedo in Lamu County and Nyaribari Chache in Kisii County rely on local traditional healers or unqualified providers whose advice may not always be accurate or safe (KDHS, 2023). This situation affects the engaging programs by limiting the quality of information delivered.

Efficient maternal knowledge depends largely by three factors: accessibility of educational services, the quality and comprehensiveness of the information provided, and the adequacy of resources supporting these services. In Wajir County, where maternal morbidity and mortality rates remain high, weaknesses in these areas have contributed to poor maternal health outcomes (KDHS, 2023). This study's review of empirical literature provides a broad understanding of how health education initiatives influence engaging factors.

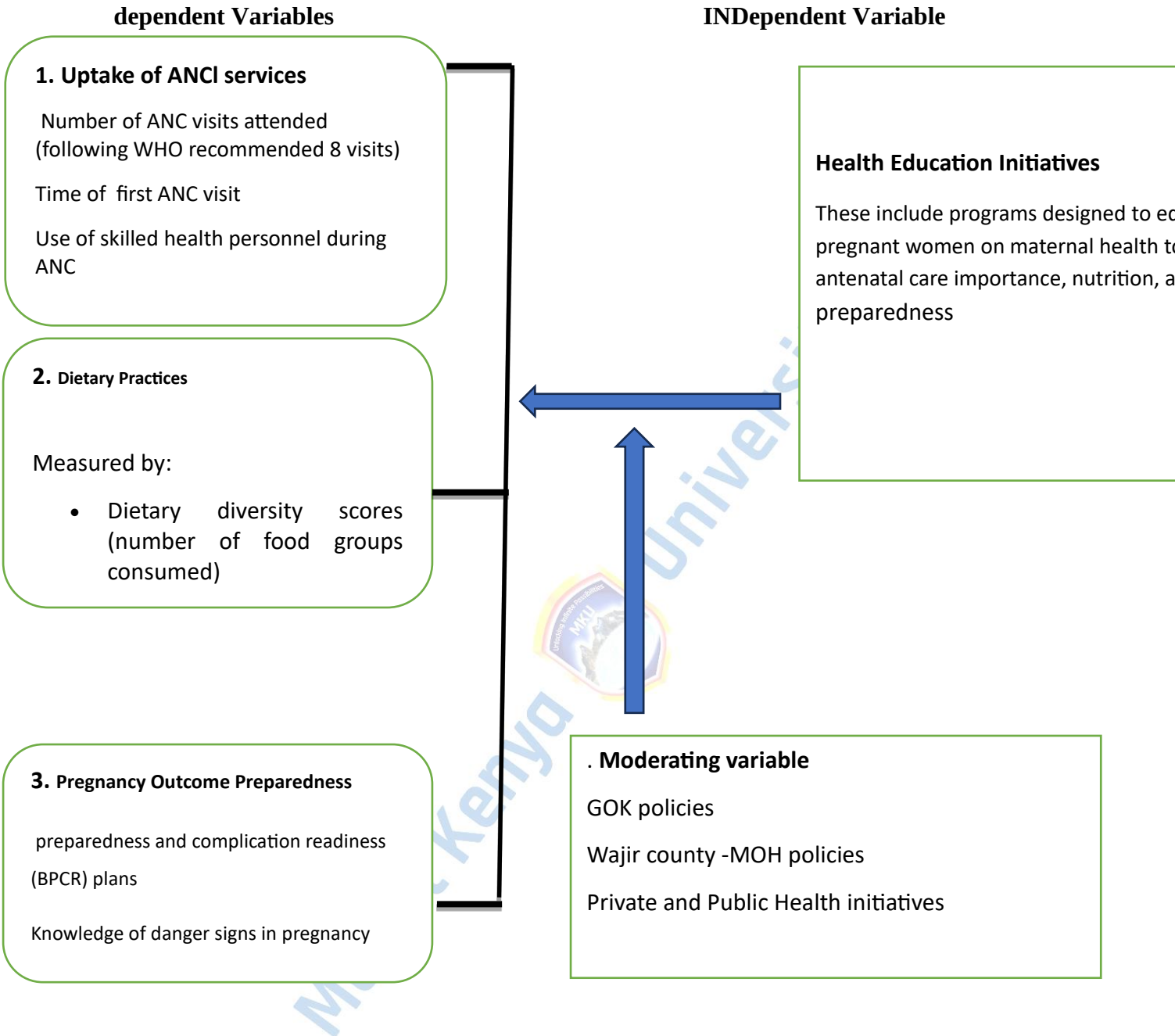
First, the literature consistently shows that well-designed health education programs improve ANC attendance. Globally, countries with comprehensive maternal education report higher rates of pregnant women reaching the recommended number of antenatal visits. However, in fragile and conflict-affected regions ANC uptake remains low due to insecurity, limited access, and cultural factors. Targeted approaches like community outreach and facility-based education sessions have proven effective in raising awareness and encouraging timely ANC visits.

Second, health education has pivotal role in enhancing dietary behaviors among pregnant women. Studies indicate that increased nutritional knowledge leads to better dietary diversity, improved meal frequency, and more health-conscious behaviors. Nonetheless, adolescent mothers and women in resource-poor areas, including Wajir, often lack this vital information, contributing to nutritional deficiencies such as anemia and low birth weight.

Third, preparedness for pregnancy outcomes—including birth planning, identifying skilled birth attendants, and financial readiness for emergencies—is closely tied to maternal education. Health education increases women's awareness of danger signs and motivates planning for safe delivery, which in turn promotes facility-based births. However, in Wajir and similar marginalized areas, factors such as cultural norms, poverty, and weak health communication infrastructure limit the effectiveness of these initiatives.

Despite these findings, key gaps remain in the literature: there is limited research focusing specifically on conflict-affected, pastoralist, or nomadic communities like those in Wajir; few studies rigorously measure how health education directly influences specific behaviors like ANC attendance or dietary improvements; pregnancy outcome preparedness is rarely examined as an independent maternal health indicator; and many interventions lack thorough evaluation, especially in remote regions where maternal health outcomes remain poor.

2.4: Conceptual Framework



SOURCE : PRIMARY DATA FROM RESEARCHER

2.5. Synopsis of the Conceptual Framework.

This study depicts how health education initiatives influence key maternal health outcomes among pregnant women in Wajir County, Kenya.

The independent variable is Health Education Initiatives, encompassing structured health talks at facilities, community outreach programs, mobile health messaging, and nutritional counseling directed at expectant mothers. These interventions aim to enhance knowledge and promote positive health behaviors.

The study focuses on three primary dependent variables aligned with its objectives:

Uptake of Antenatal Care (ANC) Services: Evaluated through indicators such as the timing of the first ANC visit, total number of visits, and the use of skilled healthcare providers.

Dietary Practices Among Pregnant Women: Assessed by examining dietary diversity, nutrition knowledge, meal frequency, and physical measurements such as Mid-Upper Arm Circumference (MUAC).

Pregnancy Outcome Preparedness: Measured by the existence of birth preparedness plans, awareness of pregnancy danger signs, emergency savings, and identification of delivery arrangements.

The interactions between health education and these maternal health outcomes may be shaped by several moderating factors including socio-demographic characteristics (such as age, education, marital status, and income), cultural beliefs and norms, accessibility to

healthcare services, governmental policies and programs like the "Linda Mama" initiative, as well as geographic and security conditions in Wajir County.

The framework presupposes that increased exposure to well-implemented health education programs enhances pregnant women's knowledge and health behaviors, which subsequently improve antenatal care utilization, nutritional practices, and readiness for safe delivery.

2.6 RECAP OF THE EMPIRICAL LITERATURE REVIEW

Adolescent pregnant women remain an underrepresented group in maternal health research, despite facing higher risks of complications. The existing literature consistently highlights the crucial impact of health education in improving maternal outcomes. However, it also points to a significant need for more localized, evidence-based research, particularly in marginalized and underserved areas like Wajir County. This study aims to fill these gaps by evaluating the actual effectiveness of health education initiatives in promoting antenatal care attendance, enhancing dietary practices, and improving delivery preparedness among pregnant women within this challenging context.

GAPS EMANATING FROM THE REVIEWED LITERATURE

Despite the wealth of research on maternal health education, significant gaps remain, especially concerning underserved areas like Wajir County. Most studies predominantly focus on urban and peri-urban settings where healthcare access is comparatively better. There is a scarcity of empirical research investigating the impact of maternal health education on nomadic and semi-nomadic populations who face distinct cultural, geographical, and infrastructural barriers. While broad regional and global studies affirm the role of health education in enhancing antenatal care attendance, nutritional practices,

and birth preparedness, these rarely explore how such programs function in highly conservative, remote, and resource-limited areas.

