

**HEALTH EDUCATION INTERVENTION ON UPTAKE OF EMERGENCY
OBSTETRIC AND NEWBORN CARE SERVICES AMONG WOMEN OF
REPRODUCTIVE AGE IN NAKURU COUNTY KENYA**

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

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DEDICATION

I dedicate this thesis to my family James, Leverator, Eric, Shirley and Elizabeth Gathoni from whom I derive my inspiration. Thank you for your unconditional love and support.

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TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS	v
LIST OF FIGURES.....	ix
LIST OF TABLES.....	x
OPERATIONAL DEFINITION OF TERMS	xi
LIST OF ACRONYMS AND ABBREVIATIONS.....	xii
ABSTRACT	xiii
CHAPTER ONE: BACKGROUND	1
1.1 Introduction	1
1.2 Problem statement	4
1.3 Justification.....	5
1.4 Significance of the study	6
1.5 Research questions	6
1.6 Null Hypothesis	6
1.7 Study Objectives.....	7
1.7.1. Broad objective.....	7
1.7.2 Specific objectives.....	7
1.8 Limitation of study	7
1.9 Delimitation of study	7
1.10 Theoretical framework	8
1.11 Conceptual framework	10
CHAPTER TWO: LITERATURE REVIEW	11
2.1 Overview on Emergency Obstetric and Newborn Care Services.....	11
2.2 Socio demographic Factors	12
2.2.1 Access to Maternal Health Services	12
2.3 Socio-cultural factors.....	14
2.4 Socioeconomic factors.....	18
2.5 Health Education	20
2.6 Summary of literature review	21

CHAPTER THREE: MATERIALS AND METHODS.....	23
3.1 Study Design	23
3.2 Variables.....	23
3.3 Study Area	24
3.4 Target Population	24
3.5 Study Population	24
3.6 Sampling Procedures	24
3.7 Sample size determination.....	26
3.8 Inclusion Criteria	27
3.9 Exclusion Criteria.....	27
3.10 Data collection techniques.....	27
3.11 Pre-test.....	31
3.12 Validity	32
3.13 Reliability	32
3.14 Data analysis and Presentation	32
3.15 Ethical Consideration	33
CHAPTER FOUR: RESULTS.....	34
4.1 Introduction	34
4.2 Response Rate	34
4.3 Proportion of women utilizing EmONC Services	34
4.4 Socio-demographic Factors	35
4.4.1 Baseline Social demographic factors	35
4.4.2 Final Survey on Socio-demographic factors	37
4.5 Socioeconomic factors.....	39
4.5.1 Baseline socioeconomic factors	39
4.5.2 Final Survey Socioeconomic factors	40
4.6 Socio-cultural factors.....	42
4.6.1 Base line socio cultural factors.....	42
4.6.2 Final survey socio cultural factors	44
4.7 Factors associated with Utilization of EmONC Services.....	46
4.8 Socio demographic factors influencing utilization of EmONC Services	46
4.8.1 Baseline sociodemographic factors	46

4.8.2 Socio demographic factors associated with EmONC services utilization	
Final Survey.....	48
4.9 Sociodemographic Binary logistic Regresssion	49
4.9.1 Socio-economic factors associated with EmONC Utilization at Base line	51
4.9.2 Socio- economic factors associated with EmONC utilization	52
4.10 Socio-cultural factors influencing utilization of EmONC services at Baseline	53
4.10.1 Baseline Socio-cultural factors influencing utilization of EmONC	
services	53
4.10.2 Socio- cultural factors associated with EmONC services utilization.....	55
4.11 Chi square test for goodness fit Control Group.....	57
4.12 Chi square test for goodness fit Intervention Group	57
4.13 Chi square Test for Independence	57
4.14 Health Education intervention package aspects influencing utilization of	
EmONC Services	58
CHAPTER FIVE	62
DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS.....	62
5.1 DISCUSSION.....	62
5.1.1 Proportion Utilizing EmNOC Services among women of Reproductive	
Age	62
5.1.2 Socio demographic Factors Influencing uptake of EmONC.....	63
5.1.3 Socio economic Factors Influencing uptake of EmONC	64
5.1.4 Socio-cultural Factors Influencing uptake of EmONC	65
5.1.5 Health Education intervention package on Uptake of EmONC services..	65
5.2 Conclusions	67
5.3 Recommendations	68
5.4 Suggestion for Further studies	68
REFERENCES	70
APPENDICES.....	76
Appendix I: Informed Consent Form	76
Appendix II: Questionnaire English & Kiswahili	79
Appendix III: Key Informant Interview Guide	85
Appendix IV: Focused group discussion Guide	86
Appendix V: Map Showing the Counties in Kenya	87