Additionally, there is a lack of detailed data analyzing how different aspects of health education—such as the frequency of sessions, the quality and relevance of content, methods of delivery, and cultural appropriateness—directly influence maternal health outcomes. Furthermore, few investigations evaluate the immediate effectiveness of health education currently provided in public health facilities, such as Wajir County Referral Hospital. Much of the existing data remains generalized and insufficiently tailored to reflect the distinct demographic, social, and economic realities of Wajir.

Moreover, although national health policies emphasize community-based health education, documentation on the extent and quality of their implementation and acceptance at the local level in northeastern Kenya remains inadequate. This study aims to address these gaps by offering context-specific insights into how maternal health education initiatives affect the health status of pregnant women in Wajir County, providing a basis for more effective, culturally sensitive interventions.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction.

This chapter outlines the methodology adopted for the study. It provides a detailed account of the research design, target population, sampling methods, sample size, and the procedures used to ensure reliability and validity. Additionally, it discusses the tools employed for data collection, the techniques applied for data analysis and interpretation, and the strategies used for presenting findings. Ethical considerations guiding the study are also comprehensively addressed.

3.1 Study Area:

Wajir County is situated in the northeastern part of Kenya and covers roughly 56,686 square kilometers. It shares borders with Somalia to the east, Ethiopia to the north, Mandera County to the northeast, Isiolo County to the southwest, Marsabit County to the west, and Garissa County to the south (refer to Appendix 8). The county lies within ecological zones V and VI, characterized by a semi-arid climate. Zone V typically receives between 300 and 600 millimeters of rainfall annually. The local economy is supported by a variety of livelihood activities, including mixed farming (agro-pastoralism), livestock herding across multiple species, specialized pastoralism focusing on cattle and camels, and formal employment opportunities.

Based on the 2019 Kenya Population and Housing Census (KPHC), the county's population was recorded at 781,263, with projections estimating growth to around 1.43 million by 2030.

This study was carried out at Wajir County Referral Hospital, located in Wajir Town within the Wajir East Constituency. As the county's principal public health institution, the hospital

provides a range of inpatient and outpatient services, notably maternal and child health care. The region faces several maternal health issues, including low literacy rates among women, limited availability of quality healthcare, and prevailing cultural beliefs that affect how individuals seek medical care. Wajir County Referral Hospital was purposely chosen for this research due to its pivotal role in maternal healthcare delivery, making it a suitable site to assess the impact of health education programs on antenatal care attendees.

3.2 Study design

The study adopted a descriptive cross-sectional research design, which involved gathering data at a single point in time to explore the association between health education initiatives and the health status of expectant mothers. This design was deemed suitable as it enabled the assessment of variables without altering or influencing any conditions. It provided a clear overview of the existing impact of health education on maternal health outcomes at Wajir County Referral Hospital.

Conducted over a six-month period, the study utilized structured questionnaires that were administered to pregnant women attending antenatal services at the facility. This method allowed the researcher to simultaneously investigate the perceived influence of health education on antenatal care utilization, nutritional practices, and readiness for childbirth outcomes. The cross-sectional approach facilitated timely and effective data collection and analysis, generating valuable insights into the ongoing maternal health education interventions and their connection to health-related behaviors among pregnant women.

3.3 Study population

The study population refers to the complete set of individuals or entities relevant to a specific research question, from which the researcher aims to draw conclusions (Kothari, 2023). As Dempsey (2003) explains, a target population includes all elements to which the study's findings are intended to apply.

In this study, the target population consisted of pregnant women who sought antenatal care (ANC) services at Wajir County Referral Hospital during the research period. This included all expectant mothers attending the hospital's ANC department for routine assessments, consultations, and health education sessions.

Selection of Wajir County Referral Hospital

Wajir County Referral Hospital was purposively selected as the study site for several significant reasons:

Key Provider of Maternal Health Services: The hospital serves as the primary referral facility in the county, offering a full range of maternal and child health services, including antenatal care, skilled delivery, emergency obstetric interventions, and health education.

Strategic Location and High Patient Turnout: It attracts a large number of pregnant women from Wajir Town and surrounding rural communities, making it a suitable location for assessing the impact of health education on maternal behaviors and outcomes.

Presence of Structured Health Education Programs: The hospital had ongoing maternal health education interventions delivered through ANC clinics and community outreach efforts, making it a fitting setting to evaluate their effectiveness and reception among pregnant women.

The purposive selection of this facility ensured that the study results would be contextually relevant, grounded in observable practices, and potentially applicable to other arid and semi-arid counties with similar healthcare systems.

Table 3.1: Target Population Frame

Population Structure	**Pregnant women visiting the facility for antennal services**
First week	75
Second week	65
Third week	50
Form week	70
Total	**260**

Source: (Wajir Referral Hospital Records 2024)

3.4 Sample size determination.

Yamane (1967) defines sample size as a proportion of the entire population selected for a study, which serves as a representative subset from which generalizations can be made. The formula considers the total population size, a specified level of precision (commonly set at 0.05^2), and a constant value (1) to arrive at the appropriate sample size.

In this study, the sample size was determined using Yamane's (1967) formula, which is expressed as:

$$n = \frac{N}{1+N(e)^2}$$

Where,

n= Sample size

N= Population size e= 0.05 (level of precision) Hence, the sample size is calculated as

$$n = \frac{260}{1+260(0.05)^2}$$

N = 150

The sample size for the study was thus 158.

3.5 Sampling procedure

According to Jay Lee (2012), a sample refers to a subset drawn from a larger population, selected for the purpose of observation and analysis. In this study, a sampling frame was created using hospital records of pregnant women who attended antenatal care (ANC) services. This frame helped in identifying the accessible population and facilitated the generalization of findings to the broader study population. It included relevant information such as contact details, demographic characteristics, and participation in health education sessions.

To ensure adequate representation across different subgroups, stratified sampling was applied. The strata were based on educational attainment, including categories such as no formal education, primary education, secondary education, and higher education. Stratification enabled the study to capture a broad range of perspectives and experiences related to maternal health education.

Within each stratum, convenience sampling was used to select participants. Pregnant women were approached as they arrived for ANC visits and were invited to take part in the study. This process continued until the required sample size was reached.

3.5: **STUDY VARIABLES**

Dependent Variable (DV)

The health status of expectant mothers in this study was assessed based on key indicators that align with the study objectives:

Uptake of Antenatal Services

This included the frequency of ANC visits, the timeliness of seeking care, and participation in antenatal education sessions.

Dietary Practices

Evaluated through the level of nutritional awareness, adherence to recommended dietary guidelines during pregnancy, and reported behavior changes in response to health education.

Pregnancy Outcome Preparedness

Measured by assessing readiness for childbirth emergencies, understanding of obstetric danger signs, and planning for delivery—including preferred place of delivery and transportation arrangements.

Independent Variable: Health Education Initiatives

The independent variable in this study was health education initiatives, assessed through the following dimensions:

Accessibility and Availability of health education services within ANC settings.

Content Quality and Delivery Methods used to educate pregnant women, including face-to-face sessions, demonstrations, or group discussions.

Community Engagement, including outreach activities aimed at sensitizing pregnant women and their families.

Healthcare Provider Involvement in consistently delivering health messages during ANC visits.

Utilization of Educational Materials, such as posters, brochures, pamphlets, talks, and follow-up reinforcement sessions.

3.6.1 Inclusion Criteria

All pregnant women receiving ANC services at Wajir County Referral Hospital.

3.6.2 Exclusion Criteria

Critically illmentally unstable pregnant women

Mothers who had a pregnancy related complications requiring urgent medical intervention were excluded to avoid ethical and clinical conflicts,

Women who declined to participate or were unwilling to give written or verbal consent were also excluded from the study.

To ensure data quality,participants who had communication barriers - such as significant hearing or speech impairment and lacked translators were not included.

Women who are not pregnant were also not included in the study.

3.7Research Instruments

3.7.1: Quantitative Data

Quantitative data refers to information that can be expressed numerically and analyzed statistically. In this study, primary quantitative data were collected using a structured questionnaire specifically developed to align with the study objectives. To ensure inclusivity, the questionnaire was initially designed in English and subsequently translated into Somali for participants who were not proficient in English.

The tool incorporated Likert Scale-based questions to capture participant responses in a measurable format. To promote accuracy and openness, the questionnaires were administered in a private setting, thereby safeguarding participants' confidentiality and encouraging candid responses.

3.7.2: Qualitative Data

Qualitative data involves the collection of descriptive information that captures characteristics, perceptions, and experiences in narrative form. In this study, qualitative data were gathered through open-ended responses within questionnaires, allowing participants to express themselves freely. As Nagahara (2019) notes, the process of accurately interpreting and measuring qualitative information can be complex and often requires systematic analysis.

The collected responses were reviewed for emerging themes and patterns using coding techniques, which helped in organizing the data meaningfully. Additional qualitative insights were obtained through focused group discussions centered around key themes and sub-themes. Key informant interviews were also conducted with individuals possessing subject-matter expertise, such as nurses, doctors, and members of the hospital's management team.

To ensure participants had sufficient time to respond thoughtfully, the researcher employed the drop-and-pick method when distributing the questionnaires

3.7.3 Pretesting of the Research Instruments

An important preliminary step to enhance the quality and reliability of the research was conducting a pretest. This involved administering the questionnaire to 16 randomly selected volunteers at Wajir Referral Hospital before the main study commenced. The sample size was determined following Joppe's (2000) guideline that a pretest should include around 10% of the total sample.

The pretest enabled the researcher to identify any challenges that respondents or the data collection process might face. It also helped pinpoint specific questionnaire items that needed revision to ensure clarity and improve the overall data collection process.

3.7.4 Validity of data Collection Instruments

Validity refers to the extent to which a data collection tool accurately measures the concept it is intended to assess. To ensure construct validity, the researcher sought the expertise of professionals, including professors and consultants, to critically evaluate the research instruments.

To establish internal validity, triangulation was employed, involving the comparison of questions with similar items developed from responses gathered from multiple participants (Pandey & Pandey, 2021).

Additionally, a pretest was conducted with a randomly selected group of 16 volunteers from Garissa Referral Hospital prior to the main study. This followed Joppe's (2000) guideline recommending that approximately 10% of the sample size be used for preliminary testing.

Beyond validity, the researcher emphasized the importance of data accuracy and reliability, taking care to identify and eliminate any factors that might compromise data quality during collection.

3.7.5 Reliability of measurement

Reliability refers to the consistency, dependability, or stability of data collected using a particular instrument. According to Joppe (2000), if a measurement tool produces consistent results under consistent conditions, it is considered reliable. To assess the reliability of the research instruments, discussions were held with fellow researchers to evaluate their appropriateness and soundness for the study.

Participants' feedback, including suggestions, corrections, and insights related to the impact of health education initiatives on the health status of pregnant women, was carefully

reviewed (Pandey & Pandey, 2021). The responses were then compared against the study objectives to ensure that the instrument effectively captured relevant data.

As evidence of validity, the instrument demonstrated representativeness, content relevance, and alignment with the study variables (Joppe, 2000). To further evaluate reliability, a pretest was conducted where 10% of the target respondents were given the questionnaire. Statistical analysis of the collected responses was performed to calculate the reliability coefficient.

The Cronbach's alpha coefficient (Cronbach, 1951) was used to measure internal consistency, which reflects how closely related the items are within the instrument. An alpha value of 0.7 or above was considered acceptable, indicating that the instrument was sufficiently reliable for use in this research.

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3.8 Research Instruments

The study utilized two primary data collection tools: a questionnaire administered to the participants and an interview schedule for key informants. The questionnaire was structured into sections that gathered background demographic information and included a series of closed-ended items rated on a 5-point Likert scale. These items were designed to assess pregnant women's dietary practices, preparedness for pregnancy outcomes, and utilization of antenatal care services. Each of the questionnaire's five sections corresponded directly to one of the study's specific objectives, ensuring focused and relevant data collection.

3.9 Data collection procedure and analysis

The primary data collection tool for this study was a questionnaire, which included both structured closed-ended and open-ended questions designed in alignment with the study's objectives. Prior to analysis, the collected data underwent a rigorous validation process to

ensure accuracy, completeness, and consistency, thereby minimizing errors and enhancing the reliability of the findings.

Data analysis was performed using SPSS version 28.0, combining both manual and computerized techniques. Descriptive statistics were applied to summarize the data, and the results were presented through tables, charts, and graphs to facilitate clear and effective visualization of the findings.

Qualitative data from interviews were analyzed thematically following the method outlined by Kumari et al. (2023). The process involved identifying recurring words and phrases within participants' responses, which were then grouped and assigned concise descriptive codes to aid classification. These codes were further organized into broader themes, topics, or research questions as described by Verma et al. (2024). Themes were subdivided into categories and sub-themes as patterns and variations emerged. The qualitative results were presented narratively, supplemented by direct quotes from respondents to enrich and support the findings (Dehalwar & Sharma, 2023).

3.10 Ethical considerations

Ethical integrity is essential in research involving human subjects. In this study on the impact of health education on pregnant women at Wajir Referral Hospital, strict ethical protocols were followed to protect participant rights and well-being.

Prior to data collection, the lead researcher obtained a formal introduction letter from the university addressed to the hospital superintendent. This letter outlined the study's aims and scope and secured institutional permission for the research activities within the hospital.

Ethical clearance was granted by Mount Kenya University's Ethical Review Committee (ERC), which ensured that the study adhered to principles such as informed consent, confidentiality, privacy, and minimizing harm. Approval was also obtained from the

National Commission for Science, Technology, and Innovation (NACOSTI), confirming compliance with national research guidelines. The Ministry of Education, Science and Technology additionally authorized the study, recognizing its academic and community health relevance.

Participation was voluntary, with all potential participants receiving clear information about the study's purpose, procedures, benefits, and risks before consenting. Participants were informed of their right to withdraw at any time without repercussions.

To maintain confidentiality, data were anonymized using unique codes, and information was securely stored and used solely for this research. The study avoided any procedures that could cause discomfort or harm.

Given the predominantly Muslim community, cultural respect was paramount. The research team conducted interviews in culturally appropriate settings, employing female data collectors when necessary to ensure participant comfort and openness.

In conclusion, the study complied fully with institutional and national ethical standards, safeguarding participant welfare and contributing valuable insights into maternal health education in Wajir County.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.0: Introduction

The primary objective of this study was to evaluate the effectiveness of health education initiatives on the health status of pregnant women attending Wajir Referral Hospital in Wajir County, Kenya. This section presents the analyzed data organized according to the specific objectives of the research, providing insights into how these health education programs have influenced maternal health outcomes.

4.2 Research Response Rate

For this study, questionnaires were distributed to 158 eligible participants. Out of these, 150 were fully completed and returned, yielding a high response rate of 94.9%. This impressive participation level was partly attributed to the researcher's efforts in emphasizing the significance of the study, which motivated respondents to engage actively and provide complete information.

4.3 Respondents Background Information

The study assessed the sociodemographic characteristics of the respondents, who were pregnant women attending antenatal services at Wajir Referral Hospital in Wajir County. The demographic data collected included variables such as age, marital status, occupation, educational background, and income level. These characteristics are summarized in Table 4.1.

Independent Variables	**Categories**	**Frequencies**	**Valid percentage**
Age	15-25	63	42%
	26-30	41	27.3%

	31-35	23	15.3%
	36-40	15	10%
	Over 45	8	5.3%
	Mean ±SD	**27.52 ± 7.58**	
Marital status	Married	91	60.7%
	Single	37	14.7%
	Divorced	22	24.6%
Level of Income	< 10,000	79	52.7%
	11,000-24,000	21	14%
	25,000-50,000	28	18.7%
	>50,000	22	14.7%
Occupation	Employed	28	18.7%
	Self-employed	33	22%
	Unemployed	89	59.3%
Level of education	Primary	81	54%
	Secondary	50	33.3%
	College/University	19	12.7%

Source: primary data

Table 4.2: Social-Demographic Factors Associated with Health Education Initiative

Independent	**Categories**	**Dependent variable**

Variables		(Health Education Initiatives)		Statistical Significance (Chi-square test)
		Yes (N=91)	No (N=51)	
Age	15-25	(39.7%)	(60.3%)	χ^2=21.607
	26-30	(66.1%)	(42.9%)	df=4 P=<.001
	31-35	(64.9%)	(35.1%)	
	36-40	(78.8%)	(21.2%)	
	> 40	(73.3%)	(26.7%)	
Marital status	Married	(61)	(39)	χ^2=0.211
	Single	(59.4)	(40.6)	df=2 p*=0.90
	Divorced	(66.7)	(33.3)	
Occupation	Employed	(47.6%)	(52.4%)	χ^2=11.873
	Self-employed	(66.7%)	(33.3%)	df=2 P=0.003
	Unemployed	(70.7%)	(29.3%)	
Education	Primary	(57.8%)	(42.2%)	χ^2=.741
	Secondary	38(64.4%)	21(35.6%)	df=2
	College/univer	76(61.3%)	48(38.7%)	P=0.69

Source: primary data

The findings presented in Table 4.1 reveal that pregnancy was most prevalent among younger women aged 15–25 years, comprising 43% of the study population, followed by those in the 26–30 years age bracket at 27.3%. Conversely, pregnancy among women aged

41–45 years was considerably less common, accounting for only 5.3% of respondents. The mean age of the participants was calculated to be 27.52 ± 7.58 years. Additionally, Table 4.2 shows a significant association between the age of the respondents and their involvement in health education activities, as demonstrated by the chi-square test for independence (χ^2=21.607, df=4, p<0.001).