Appendix VI: Ethics Review Committee	88
Appendix VII: Approval of Research Proposal.....	90
Appendix VIII: Research Authorization	91
Appendix IX: Research Authorization from Department of Health Services	92
Appendix X: Research Authorization from Ministry of Education	93
Appendix XI: Research Permit from NACOSTI.....	94

LIST OF FIGURES

Figure 1.1: Conceptual Framework 10
Figure 3.1: Consort flow diagram 25

LIST OF TABLES

Table 3.1: Variables.....	23
Table 3.2: Health education intervention package	29
Table 4.1: Response Rate	34
Table 4.2: Proportion utilizing EmONC Services	35
Table 4.3: Baseline Socio- demographic factors	36
Table 4.4: Final Survey Socio demographic Factors.....	38
Table 4.5: Baseline socioeconomic factors	39
Table 4.6: Final Survey Socioeconomic factors	41
Table 4.7: Baseline Sociocultural factors	43
Table 4.8: Final Survey Socio-cultural factors	45
Table 4.9: Baseline characteristics and Utilization of EmONC Services	46
Table 4.10: Baseline Socio demographic factors associated with utilization	47
Table 4.11: Socio-demographic factors Final survey	48
Table 4.12: Multivariate regression to adjust odds ratio on factors influencing EmONC Service utilization	50
Table 4.13: Base line socioeconomic factors and utilization of EmONC Services	51
Table 4.14: Final survey socio- economic factors associated with EmONC utilization	52
Table 4.15: Socio-cultural factors influencing utilization of EmONC services at Baseline	54
Table 4.16: Final survey Socio- cultural factors associated with EmONC services utilization	56
Table 4.17: Chi square test for goodness fit Control Group.....	57
Table 4.18: Intervention group comparison	57
Table 4.19: End term utilization for both groups	58
Table 4.20 Health intervention package associated with utilization of EmONC Services	59

OPERATIONAL DEFINITION OF TERMS

Emergency obstetric and newborn care services is a package of medical interventions to treat life-threatening complications during pregnancy and childbirth.

Health education is a consciously constructed opportunities for learning, involving some form of communication designed to improve knowledge, and developing life skills that are conducive to individual

Maternal Death- The loss of a woman's life during pregnancy or within 42 days after delivery.

Outcome variable- This is the outcome after the mother is subjected to health education – to utilize or not utilize emergency obstetric and newborn care services

Skilled attendant- this is someone competent to manage normal pregnancies, child birth and the immediate post-natal period and promptly identify, manage and referral complications.

Uptake/Utilization of Emergency obstetrics and newborn care services: Any woman delivering in the health facility.

LIST OF ACRONYMS AND ABBREVIATIONS

ANC	Antenatal Care
APHRC	Africa Population Health Research
CONSORT	Consolidated Standards of Reporting Trials
EMOC	Emergency Obstetric Care.
EmONC	Emergency Obstetric and Newborn Care
KDHS	Kenya Demographic Health Survey
KU	Kenyatta University
MMR	Maternal Mortality Rate.
MNCH	Maternal Newborn and Child Health.
NCPD	National Council for Population and Development
NEET	Not in Employment, Education, or Training
OECD	Organization for Economic Cooperation and Development
RMNCAH	Reproductive, Maternal, Newborn, Child, and Adolescent Health
SDGs	Sustainable Development Goals
SES	Socio-economic status
SSA	Sub Saharan Africa
TBA	Traditional Birth Attendant.
TPB	Theory of Planned Behavior
UN	United Nations
UNFPA	United Nations Population Fund
UNICEF	United Nations International Children Emergency Fund
WHO	World Health Organization