Regarding marital status, 60.7% of the pregnant women were married, while 14.7% were unmarried. The chi-square test revealed no statistically significant relationship between marital status and participation in health education programs (χ^2=0.211, df=2, p=0.90). The relatively smaller proportion of single pregnant women might reflect barriers in accessing support systems or resources, potentially affecting both their health outcomes and engagement in health education. These results resonate with Lutter (2021), who emphasized that maternal knowledge—largely shaped by effective nutritional health education—plays a critical role in influencing dietary behaviors among pregnant women.

In terms of educational attainment, over half of the participants (54%) had only completed primary school or were primary school dropouts, 33.3% had secondary education, and 12.7% had pursued college or university-level studies. The chi-square analysis indicated no significant correlation between education level and involvement in health education activities (χ^2=0.741, df=2, p=0.69).

Employment status among the respondents showed that the majority were unemployed (59.3%), with 22% self-employed and 18.7% formally employed. Here, a statistically significant relationship was observed between occupation and participation in health education, as indicated by the chi-square test (χ^2=11.873, df=2, p=0.003).

Examining income levels, most respondents (52.7%) earned less than 10,000 KES monthly, while only 14.7% reported earning 51,000 KES or more. This aligns with the findings of Nawabi et al. (2021), who found that women with higher education and income levels were

more likely to engage in nutrition education programs. They recommended integrating such programs into prenatal primary health care to enhance maternal health outcomes.

Qualitative insights from key informant 034 further reinforced these findings, noting:

"The decision to seek medical attention is deeply influenced by social and cultural norms, especially among women in remote rural areas. Factors most commonly affecting prenatal care uptake include educational background, employment status, and financial capability…"

4.3 OBJECTIVE ONE: Health Education Initiatives on Uptake of Antenatal Services

The primary objective of this study was to assess how health education initiatives impacted the uptake of antenatal care services among pregnant women. To measure this, a Likert scale was employed with response options coded as 3 for Agree, 2 for Neutral, and 1 for Disagree. The results reflecting participants' perceptions and experiences regarding the influence of health education on their use of antenatal services are summarized in Table 4.3 below.

Statement	1	2	3
I have been attending the clinics for my antennal	59 (39.33%)	4 (2.67%)	37 (24.67%)
I understand the value of routine health examinations.	102 (68%)	11 (7.33%)	37 (24.67%)
Going to the health facility while pregnant has given me additional knowledge about how to take care of myself during pregnancy.	102 (68%)	8 (5.33%)	40 (26.67%)

We're learning about good habits for expectant mothers.	78 (52%)	3 (2%)	69 (46%)
The available health education initiatives are successful.	48 (32%)	7 (4.67%)	95 (63.33%)
Every pregnant woman does take part in the facility's health education initiatives.	100 (66.67%)	13 (8.67%)	37 (24.67%)
Pregnant women are now using antenatal care services more frequently as a result of health education.	55 (36.67%)	22 (14.67%)	13 (8.67%)

Source: primary data

The findings presented in Table 4.3 indicate that a significant portion of the pregnant women (39.33%) disagreed with the statement that they regularly attended their antenatal clinics, while only 24.67% agreed that they did so. This low attendance raises concerns as it may result in missed opportunities for early detection and management of potential pregnancy-related complications. These results differ from findings by Qadrin and Kylan (2023), who reported that access to maternal health education in the U.S. contributed to notable reductions in adverse pregnancy outcomes, including stillbirths and nutrition-related problems.

However, a key informant offered an alternative perspective, suggesting that despite education efforts, reductions in stillbirth rates may not be as substantial: "Most pregnant women attend antenatal clinics, but we identified societal beliefs as key barriers to early prenatal care in Wajir County. These beliefs portray pregnancy as a medically and socially risky event, limiting access to maternity care. Additionally, poverty, financial constraints, and transport issues further hinder access."

Further, the data showed that 68% of respondents disagreed that they understood the importance of regular medical check-ups during pregnancy, while only 24.67% agreed. Similarly, when asked if visiting health facilities increased their knowledge of appropriate health practices during pregnancy, 68% disagreed, compared to 26.67% who agreed. This suggests potential weaknesses in the current health education delivery, aligning with Asada and Kephart (2021), who emphasized that the effectiveness of such programs significantly influences healthcare-seeking behavior.

This was echoed in qualitative insights from a key informant who noted: "The importance of prenatal care offered by the hospital is not well understood in the community. People should be informed because many are unaware of its value. For example, my niece collapsed one morning after going eight months without a hospital visit during her pregnancy. Doctors later found she had hypertension and needed a cesarean section. This could have been avoided with regular check-ups" (KI002).

Regarding awareness of healthy pregnancy practices, 52% of respondents disagreed that they were sufficiently informed, while 46% agreed. Despite this, 63.33% believed that the health education programs provided were effective, though 32% did not share this view. These findings are consistent with Von et al. (2024), who highlighted the positive role of counseling in improving nutritional status during pregnancy. Most women reported receiving not only clinical care but also education, emotional support, and reassurance during antenatal visits.

Nevertheless, not all women actively participated in health education initiatives; 66.67% indicated limited participation, whereas only 24.67% reported full involvement. This aligns with the study by Zibellini et al. (2021), which found that some women perceive pregnancy as a natural process that does not necessitate medical consultation unless complications arise.

When asked whether health education increased their uptake of antenatal care, 36.67% disagreed, with only 8.67% affirming the positive effect. This points to a significant gap in the ability of current education strategies to promote behavioral change, mirroring findings from Greece by Lahana, Pappa, and Niakas (2019) and Nawabi et al. (2021), who noted that health education influences both the utilization and choice of healthcare providers.

4.4 OBJECTIVE 2: Health Education Initiatives on Dietary Practices of Pregnant Women

The second objective of the study was to assess the impact of health education programs on the dietary habits of pregnant women attending Wajir Referral Hospital. Participants' responses were measured using a Likert scale with the options: Agree (1), Neutral (2), and Disagree (3). The detailed findings based on these ratings are presented in Table 4.3 below.

Table 4.4: Health Education Initiatives on Expectant Mothers' Dietary Habits (n=150)

Statement	3	2	1
I am aware of what to eat during pregnancy.	91(60.67%)	5 (3.33%)	54(36%)
I follow the dietary recommendations made by the medical professionals.	59(39.33%)	4(2.67%)	37(24.67%)
The health facility does provide informational papers about healthy eating habits throughout pregnancy.	100(66.67%)	13(8.67%)	37(24.67%)
Health worker dealing with pregnant women have effective way of dispensing dietary practices information	55(36.67%)	22(14.67%)	13(8.67%)
The health education programs being offered by the facility are effective	59(39.33%)	4(2.67%)	37(24.67%)
A follow up is always made on pregnant women on their dietary practices	48(32%)	12(8%)	90(60%)
Information being offered by the health facility to pregnant women on dietary	58(38.67%)	22(14.67%)	70(46.67%)

Source: Primary data

The findings presented in Table 4.4 reveal that a majority of respondents (60.67%) disagreed with the statement that they knew what to eat during pregnancy, while only 36% affirmed having such knowledge. This highlights a significant knowledge gap regarding dietary practices among pregnant women in Wajir County, which could adversely affect both maternal and fetal health outcomes. These results contrast with those reported by Jiganha (2021), who found that pregnant women in China frequently accessed health facilities

specifically to obtain health information, including dietary and exercise guidance to support a healthy pregnancy and delivery.

Furthermore, a notable portion of the participants (39.33%) reported that they did not follow the dietary recommendations provided by healthcare workers, whereas only 24.67% indicated adherence to such advice. This low compliance suggests that simply delivering information may not be enough to bring about behavioral change. Factors such as entrenched cultural beliefs, misunderstandings, or limited availability of recommended foods may act as barriers to effective dietary adherence.

Regarding the provision of educational materials on proper nutrition during pregnancy, 66.67% of the respondents disagreed that such materials were made available at the health facility, with only 24.67% affirming their availability. The absence of educational resources significantly limits pregnant women's opportunities to independently learn about healthy dietary habits. These findings support Rahmiwati's (2021) study in South Sumatera, where improvements in pregnant women's nutritional status were linked to increased knowledge and dietary behavior encouraged during antenatal sessions.

When asked about the effectiveness of health professionals in delivering dietary information, 36.67% of respondents expressed the view that healthcare workers lacked adequate methods to communicate this information effectively, while just 8.67% felt that the providers were successful in this regard. This points to a critical need for enhancing health workers' skills in counseling and communication tailored specifically to the needs of pregnant women.

However, qualitative data offered a slightly different perspective. One key informant remarked:

"Because of their holistic approach to care, nurses hold a unique position to ensure proper nutrition. Moreover, nurses at Wajir Referral Hospital have benefited from regular training

on Good Dispensing Practices, which improves their ability to support maternal nutrition" (KI007).

Regarding the perceived overall effectiveness of the health education initiatives at the Wajir health facility, 39.33% of participants disagreed that the programs were effective, whereas 24.67% supported their effectiveness. The skepticism may be related to how the programs are delivered, the relevance of their content, or the level of participant engagement. These perceptions somewhat differ from Dempa (2022), who found that pregnant women with higher nutritional knowledge demonstrated greater dietary diversity, often associated with their educational attainment.

In addition, 60% of respondents reported that follow-up on dietary practices was consistently conducted for pregnant women, while 32% disagreed. This ongoing follow-up is essential to reinforce recommended dietary behaviors and improve adherence over time.

Finally, 46.67% of the respondents agreed that the dietary information provided by the Wajir health facility had contributed to increased uptake of antenatal care services, although 38.67% disagreed. This mixed response indicates that while many women recognize a positive connection between nutrition education and ANC attendance, a substantial number remain unconvinced. These findings are consistent with AbuBaker's (2021) study in Ethiopia, which concluded that inadequate nutritional knowledge among pregnant women was largely due to shortcomings in community-based health education programs.

4.5 OBJECTIVE 3: Pregnancy outcome preparedness health education initiatives amongst women who are pregnant

The final objective of this study was to assess the impact of health education programs on the preparedness of pregnant women at Wajir Referral Hospital for pregnancy outcomes. To achieve this, respondents were provided with Likert scale questionnaires designed to

capture their level of agreement or disagreement with statements related to the effectiveness of health education in enhancing readiness for pregnancy-related events. The findings from these responses are presented in Table 4.5 below, highlighting key aspects of pregnancy outcome preparedness influenced by the health education initiatives.

Statement	Disagree	Neutral	Agree
I'm ready for whatever pregnancy outcome comes up.	17(11.33%)	27(18%)	106(70.67%)
Pregnancy outcome preparedness among women who are pregnant women is a major health concern.	37(24.67%)	16(10.67%)	97(64.67%)
In the event of an emergency involving pregnancy outcomes, the facility has prepared me.	74(49.33%)	6(4%)	70(46.67%)
The hospital's antenatal department is stocked with essential materials for pregnancy care.	66(44%)	25(16.67%)	59(39.33%)
The existing health education initiatives contribute significantly to the level of awareness among pregnant women regarding pregnancy outcome preparedness	37(24.67%)	56(37.33%)	57(38%)
The facility's education programs on pregnancy outcome preparedness are positively impacting the utilization of antenatal services.	17(11.33%)	27(18%)	106(70.67%)

Source: Primary data

The data in Table 4.5 reveal that nearly half of the respondents (46.67%) agreed they felt adequately prepared for any potential pregnancy outcomes, whereas 11.33% disagreed with this sentiment. This suggests that while a significant portion of pregnant women perceive the health education initiatives as somewhat effective in fostering readiness, there remains a notable minority who feel unprepared, pointing to areas where the programs could be strengthened to better support all expectant mothers.

Additionally, a majority of participants (64.67%) acknowledged that preparedness for pregnancy outcomes is a serious health concern, with 24.67% holding a contrary view. This highlights a broad awareness among the pregnant women of the critical importance of being ready for various pregnancy-related eventualities. These findings echo the observations by Jadan, Pulleng, and Ezeoha (2022) in Ebonyi State, Southeast Nigeria, where challenges such as inadequate staff compensation, limited infrastructure, insufficient human resources for training, and funding shortfalls hinder effective pregnancy outcome preparedness.

When asked whether the facility had adequately prepared them for pregnancy-related emergencies, 46.67% agreed that they had received sufficient preparation, while 19.33% disagreed. The range of responses indicates some uncertainty about the hospital's capacity to equip women for potential crises. Furthermore, only 39.33% of respondents agreed that the prenatal department had adequate resources to support pregnancy-related care practices, while 44% disagreed. This perception of insufficient material and logistical support within the antenatal department highlights a critical gap requiring urgent attention. Similar issues have been reported by Kaimer (2021), who noted that poor pregnancy outcomes are more prevalent in low-resource countries such as Burundi and Chad.

These quantitative findings are further supported by qualitative data from key informants. One informant stated:

"We lack the necessary supplies and support staff, and the ones we do have are working

long hours to serve all women who come to the medical facility. Since there are no longer any spaces left for supplies for pregnancy-related care practices, the hospital also needs additional rooms..."

Another noted, "A theater is something we would like to have on hand in case of problems or emergencies. Our doctors are here, but we lack the necessary equipment, and it takes a while to refer one to KNH due to the ambulance and other arrangements…" (KI 21).

Regarding the impact of ongoing health education programs, 38% of respondents believed these initiatives were instrumental in enhancing pregnant women's knowledge and preparedness for positive pregnancy outcomes, while 24.67% disagreed. Furthermore, 70.67% of participants indicated that the facility's pregnancy outcome readiness education had a favorable effect on the uptake of antenatal services. This strong endorsement underscores the role of effective health education in encouraging antenatal care participation, which is vital for improving maternal and fetal health outcomes. These results align with Margen et al. (2020), who reported that maternal education is linked to reduced risks of preterm birth, particularly among women from socioeconomically disadvantaged backgrounds.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter discusses the key conclusions derived from the findings, summarizing essential insights gained regarding the perceived initiatives in health education on the health status of pregnant women at Wajir Referral Hospital. In addition to outlining these main conclusions, the chapter also provides thoughtful recommendations aimed at improving maternal health outcomes through enhanced health education programs. Furthermore,

suggestions for future research are proposed to address remaining gaps and to deepen understanding in this important area.

5.2 Health Education Initiatives on Uptake of Antenatal Services

The study set out to determine how health education initiatives impact on the use of ANC services among pregnant women in Wajir County. The findings revealed a concerning disconnect between the availability of health education programs and the actual engagement of women who are pregnant in ANC services. A notable proportion of respondents reported irregular ANC attendance, with only a minority affirming consistent participation. This low attendance suggests that existing education efforts have not yet translated into widespread behavioral change.

The study found that various contextual factors—such as deep-rooted cultural beliefs, poverty, transportation challenges, and limited awareness—act as barriers to effective ANC uptake. While some participants acknowledged the presence of health education activities, many expressed uncertainty or dissatisfaction with the content and delivery methods. In particular, the finding that over two-thirds of respondents did not perceive increased knowledge from ANC visits raises concerns about the relevance, clarity, or accessibility of health information being shared.

Interestingly, a paradox emerged where a significant number of women rated the health education programs as "successful," despite indicating limited knowledge gain or behavioral change. This points to potential gaps in communication methods, health messaging, or social expectations influencing responses. Furthermore, a large share of respondents reported not participating in any health education activity, underscoring potential issues of outreach, program inclusivity, or cultural barriers that prevent wider participation.

Qualitative responses added depth to the data, illustrating how societal perceptions of pregnancy and limited understanding of its medical risks contribute to poor engagement in ANC. These insights were reinforced by reports of adverse outcomes linked to the absence of early and regular prenatal care.

In light of these findings, the study concludes that while health education initiatives exist at Wajir Referral Hospital, their influence on ANC service uptake remains limited. Education efforts, as currently structured, do not sufficiently address the behavioral, cultural, and logistical barriers facing pregnant women in the region. Unless health education is embedded in community-based, participatory, and culturally sensitive strategies, its impact on ANC utilization will continue to be constrained.

To improve maternal outcomes, future interventions must move beyond passive dissemination of information and actively address the systemic, economic, and social drivers of low ANC attendance. These findings highlight the need for an integrated strategy that incorporates economic empowerment, community involvement, education, and regular follow-up.

5.3 Pregnant Women's Perceptions of Health Education Programs and Their Dietary Practices

The study's second goal was to evaluate the perceptions of pregnant women regarding the impact of initiatives on health education on dietary practices at Wajir County Referral Hospital. The results demonstrated a mixed and largely unfavorable view of the dietary education services currently offered, suggesting significant gaps in communication, follow-up, and cultural relevance of the information being shared.

A many of the respondents (60.67%) indicated that they didn't know of what to eat during pregnancy, while only 36% felt confident in their knowledge of appropriate dietary practices. This knowledge gap raises serious concerns about the effectiveness of the dietary

information currently disseminated through antenatal health education sessions. These findings reflect a disconnect between the existence of health education programs and their ability to equip pregnant women with actionable knowledge. This situation contrasts with other regions, such as parts of Asia, where consistent, well-structured dietary counseling is more positively received and leads to improved maternal nutrition.

Furthermore, many pregnant women (39.33%) admitted to not adhering to dietary recommendations provided by healthcare workers. With only 24.67% indicating compliance, this suggests that the health information provided is either not perceived as useful, not practical for implementation due to economic constraints, or not delivered in an engaging and convincing manner. Cultural food preferences and economic limitations may further hinder adherence, compounding the challenge of translating knowledge into behavior.