ABSTRACT

Emergency obstetric and newborn care (EmONC) services enhances maternal survival. The study established health education intervention on uptake of Emergency Obstetrics and Newborn care services. The focus was Socio demographic, social cultural and social economic factors. The study was a randomized control trial and utilized a mixed method. Multistage sampling was used. Key informants were purposefully selected Allocation to each study group was done on a 1:1 ratio; hence each group had 191 participants. To determine the sample size, Kelsey *et al.*, 1996 formula for randomized controlled trials was used and in order to take care of attrition 10% increase was done hence the sample size was 382 women. Pregnant mothers 26-32 weeks of gestation were enrolled. Structured questionnaire, focused group discussion and key informant interview schedules used to collect data. In phase I baseline data from documented guidelines, FGDs, KII was collected. Phase II the intervention tool was developed and verified by an obstetrician and a midwife while in Phase III was the recruitment phase. A pre-test was conducted at Kuresoi North Sub County where 10% of the questionnaires was used. To ensure validity, research assistants were trained on the various research instruments. Descriptive statistics, Fisher's exact test at bivariate and odds ratio at multivariate analysis level were computed. Qualitative data was analysed using Nvivo data analysis software. Ethical consent for the research was sought from research ethical committee at Kenyatta University, National council for Science and Technology and Ministry of health. Before commencing the study, informed consent was obtained from respondent. The intervention group had 95.93% (n =165) utilization of EmONC services in comparison to the control arm 75.29% (n = 128). There was no difference in both groups from base line to final survey OR 1.209, CI 0.742 to 1.969 and P-value 0.446. The level of education significantly influenced utilization at χ^2 40.402 and a p value <0.001. Secondary education influences utilization of EmONC services at AOR 8.791 95% CI 3.631 TO 21.285 and a P-value <0.001. Respondents with tertiary education were 2.5 times likely to utilize EmONC services. Parity was significant at χ^2 43.724, p value <0.001. There was no significant difference between socioeconomic factors and utilization of EmONC services at baseline level. There was no variation between sociocultural factors and utilization of EmONC services. Mothers that received the intervention were seven times likely to utilize EmONC services at χ^2 29.662 95% CI 3.363 – 17.787, & a p-value <0.001. After administration of the Health Education intervention package, the respondents were eight times likely to utilize the services at OR 8.552, 95% CI 3.705 TO 19.742, P-value <0.001. From the study findings the utilization of EmONC services increased after intervention. It is recommended to educate the health workers to know the importance of health education on the uptake of services and administer it. Increasing identical health education interventional approaches to enhance utilization of EmONC services care in Kenya where there is low utilization. Further study is required on the health education approaches for improving utilization of health services and also focus on community health education on utilization EmONC services.

CHAPTER ONE

BACKGROUND

1.1 Introduction

Emergency obstetric and newborn care (EmONC) services is a set of critical life-saving interventions and care for women and newborns during pregnancy, child birth, and postpartum period should they experiences serious complications (Otolorin *et al.*, 2015). Basic EmONC services is essential medical interventions that treat the major causes of deaths to the mother and her newly born child: It includes “*administration of parenteral antibiotics, parenteral anticonvulsants; uterotonic agents, manual removal of the placenta; assisted vaginal delivery; removal of remaining products of conception; and neonatal resuscitation. Comprehensive EmONC services along with basic function includes blood transfusions, caesarian section, neonatal intubation and advanced resuscitation*” (UNFPA, 2014).

Low levels of maternal health care seeking behavior are to blame for the exaggerated deaths, particularly in underdeveloped nations. Low proportion of prenatal care result to high deaths of the mother which is exacerbated by the extremely low competent person who attended birth (Mithun & Irfan, 2020). In the year 2015, the united nation summit adopted seventeen Sustainable developmental goals to be implemented by the member state at the expiry of the millennium developmental goals. Global targets was to reduce maternal mortality ratio by 2/3 baseline levels so that it can be < 70/100 000 live births and that by the year 2030, no nation’s MMR should be more than one hundred and forty per a hundred thousand live births (Jolivet, Moran, O’Connor, M. *et al.*, 2018).

The death of a mother in emergent nations as a whole was one in forty five compared to one in five thousand four hundred in first world countries. Mothers in SSA have one in thirty eight likelihood of death, those in South Asia with one in two hundred and forty as compared with just 1 in 7800 in Australia and New Zealand. About 295 000 women died due to pregnancy related causes (WHO, 2019).

A scoping review on effective Coverage of Emergency Obstetric and New born Care Services in Africa indicated they were below the World Health Organization recommended 100% in all the studies (Alemayehu M, Yakob B, Khuzwayo N. 2023). A research on barriers and facilitator to EmONC services use in Wolaita Zone, Southern Ethiopia by Alemayehu¹, Yakob, and Khuzwayo (2022) revealed that the mother's insight obtainability of services, community-related factors, and health facility-related factors influenced utilization of services.

Health education is a knowledge based instruction that centers on averting illnesses. It equips the listeners with accurate understanding of the disease, improve preventive ability, and allows getting adequate care in the community. Thorough and methodically, client's lives are shaped focusing on the mental and physical to establish a constructive, and self-development ideology (J. Yuan, 2017).

Health education is crucial for humans because it empowers individuals with knowledge and skills to make informed decisions about their well-being. It helps to promotes healthy behaviors such healthy lifestyle choices, to include proper nutrition, regular physical activity, and disease prevention. By understanding the importance of these behaviors, individuals are more likely to adopt and maintain healthy habits, leading to better overall health and well-being. Health education raises awareness

about common diseases, their causes, risk factors, and preventive measures. It helps individuals understand the importance of vaccinations, regular check-ups, early detection, and screening tests. By promoting disease prevention and early intervention, health education can reduce the burden of illness and improve health outcomes. Enhances decision-making because it equips individuals with the knowledge and critical thinking skills needed to make informed decisions about their health. It provides information on topics such as sexual health, reproductive choices. With this knowledge, individuals can make decisions that align with their values and promote their well-being. Health education plays a vital role in addressing health disparities. It provides equitable access to essential health information, ensuring that individuals from all backgrounds have the knowledge and resources to make informed health decisions. By addressing social determinants of health and promoting health equity, health education contributes to reducing disparities in health outcomes. Health education empowers individuals to take an active role in their own health and well-being. It teaches skills for self-care, such as managing stress, practicing good hygiene, and recognizing signs of illness. By promoting self-care and self-advocacy, health education encourages individuals to prioritize their health and seek appropriate care when needed. Last but not least it improves health literacy which is the ability to access, understand, and apply health information. By promoting health literacy, individuals are better equipped to navigate healthcare systems, communicate with healthcare providers, and make informed decisions about their health (Sharma, 2023).

A study by Alemayehu, Yakob and Khuzwayo (2022) in Southern Ethiopia revealed the many women and their newborns in the study area suffered severe and life-threatening complications because of the non-utilization or delayed utilization of

EmONC services. Service users' perception and experience, community-related factors, access and availability of services, healthcare financing, and health facility-related factors influenced utilization of EmONC services.

A study on health education intervention on knowledge and accessibility of pregnant mother to prenatal care services in Nigeria revealed health education to have an impact on knowledge and accessibility of services (Anyebe *et al*, 2018). Health education in safe motherhood is the cornerstone of strategies for the prevention maternal morbidity and mortalities, enabling mothers to make informed choices.

1.2 Problem statement

It is possible to prevent deaths due to pregnancy and childbirth. All what the mothers require is access to quality care and delivering in the health facility where professionals can promptly diagnose and manage emergencies related to pregnancy and childbirth. In the year twenty seventeen, 9.2% of women of reproductive health died. Ninety four percent of the deaths happened in drained-resource settings, and could have been avoided. Sub-Sahara Africa (SSA) and South Asia, contributes to eighty six % of worldwide deaths, with SSA alone accounting for roughly 66% meaning about 542 maternal deaths/100000 live births (WHO, 2019).

Three hundred and sixty two deaths per a hundred thousand live births occur in Kenya. About 5000 female die yearly in Kenya due to pregnancy complications (UNFPA, 2021).

Reports by the Nakuru County health infrastructure (2018) revealed a maternal mortality ration of 374 per 100,000 which was associated to poor state of health, lack

of balanced diet and home-based deliveries. Twenty eight Nakuru county statistics, revealed that only 48% of pregnant mothers complete 4 prenatal visits. Over 400 maternal deaths were recorded. With the increase in antenatal visits from 4 to 8 by WHO 2016 there is need to assess the uptake of the EmONC services. It was noted that there had been unchanging levels of pregnancy death in the larger Rift Valley region which Nakuru County belongs. This study sought to find out health education intervention on uptake of EmONC services among women of reproductive age in Nakuru County.

1.3 Justification

Better health communication through establishing behavior change and communication guidelines ought to be integrated to empower people to make insightful health choices in their day to day life: at school ,home, community, places of work, in the hospital (Broucke, 2014). Health literacy has influence on behavior and utilization of health services which impact on health outcomes and health service cost. A systematic review on the adolescent health literacy and behavior indicated an existence of meaningful relationship that assisted the adolescents' in decision making (Fleary, Joseph, Pappagianopoulos, 2017).

The uptake EmONC services have individual benefits for women as it provides the opportunity for health care providers to early detect and treat health problems, the mother develops a delivery plan which assist in preventing complications.

1.4 Significance of the study

Improving mothers and children's health is directly aligned with the third sustainable development goal of '*Ensuring healthy lives and promote well-being for all at all ages*'. It is envisaged that the outcomes of this study will give a picture on how effective health education is in utilization of EmONC services in Kenya thus help to inform policy. This study is in line with the Shanghai declaration on promoting health in the 2030 Agenda for sustainable development which focuses on healthy cities, improved governance for health and health literacy.

1.5 Research questions

1. What is the proportion of women of reproductive age utilizing EmONC services in Nakuru County Kenya?
2. What are the socioeconomic factors that influence the uptake of EmONC services among women of reproductive age in Nakuru County Kenya?
3. What are the sociocultural factors that influence the uptake of EmONC services among women of reproductive age in Nakuru County Kenya?
4. What is the influence of health education intervention in uptake of EmONC services among women of reproductive age in Nakuru County Kenya?

1.6 Null Hypothesis

1. There is no significant relationship between health education intervention and uptake of EmONC services among women of reproductive age in Nakuru County Kenya?

1.7 Study Objectives

1.7.1. Broad objective

To assess health education intervention on uptake of Emergency Obstetrics and Newborn Care Services uptake among women of reproductive age in Nakuru County Kenya.