A striking 66.67% of participants reported that they had not been provided with any educational materials such as pamphlets or brochures to support independent learning about proper dietary habits. This lack of take-home resources diminishes the opportunity for information reinforcement outside clinical settings. When health education lacks visual, written, or multimedia support, it becomes harder for participants to recall and apply the lessons. These perceptions are in line with regional studies that emphasize the importance of accessible, repeated messaging to solidify behavior change.

The perceived communication inefficiency among healthcare providers also emerged as a concern. While healthcare professionals may believe they are offering adequate support, only 8.67% of pregnant women found their methods effective, with 36.67% citing dissatisfaction. This perception points to a potential mismatch between provider strategies and the learning styles or needs of the target population. Notably, while one key informant

defended the nurses' capacity and training, this confidence was not reflected in patient feedback—revealing a perceptual disconnect that could undermine program credibility.

Additionally, many respondents (39.33%) viewed existing health education programs on nutrition as ineffective, while fewer than one in four considered them beneficial. This perception may stem from a lack of personalization, limited interactivity, or insufficient context-specific examples used in education sessions. Health education that does not resonate with participants' lived experiences or dietary realities is unlikely to shift attitudes or practices.

Moreover, the absence of follow-up was a significant concern. Sixty percent of respondents felt that there was no ongoing monitoring of their dietary behaviors, which may foster a sense of neglect and disconnection from the health system. Follow-up is a crucial aspect of behavioral reinforcement, and its absence may significantly reduce the overall impact of health education.

Despite these challenges, nearly half of the respondents acknowledged a perceived link between dietary education and increased ANC service uptake, highlighting that well-delivered dietary education can positively influence broader health-seeking behavior. However, skepticism remains, and to strengthen this link, dietary education must be better contextualized and embedded within culturally sensitive communication frameworks.

The study concluded that pregnant women's opinions on Wajir County's health education programs regarding food habits in Wajir County were predominantly negative or ambivalent. To shift these perceptions and promote better dietary outcomes, health education must be made more engaging, practical, and culturally responsive. Strengthening provider communication skills, offering tangible learning resources, and instituting regular follow-up mechanisms will be critical steps toward enhancing health outcomes and maternal nutrition in the region.

5.4 Assessment of Pregnant Women's Perceptions on Health Education and Pregnancy Outcome Preparedness

The third objective of the study focused on assessing pregnant women's perceptions of how health education initiatives have influenced their preparedness for pregnancy outcomes at Wajir Referral Hospital. The insights drawn from both quantitative survey data and qualitative narratives reveal a complex interplay between knowledge acquisition, perceived readiness, and the effectiveness of institutional support structures.

The bulk of participants (70.67%) expressed that they felt adequately prepared for different pregnancy outcomes. This indicates a relatively favorable perception of the health education programs in place, suggesting that a significant proportion of women who are pregnant believe they are equipped to handle potential challenges during pregnancy and childbirth. However, a notable minority (11.33%) indicated feeling unprepared. This segment reflects the portion of the population that is either not being reached effectively or not fully absorbing the content provided, likely due to barriers such as literacy, cultural beliefs, or limitations in how information is disseminated.

The recognition of pregnancy preparedness as an important maternal health issue was acknowledged by 64.67% of the participants, demonstrating an encouraging level of awareness. Conversely, nearly a quarter (24.67%) disagreed, underscoring the ongoing need for targeted, culturally appropriate messaging that resonates with different community groups. This division echoes similar patterns observed by Kaimer (2021), where fragile healthcare systems and limited outreach led to varied perceptions of risk and preparedness among expectant mothers in low-income regions.

Regarding emergency readiness, 46.67% of respondents agreed that the facility had equipped them with the necessary knowledge and support to respond to pregnancy-related emergencies, while 49.33% felt otherwise. These mixed views suggest that although health

education exists, its consistency, accessibility, or delivery method may be insufficient. This sentiment was reinforced by qualitative responses, particularly from key informants who pointed to structural deficiencies such as inadequate medical supplies, space constraints, and overburdened personnel. These limitations, as noted by WHO (2020), significantly undermine the effectiveness of maternal education programs, especially in emergency preparedness.

Another area of concern was the availability of resources within the antenatal department. While 39.33% believed that adequate materials were present, 44% felt otherwise. These contrasting perceptions highlight disparities in service delivery and infrastructure, which may influence the confidence of pregnant women in the facility's ability to support safe deliveries. This finding is consistent with studies by Margen et al. (2020), who linked limited health system capacity with poorer pregnancy preparedness and higher maternal risk.

Only 38% of respondents attributed their knowledge and readiness directly to the facility's health education initiatives, whereas 24.67% disagreed. This finding suggests that while some content is resonating, a substantial number of women find the information either lacking in depth or disconnected from their real-world needs. To address this gap, health messages must be delivered using locally contextualized, interactive, and repetitive strategies that reinforce retention and relevance.

Encouragingly, 70.67% of respondents reported that the health education initiatives had positively influenced their attendance and participation in ANC services. This is a crucial observation that affirms the essential role of maternal health education in motivating health-seeking behavior. Similar conclusions have been reached in studies by Michuki (2015) and Margen et al. (2020), who emphasized the predictive relationship between maternal knowledge and behavioral preparedness for labor, delivery, and potential complications.

In conclusion, although initiatives on health education on prepardness of pregnancy outcome in Wajir County have yielded moderately positive perceptions, substantial disparities remain in terms of resource availability, communication efficacy, and program inclusivity. Addressing these gaps will require more robust investments in facility infrastructure, improved provider training, and the use of culturally sensitive education models ustomized to meet the unique requirements of the community.

The Study Summary

The study analyzed responses from pregnant women attending ANC services at Wajir County Hospital, focusing on their sociodemographic characteristics and the impact of initiatives for health education on their ANC utilization, dietary practices, and preparedness for pregnancy outcomes.

The data revealed that pregnancy was more prevalent among younger women, with 43% of respondents aged between 15 and 25 years reporting current pregnancies. Regarding marital status, 60.7% of pregnant women were married, while 14.7% identified as single. In terms of educational level, most of respondents (54%) had not finished primary school, 33.3% had reached secondary education, and only 12.7% had progressed to college or university level. Employment status showed that most women (59.3%) were unemployed at the time of the study.

Bivariate analysis revealed statistically significant associations between specific sociodemographic variables—namely age and occupation—and engagement with health education programs. However, no significant relationships were found between marital status or education level and health education exposure, suggesting that employment and age may be stronger determinants of health education participation than other factors.

In terms of antenatal care (ANC) utilization, the findings pointed to limited engagement. A notable 39.33% of respondents disagreed with the statement that they regularly attended

antenatal clinics. Furthermore, 68% expressed a failure to recognize the significance of routine medical check-ups, and the same proportion felt that facility visits did not enhance their knowledge of proper health practices during pregnancy. More than half (52%) disagreed that they had received adequate information on healthy pregnancy practices during clinic visits. Participation in health education programs was low, with only 33.33% of respondents reporting active involvement, indicating a potential gap in program reach and effectiveness.

The study also uncovered considerable gaps in dietary knowledge and adherence. A significant 60.67% of respondents stated they lacked knowledge of appropriate dietary practices during pregnancy. Only 24.67% followed dietary advice given by healthcare providers, while 39.33% did not adhere to the recommended practices. This low adherence suggests that information dissemination alone may be insufficient to drive behavioral change. Moreover, 36.67% of respondents perceived that health workers lacked effective communication strategies for delivering dietary information. While 60% acknowledged that follow-up on dietary behavior was conducted, 32% disagreed, indicating a lack of consistency in reinforcement mechanisms.

With regard to pregnancy outcome preparedness, the findings were somewhat more optimistic. A majority of respondents (64.67%) recognized the importance of being prepared for pregnancy-related outcomes, and 70.67% felt generally prepared. Nevertheless, 49.33% of women disagreed that the health facility had adequately prepared them for emergency situations, while 46.67% affirmed that the facility provided the necessary preparation. These mixed perceptions suggest that while health education has made a positive impact on some women, notable gaps still exist in reach, content delivery, and institutional support.

Overall, while there is some evidence that health education initiatives are positively influencing maternal health knowledge and preparedness, significant challenges remain in terms of participation, content relevance, follow-up, and communication strategies. These results highlight the necessity of improved, community-tailored education strategies to ensure that maternal initiatives on health effectively reach and empower all pregnant women in Wajir County.

Conclusion on Objective 1: Uptake of Antenatal Services

The study concludes that although health education initiatives are being implemented at Wajir Referral Hospital, a substantial number of pregnant women have not consistently utilized antenatal care (ANC) services. A significant portion of the respondents reported low awareness regarding the importance of regular medical check-ups and demonstrated limited understanding of the overall benefits of ANC. In addition, cultural norms, economic hardship, and logistical constraints such as long distances and poor transportation infrastructure emerged as key barriers to accessing maternal health services. While some women acknowledged that the health education initiatives had encouraged them to attend ANC clinics, the general perception of these programs' effectiveness remains low. This suggests that the current strategies have had minimal impact in influencing consistent behavioral change among the target population..