1.7.2 Specific objectives

1. To establish the proportion of women of reproductive age utilizing EmONC services in Nakuru County Kenya.
2. To determine socioeconomic factors influencing the uptake of EmONC services among women of reproductive age in Nakuru County Kenya.
3. To determine sociocultural factors influencing the uptake of EmONC services among women of reproductive age in Nakuru County Kenya.
4. To assess health education intervention on uptake of EmONC services among women of reproductive age in Nakuru County Kenya?

1.8 Limitation of study

Only few women in the county were sampled hence the information cannot be generalized to other counties. Another limitation was the global Covid 19 pandemic that may have had a negative effect on the utilization of EmONC services.

1.9 Delimitation of study

Scientific sampling procedures were used in the selection of the respondents. Randomization was done using a table to ensure the participants had equal opportunities to be included in either a control or an intervention group. Due to the global Covid 19 pandemic since both the intervention and control were similarly

affected, with multivariate analysis, relatively precise factors associated with utilization could still be realized.

1.10 Theoretical framework

Adopted from theory of reasoned action and theory of planned behavior

The theory was designed to expound peoples conduct and ability to exercise self-restraint. The Theory of Planned Behavior (TPB) declares that conduct acquirement hinges on inspiration (intention) and capability (conduct control). It distinguishes between three types of beliefs—conduct, normative, and power. The TPB is comprised of six concepts that portrays a person's power of their conduct. Attitudes —the frame of mind of good or bad assessment of portrayed conduct. It focus on the end results of exhibiting certain conduct. Behavioral intention – This is the inspirational factors that facilitates a given conduct, the stronger the inspiration, the higher the chances to conduct self in a particular way. Subjective norms – This are biased societal perception of good or bad conduct. An individual's way of thinking as to whether the society approves of their conduct. Social norms – they are society benchmarks of how people should conduct themselves. Perceived power – A person's capacity to portray a certain conduct. Perceived behavioral control – the control a person has over a particular conduct. This varies with circumstances.

The theory of reasoned action explains how pregnant mothers utilize health facilities by assuming that they exhibit certain conduct after analyzing all available information. The theory looks at attitudes which is the frame of mind that supports a decision to be good or bad. If a mother beliefs that utilizing EmONC services will result to safe motherhood, they will have a good frame of mind but if they belief the services will lead to death, then they will have a bad frame of mind and avoid the

services. Subjective norms which are the woman's belief on how the society views their conduct in order to decide to use or not use EmONC services. They will look at how the society and community expects them to conduct themselves during pregnancy to enhance safe motherhood. Their conduct will have to maintain societal standards. The more there are in line of the standards the more desire to ensure safe motherhood.

In this study the sociocultural, socioeconomic, socio demographic factors will influence use of life saving amenity in the county by influencing women's behavior hence help to improve maternal health or decrease the mortalities and morbidities associated with pregnancy and delivery. Health education intervention may change the behavior intention of the client (Martin Fishbein and Icek Ajzan, 1980).

1.11 Conceptual framework

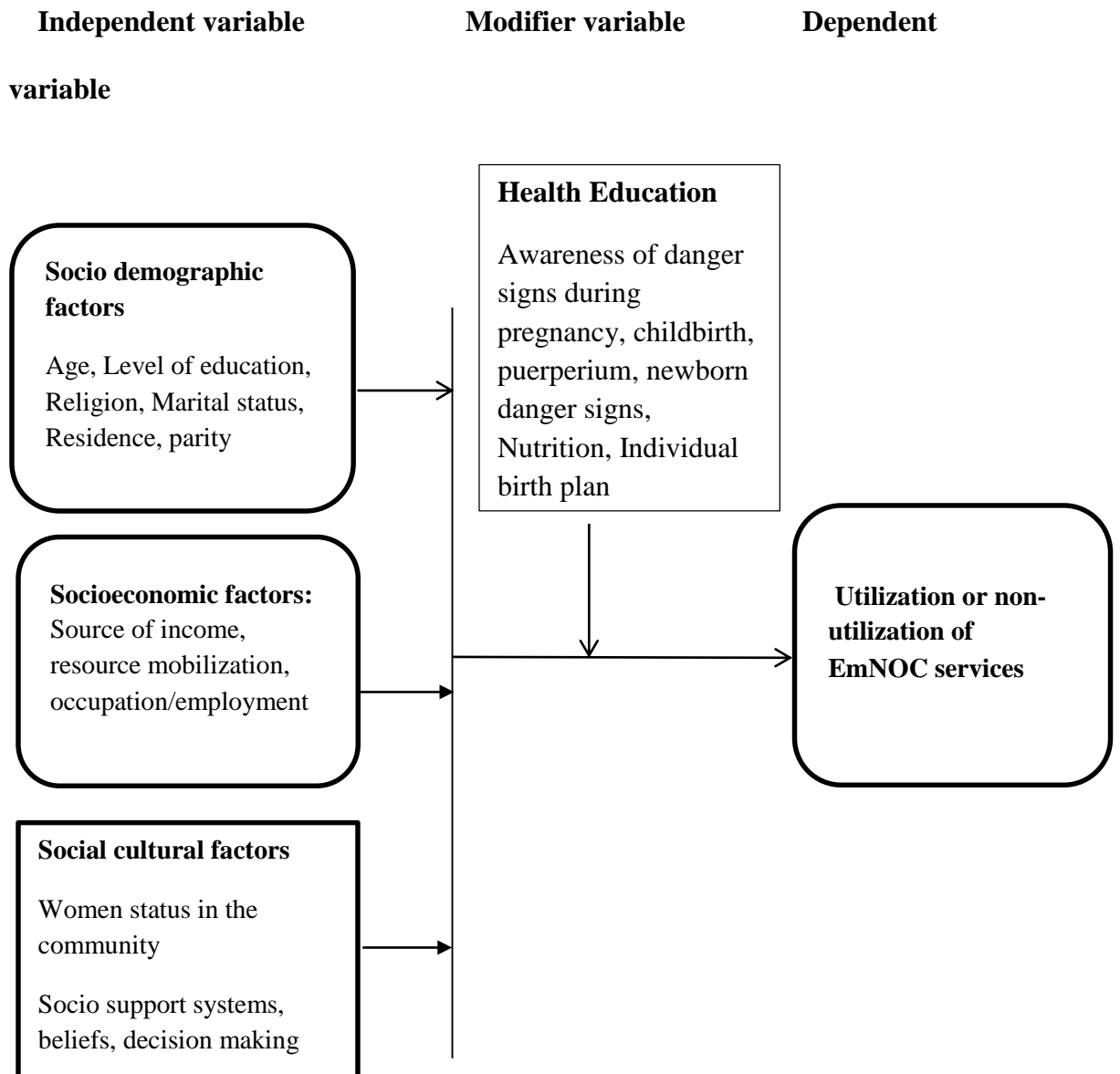


Figure 1.1: Conceptual Framework

Sociodemographic factors, socioeconomic factors and socio cultural factors are independent factors influencing utilization or non-utilization of EmONC services. Health education intervention is the modifiable variable which may result to a change in the utilization and non- utilization of EmONC services.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview on Emergency Obstetric and New-born Care Services

Globally, fifteen percent of the expected births result in life-threatening complications during pregnancy, labor, delivery and post-partum period. These emergencies may arise at any time thus World Health Organization designed and introduced EmONC services to improve mother and child survival. How a health care worker handles a woman can empower and results to satisfaction of the services offered thus having a positive care experience or cause trauma which may hinder her accessing the services in future (WHO, 2022).

A study by Nyamtema *et al.*, (2022) on improving access to emergency obstetric care in Tanzania revealed that the met need for obstetrics complications increases if exhaustively maternal lifesaving services are availed. Lack of enough medical supplies, inadequately trained health providers and referral systems that do not work may result to loss of life for any women and their neonates even after reaching the health facilities.

Health systems in financially distressed countries have limited resources and capacities, and women requiring EmONC services face difficulties in reaching and using them. The efficacy of EmONC services rely on the hospital preparedness to avail quality nursing, functionality, timeliness, and management of referral systems in a given setting (Illias *et al.*, 2019).

A study on the assessment of uptake of lifesaving services in Uganda revealed poor prenatal care, intra natal and postnatal care. Only four tenths of women showed

evidence of having received focused ANC services. Thirteen point three percent of the mothers reported a complete individual birth plan. Only three percent could state the seven danger signs during pregnancy (Babughirana *et al.*, 2020).

Some of the factors which influence the lack of maternal care service provision and use include inadequate government funding, insufficient number of staff, providers' focus on income-generating services, and women's lack of awareness on the benefits of utilization of maternal services (Jiang, K., Liang, L., Wang, H. *et al.*, 2020)

2.2 Socio demographic Factors

2.2.1 Access to Maternal Health Services

The age of the last childbirth, parity, and mode of delivery influence the utilization of prenatal services in China (Jiang, K., Liang, L., Wang, H. *et al.*, 2020). Fifty percent of mothers who had 1-2 children had made the four recommended ANC services. Research shows that women of high parity tend to have recommended number of focused antenatal care visits than the women of low parity. Forty nine point six percent who had had unsafe abortion earlier than the last birth also had a minimum of four prenatal visits during the last pregnancy. The likelihood of taking not less than four prenatal visits is higher among women living in Mountain region than those living in Hill and Tarai regions. Hindu women had a one point five chance of taking four times as great pre-natal visits than women from non-Hindu groups (Acharya, 2018).