Conclusion on Objective 2: Dietary Practices of Pregnant Women

The investigation further concludes that pregnant women's dietary practices in Wajir are generally inadequate. A majority of respondents demonstrated limited knowledge regarding appropriate nutrition during pregnancy and reported low adherence to dietary recommendations provided by healthcare workers. Although health education initiatives

targeting nutritional behavior are in place, their implementation appears inconsistent. Many women indicated that they had not received adequate informational materials or clear dietary guidance. Additionally, follow-up mechanisms to reinforce nutritional practices were reported to be weak or lacking. These findings underscore the limited effectiveness of current nutrition-focused health education interventions and emphasize the urgent need to enhance the quality of communication, improve content relevance and delivery, and establish robust follow-up systems to support sustained behavioral change.

Conclusion on Objective 3: Pregnancy Outcome Preparedness

The investigation concludes that although a significant population of pregnant women perceived themselves as being somewhat prepared for pregnancy outcomes, this self-assessed readiness does not reliably reflect actual preparedness, particularly in emergency situations. The research identified several systemic barriers that undermine effective preparedness, includeing a lack of qualified healthcare professionals and a poor infrastructure for healthcare personnel, and inconsistent delivery of health education content. These issues collectively diminish the impact of initiatives aimed at equipping women with the right information, abilities, and self-assurance needed to successfully handle pregnancy difficulties.

While a segment of the study participants recognized that health education programs had enhanced their awareness and encouraged them to utilize antenatal services, the overall reach and influence of these initiatives were found to be inconsistent. The findings suggest that despite positive intentions, current health education efforts are not uniformly effective across the target population. Therefore, the degree of readiness for pregnancy outcomes among women in Wajir County remains suboptimal and fragmented, primarily due to infrastructural deficiencies and the irregular implementation of maternal health education strategies.

General Conclusion

In conclusion, while health education initiatives are present at Wajir Referral Hospital, their overall iinfluence on improving the pregnant women health status remains limited. The findings demonstrate that these programs have not substantially increased the ANC services uptake, have been largely ineffective in influencing dietary behaviors, and have only modestly improved pregnancy outcome preparedness. These outcomes underscore the need for a critical reassessment and restructuring of maternal health education strategies within Wajir County. For meaningful improvement, such programs must be tailored to the local context, sufficiently supported with resources, delivered systematically, and subjected to ongoing monitoring and evaluation to ensure sustained effectiveness.

5.4 RECOMMENDATIONS

1. Recommendations on Uptake of Antenatal Services

- Strengthen Targeted Community Sensitization:

The Ministry of Health, in partnership with hospital management, should engage community leaders and Community Health Volunteers (CHVs) to conduct focused awareness campaigns. These campaigns should emphasize the critical importance of early and consistent attendance of ANC, targeting both the family and the pregnant women to foster supportive environments.

- Culturally-Tailored Health Education:

Health education messages should be carefully designed to align with local cultural values and beliefs, while also addressing and correcting prevalent misconceptions that hinder early ANC attendance. Incorporating community influencers and using local languages can improve the acceptability and effectiveness of these messages.

- Enhance Accessibility through Outreach:

To overcome geographic and transportation challenges that limit access to antenatal services, health authorities should introduce mobile antenatal clinics and outreach programs. These initiatives should prioritize remote and underserved areas to bring essential services closer to pregnant women, reducing missed opportunities for early detection and care.

2. **Recommendations on Dietary Practices**

Improve Nutrition Education Materials:

The hospital should develop and disseminate culturally sensitive and easy-to-understand educational materials focused on proper nutrition during pregnancy. These materials should use simple visuals and be translated into local languages to enhance comprehension and retention among pregnant women.

Capacity Building for Health Workers:

Nurses, midwives, and other healthcare providers should receive ongoing training in effective communication and counseling skills. This will enable them to convey dietary advice more clearly and empathetically, increasing the likelihood of positive behavioral change among expectant mothers.

Integrate Follow-Up Systems:

Routine follow-ups and nutritional assessments should be established, leveraging Community Health Volunteers (CHVs) to monitor and support adherence by pregnant women to recommended dietary practices. This continuous engagement is vital to reinforce healthy habits and address challenges promptly.

Partner with Food Aid Programs:

The hospital and local health authorities should collaborate with non-governmental organizations (NGOs) and government food security initiatives to facilitate pregnant women's access to nutritious foods. Targeted support for low-income households can mitigate economic barriers that impede adherence to healthy dietary recommendations.

3. Recommendations on Pregnancy Outcome Preparedness

Scale Up Health Education on Birth Preparedness:

Integrate structured and comprehensive health education sessions within antenatal care visits that specifically focus on recognizing danger signs during pregnancy, developing individualized birth plans, and promoting financial and logistical preparedness for childbirth. These sessions should be interactive and culturally sensitive to maximize understanding and retention.

Improve Resource Availability at ANC Departments:

Ensure that antenatal care units are adequately equipped with emergency preparedness kits, sufficient space for counseling and education, and adequately trained staff to support pregnant women in developing readiness for potential pregnancy complications.

Empower Male Involvement:

Promote the active participation of male partners in health education sessions related to pregnancy and childbirth. Engaging men can enhance decision-making at the household level, facilitate support for pregnant women, and improve overall birth preparedness within families.

Invest in Infrastructure and Referral Systems:

Advocate for county government investment in critical infrastructure such as emergency transportation, effective referral networks, and well-equipped theater services.

Strengthening these systems will improve timely responses to obstetric emergencies and contribute to help improve outcomes for mothers and newborns.

General Recommendation

A comprehensive monitoring and evaluation (M&E) framework should be established to systematically assess the effectiveness, reach, and impact of health education initiatives across all maternal health domains. This framework would enable ongoing tracking of

progress, identification of gaps, and timely adjustments to programs. Future interventions must be evidence-based, actively involve community stakeholders, and be underpinned by strong policy support to ensure sustainability, cultural relevance, and long-term success within Wajir County.

5.5 Further studies Suggestions

The following suggestions are put out for next research to fill in the gaps found in this study: Future researchers should conduct focus group discussions (FGDs) or in-depth interviews with expectant women participants to gain deeper insights into their perceptions, barriers, and motivations related to antenatal care and health education. Such qualitative approaches can uncover nuanced socio-cultural and personal factors influencing health behaviors.

Additionally, future studies should design, implement, and rigorously evaluate targeted interventions aimed at improving antenatal care utilization. These could include community outreach programs, mobile health (mHealth) applications, peer support groups, or other innovative strategies tailored to the local context.

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APPENDICES

Appendix I: Consent Letter

I _____ , hereby voluntarily consent to take part in the research investigation entitled 'Effectiveness of Health Education Initiatives on Health Status of Pregnant Women in Wajir Referral Hospital, Wajir County, Kenya" I understand the purpose of the study and agree to provide my insights and experiences related to this topic.

In my capacity as a study participant, I acknowledge the following:

1. **Voluntary participation:** I am free to discontinue my involvement in this study at any moment without incurring any fees
2. **Incentives & compensation:** As a token of appreciation for your time and contribution, you will receive a gift cards. This incentive will be provided after completion of the study.
3. **Privacy & Confidentiality:** any information or data shared in the course of the study will be confidential kept and will only be used for the purposes of academic research only. The respondents identity will remain anonymous in all reports or publication resulting from the study.
4. **Risks and Benefits:** There are neglible risks linked with participation in this investigation, including the possibility for discomfort when discussing personal health information. Nonetheless, your involvement might help your community's pregnant women have better health outcomes and better health education initiatives.
5. **Data collection:** I understand that my responses to survey questions and any other data collected during the study will be safely preserved and utilized exclusively for research.

6. **Contact information:** I have been given the contact information for the investigator conducting the study and can reach out for any questions or concerns related to my participation.

I attest that I have read and comprehended the material in this permission form and that I am willing to take part in the research study by signing here.

Respondent's Sign _____ **Date:** _____

Researcher's Sign: _____ **Date:** _____

Appendix II: Questionnaire

Section A: Respondents Background Information

1. Age of the respondents

   a) 15 – 25 years [ ]

   b) 26 – 30 years [ ]

   c) 31 – 35 [ ]

   d) 36 – 40 [ ]

   e) 41 – 45 [ ]

2. Marital status

   Married [ ] Formerly married [ ] Single [ ]

3. Level of education

   i. Primary school [ ]

   ii. Secondary school

   [ ] iii.