Women from the urban area, those employed by the government, women whose husband's educational status was secondary were likely to utilize EmONC service. Women with a parity greater than two were less likely to use EmONC services as compared to Para one (Mitikie KA, Wassie GT, Beyene MB, 2020) Place of residence

was found to influence the likelihood of SBA uptake. Women in rural areas had lower odds of skilled delivery compared with those in urban centres. Women with a parity of three and above had lower odds of skilled delivery compared with those women with a parity of one (Seidu AA, Ahinkorah BO, Agbaglo E, Oduro JK, Amoah A, Yaya S. 2022).

Socio-demographic factors had a positive and significant relationship to the utilization of EmONC services by women of the reproductive in Tana River County (Badru, Njoroge, & Oluoch, 2022). Mothers aged 15–24 years mothers who resided in the urban areas are more likely to deliver in health institutions assisted by skilled professionals compared with mothers from rural areas. Mothers living within a walking time of 16–30 minutes from health facility were more likely to use skilled delivery practice (Tesfaw, Gizachew, Kassa, Abajobir, 2018).

In terms of religion, Muslims respondents were more likely to utilize EmONC services. Nulliparous were less likely to utilize EmONC services compared to women who had given birth 4 or more times (DABAR M., 2020). Older women who lived in the cities and were educated, employed, with access to electronic media, relatively lower parity and not having unwanted pregnancy were found to have a protective effect on the use of the healthcare services (Zhou D. *et al.*, 2020).

Educated mothers with more than 2 children had significantly higher chances of utilizing EmONC services. Women from the highest wealth quintile households have higher odds of EmONC service utilization (He Z, Zhang C, Wang S, Bishwajit G, and Yang X. 2021).

Women aged 15-24 were 16 times likely to utilize EmONC services compared to those more than 35 years. Mothers whose husbands had primary or above education level were nearly four times more likely to deliver at health institutions than those mothers whose husbands had no formal education. Those that had three and more ANC visits were 7 times more likely to give birth at health institutions compared to those who had less than three ANC visits during their last pregnancy. Mothers who were in the richest wealth quantile category were three times more likely to deliver at health institutions than those who were in the poorest wealth quintile category (Yoseph, M., Abebe, S.M., Mekonnen, F.A. *et al.*, 2020).

2.3 Socio-cultural factors

Traditions and gender roles deters pregnant women from seeking health services. The lack of empowerment of women in decision making, themselves. The required Items when delivering in a facility, and the associated cost, is often not affordable. Tradition wants women to wear a new white dress after the delivery because ‘the colour white represents the victory of life against death, most women wear the white for about 3 months, then afterwards wear bright coloured dress’. Soap bars are needed as hygienic measures are not often in place in clinics and gifts for midwives are required. Common beliefs in the use of home-based remedies such as the turkey berries [agbitsa swe swe] corrects the anaemia by keeping the Haemoglobin level within a normal range and does not have any complication. The male involvement in seeking care was low this was believed to be due to the irresponsibility of the husbands or partners, to make proper arrangements to get the woman to the clinic on time’. Some men don't have money, they encourage their wife to deliver at home (Barbi *et al*, 2021)

In Southern Ethiopia, Bleeding problems were managed by exerting pressure over the uterus or the vagina till the bleeding stop. One of the TBA recorded “*I prepare a mixture of drinks made from ‘natira’ [local name for Artemisia absinthium], butter, and yogurt, and order her to drink it, which eases the labor and gives strength to the mother. I thoroughly massage the womb with my hands if she has waist tightness [prolonged/obstructed labor] or rotate the baby manually when she faces Marsha [breech presentation]. ... sometimes, the bleeding [antepartum hemorrhage] becomes difficult to stop ... and the mother loses energy ... In that case, I refer her to health facility*” (Alemayehu, Yakob, Khuzwayo, 2022)

In Southern Ghana, it was inappropriate to announce a pregnancy until it becomes visible because of belief that people could use their evil to cause an abortion during early pregnancy. Socio-cultural practices such as not crossing rivers and confinement made some women not show up for pre-natal services especially for women who lived at places where they had to cross a river to the nearest health facility. Some pregnant women did not take the folic acid they received during pregnancy because of the belief that the drug made their babies big making which results in difficult delivery. Some practices in preparation for labor revealed that some local herbs are extracted from the leaves and bark of some trees that are either ingested or used as enema in preparation towards childbirth make the birth process go smooth without complication. Engaging in sex during pregnancy was essential in ensuring smooth delivery and highly recommended for women. Sex restrictions could make one’s partner engage in extra marital affairs (Ansong, Asampong & Adongo, 2022).

It is important to prioritize a visit to a healer or a witchdoctor when the woman has discovered she is pregnant. The purpose is to protect both the woman and the unborn child. This means that the pregnancy will be healthy and no premature pregnancy termination will occur. Before the appointment with a healer the woman should fast. Protection rituals are performed to include prayers and the placement of the protective band. The protective band is tied around the waist. The protective band is worn during the whole pregnancy to keep evil spirits at bay. (Honkavuo, 2021).