   College/university [ ]

4. What is your occupation?

   (a) Employed

   (b) Self-employed

   (c) Unemployed

5. What is the level of your income?

(a) Below 10,000/=

(b) Between 11,000 – 24,000/=

(c) Between 25,0000 – 50,000/=

(d) 51,000/= and above

Section B: Objective 1

In the statement in the table below, please mark your choice as Strongly Disagree, Disagree, Neutral, Agree, or Strongly Agree.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
I have been going for my antennal clinics					
I know the importance of regular medical check-up as part of antenatal services					
Visiting health facilities during pregnancy has equipped me with more knowledge on proper health care practices when I am pregnant					
We are being informed on healthy practices as a pregnant woman					
The health education programs being offered by the facility are effective					
All women do participate in health education initiatives being offered by the facility					
Educating women on health practices as a pregnant woman has result to increased uptake antenatal care services among pregnant women					

Section C: Objective 2

In the statement in the table below, please mark your choice as Strongly Disagree (5), Disagree (4), Neutral (3), Agree (2), or Strongly Agree(1).

Statements	5	4	3	2	1
I know what to eat when I am pregnant					
I do adherence to the instructions given by the health workers on what to eat when I am					
The facility do offer education materials on proper dietary practices during pregnancy					
Health worker dealing with pregnant women have effective way of dispensing dietary practices information					
The health education programs being offered by the facility are effective					
A follow up is always made on pregnant women on their dietary practices					
Information being offered by the health facility to pregnant women on dietary practices has improve the general uptake of ANC services among the women					

Section D: Objective 3

Statement	5	4	3	2	1
I am prepared for any kind of pregnancy outcome					
Pregnancy outcome preparedness among pregnant women is the major health					
information being offered to pregnant women by the hospital					
The facility has equipped me with pregnancy outcome preparedness in case of pregnancy outcome emergencies.					
Antenatal department of the hospital is equipped with materials for pregnancy related care practices					
The level of knowledge on pregnancy outcome preparedness among the pregnant women is attributed to the ongoing health education initiatives in place					
The pregnancy outcome preparedness education programs being offered by the facility are positively influencing level of uptake of antennal services					

THANK YOU FOR TAKING YOUR TIME AND PARTICIPATE!

Appendix III: Introduction Letter from the Directorate of Graduate Studies -MKU

Mount Kenya University

DIRECTORATE OF GRADUATE STUDIES

MPH/2023/44477

2nd September, 2024

National Commission for Science Technology & Innovation (NACOSTI)
Off Waiyaki, Upper Kabete
P.O Box 30623- 00100
NAIROBI, KENYA

Dear Sir/Madam,

RE: MOHAMED AGASI MOHAMED – REGISTRATION NO. MPH/2023/44477

The purpose of this letter is to introduce the above named student who is pursuing **Master of Public Health** in the department of **Epidemiology and Biostatistics** in the school of **Public Health.**

The title of the research is **"Effectiveness of Health Education Initiatives on Health Status of Pregnant Women in Wajir Referral Hospital, Wajir County, Kenya."** It has been cleared by the University's Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data between **September, 2024 and November, 2024.**

Any assistance accorded to the student will be highly appreciated.

Thank you.

Mount Kenya University
P.O. Box 342 - 01000, THIKA
Office of the Director
Graduate Studies

For

Dr. Samuel M. Karenga, Ph.D
Director, Graduate Studies
Enc.

Main Campus, General Kago Road, P.O. Box 342-01000 Thika.
Cell: +254 709 153 000 / +254 709 153 200
Email: info@mku.ac.ke, Web: www.mku.ac.ke
Chartered and ISO 9001 : 2015 Certified Institution.
Unlocking Infinite Possibilities

Appendix IV: Letter from Ethics Review Committee –MKU

Mount Kenya University

REF: **MKU/ISERC/4337**
TO: **MOHAMED AGASI MOHAMED**
REG: **MPH/2023/44477**
Date: 30 August 2024

Dear Sir/Madam,

RE: EFFECTIVENESS OF HEALTH EDUCATION INITIATIVES ON HEALTH STATUS OF PREGNANT WOMEN IN WAJIR REFERRAL HOSPITAL, WAJIR COUNTY, KENYA

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **3057.** The approval period is **30/08/2024 - 29/08/2025.**

This approval is subject to compliance with the following requirements:

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

MOUNT KENYA UNIVERSITY
P.O. Box 13495 - 00100, NAIROBI CAMPUS
02 SEP 2024
DIRECTOR
Graduate Studies
RECEIVED

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

MOUNT KENYA UNIVERSITY
ETHICS REVIEW COMMITTEE
P. O. Box 342 - 01000,
THIKA

Yours sincerely,

Dr. Alfred Owino, PhD
Chairman, Mount Kenya University ISERC

Appendix V: Research License from NACOSTI (Front Side)

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **580865**

Date of Issue: **20/September/2024**

RESEARCH LICENSE

This is to Certify that Mr.. Mohamed Agasi Mohamed of Mount Kenya University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Wajir on the topic: EFFECTIVENESS OF HEALTH EDUCATION INITIATIVES ON HEALTH STATUS OF PREGNANT WOMEN IN WAJIR REFERRAL HOSPITAL, WAJIR COUNTY, KENYA for the period ending : 20/September/2025.

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NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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See overleaf for conditions

Appendix VI: Research License from NACOSTI (Back Side)

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013 (Rev. 2014)
Legal Notice No. 108: The Science, Technology and Innovation (Research Licensing) Regulations, 2014

The National Commission for Science, Technology and Innovation, hereafter referred to as the Commission, was the established under the Science, Technology and Innovation Act 2013 (Revised 2014) herein after referred to as the Act. The objective of the Commission shall be to regulate and assure quality in the science, technology and innovation sector and advise the Government in matters related thereto.

CONDITIONS OF THE RESEARCH LICENSE

1. The License is granted subject to provisions of the Constitution of Kenya, the Science, Technology and Innovation Act, and other relevant laws, policies and regulations. Accordingly, the licensee shall adhere to such procedures, standards, code of ethics and guidelines as may be prescribed by regulations made under the Act, or prescribed by provisions of International treaties of which Kenya is a signatory to
2. The research and its related activities as well as outcomes shall be beneficial to the country and shall not in any way;
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    ii. Adversely affect the lives of Kenyans
    iii. Be in contravention of Kenya's international obligations including Biological Weapons Convention (BWC), Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Chemical, Biological, Radiological and Nuclear (CBRN).
    iv. Result in exploitation of intellectual property rights of communities in Kenya
    v. Adversely affect the environment
    vi. Adversely affect the rights of communities
    vii. Endanger public safety and national cohesion
    viii. Plagiarize someone else's work
3. The License is valid for the proposed research, location and specified period.
4. The license any rights thereunder are non-transferable
5. The Commission reserves the right to cancel the research at any time during the research period if in the opinion of the Commission the research is not implemented in conformity with the provisions of the Act or any other written law.
6. The Licensee shall inform the relevant County Director of Education, County Commissioner and County Governor before commencement of the research.
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13. The Licensee shall disclose to the Commission, the relevant Institutional Scientific and Ethical Review Committee, and the relevant national agencies any inventions and discoveries that are of National strategic importance.
14. The Commission shall have powers to acquire from any person the right in, or to, any scientific innovation, invention or patent of strategic importance to the country.
15. Relevant Institutional Scientific and Ethical Review Committee shall monitor and evaluate the research periodically, and make a report of its findings to the Commission for necessary action.

National Commission for Science, Technology and
Innovation(NACOSTI),
Off Waiyaki Way, Upper Kabete,
P. O. Box 30623 - 00100 Nairobi, KENYA
Telephone: 020 4007000, 0713788787, 0735404245
E-mail: dg@nacosti.go.ke
Website: www.nacosti.go.ke

Appendix VII: Authorization Letter from Wajir County

DEPARTMENT OF MEDICAL SERVICES, PUBLIC HEALTH AND SANITATION, WAJIR

When replying, please
Quote our Ref & Date

Ref: WCG/HR&D/P093/2024

WAJIR HEALTH SERVICES
RESEARCH & DEVELOPMENT,
P O Box 2 – 70200
WAJIR

7th November 2024

Mr. Mohamed Agasi Mohamed
Mt. Kenya University,
P.O. Box 13495 - 00100,
Nairobi.

Re: Authorization to conduct study titled Effectiveness of health education initiatives on health status of pregnant women in Wajir Referral Hospital, Wajir County

Wajir County Health Research and Development Directorate has granted Mr. Mohamed Agasi Mohamed, MPH student at the Mt. Kenya University, authorization to conduct the above-mentioned study in Wajir County effective 7th November 2024 as part of their coursework. This authorization includes access to current and historical data, and interviews with key informants, as needed for study purposes.

Your approval number is WCG/HR&D/P093/2024 and it is valid for six (6) months. Please ensure that all ethical issues including customary and beliefs of the community are observed and respected throughout the study.

You are also required to share with us the final report of the study for our own consumption as a county.

Please do not hesitate to contact the undersigned for any other query.
Yours Sincerely,

Dr. Mohamed A. Ahmed
Director of Health Research & Development, Wajir

CDRO Contact: 0722689038

Appendix VII: The Study Site Wajir County

Appendix VII: **Plagiarism Report**

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