Eating meat and eggs is a taboo as eggs make the birth canal remain closed and it will not open during delivery. The child will be born without hair and will sound like a hen after it is born. The child will be unable to focus and to sit still (Honkavuo, 2021). Ripe plantain and egg were generally prohibited during pregnancy. Ripe plantain are believed to cause false labour whilst egg is forbidden because of the belief that makes the baby's head soft and the baby will become a thief in future (Ansong, Asampong & Adongo, 2022).

Women who did not utilize EmONC services received advice from peers and cited other people making decisions for them contributed to that because for instance arguing with elderly women was perceived to affect their unity in the community thus they reluctantly gave birth at home with the help of TBAs (Alemayehu, Yakob, Khuzwayo, 2022).

There was a belief that baby boys will often lie at the right side of the womb whilst girls lie at the left side. If pregnant with a boy, the uterus is often bigger than when it is a female. Swelling of the feet was a sign that the baby in the uterus was a male. There was also the belief that unborn babies can be bewitched by bad or jealous people

in the community thus making them develop certain abnormalities in the uterus. Newborns had to be confined until the official outdoorings and naming was done to protect the baby from evil people in the community. As a result of this belief neonatal conditions had to be managed at home because attendance to the hospital during that period was believed to create the opportunity for the baby to be bewitched. Newborn Jaundice was perceived as normal and was often thought to resolve with time. Shea butter was used for cord care in order to offer protection against infection and keep the cord dry. During bathing of the baby, the head is massaged and molded to shape it. Female babies were born with sores in their vulva which needed to be treated by applying warm compresses on the fontanelle and genitalia to facilitate the healing of sores in the vulva of female babies and closing of the fontanelle. Mustard oil and shea butter was used to massage the babies to make them healthy and prevent the skin from becoming “dried up” (Ansong, Asampong & Adongo, 2022).

According to cultural traditions in Zambia, the pregnant woman visits the maternity clinic together with an accompanying person. The pregnant woman is not allowed to go to the clinic alone. The pregnant woman should take a bath with the purpose of driving away spirits before going to the clinic. Childbirth is successful when the body is clean. When contractions begin a hatched egg is placed in the vagina. This makes the expulsion phase easier. Two *kitenge* (larger pieces of cloth) should be brought to the clinic, one for the newborn and the other for the woman. Baby clothes should not be bought in advance because it can result in the death of the child. First the child should be born and then clothes can be bought (Honkavuo, 2021).

2.4 Socioeconomic factors

Income and wealth is a common social economic factors that affect people's lives. Income generally includes resources received on a regular basis for work or through investments, while wealth is economic assets that have been accumulated over time. Sources of income include work, public assistance, retirement and pension plans, and interest or dividends from savings and investments. Wealth includes things like homes, land, vehicles, inheritance, savings, financial investments, and businesses. Wealth often helps people financially weather adverse life events (e.g. illness, unemployment, labor market changes), reduces stress, and provides access to other resources (Sycamore institute, 2018)

On utilization of four or more antenatal visit, a study by Acharya (2018) revealed a low visit at (48.3%) on currently employed women compared to those currently unemployed. On economic status, seventy four point two percent of women were rich, 45.2% belonging to middle category had taken at least 4 prenatal visits while only 30.9% of women from poor category had taken at least 4 prenatal visits in their previous pregnancy.

High socioeconomic status increased the chances of utilizing EmONC services. Women with a higher wealth status, and high levels of education, those whose partners had higher levels of education and those were employed had a higher likelihood of EmONC uptake (Seidu A. *et al.*, 2022).

A study in Nigeria on the association of socioeconomic status and utilization of maternal health service revealed that 50% of the respondents had a total score for economic factors that ranged between 11 and 20, while the overall mean score (SD)

for economic factors on the utilization of maternal health services was 11.50 indicating that the income level of the respondents and their occupation influenced utilization of EmONC services (Maitanmi *et al*, 2023). Dahab and Sakellariou (2020) found that women from low socioeconomic status who reside in rural areas found it challenging to utilize maternal health services. Women from the highest wealth quintile households have higher odds of timely health facility delivery and postnatal care (He Z *et al.*, 2021).

A study on examining socioeconomic status disparities in facility-based childbirth in Kenya: role of perceived need, accessibility, and quality of care indicated that the percentage of facility-based deliveries increases with higher wealth as 76% of the poorest women delivered at a health facility compared to 97% of the richest. 92% of women with paid employment, and 96% of women whose partners had salaried occupations gave birth in health facilities compared to 83% among those with no paid employment and 79% among those whose husbands were unemployed or homemakers (Kapula, Shiboski, Dehlendorf *et al.*,2022).

The percentage of EmONC service utilization increased with higher wealth 76% for the poorest women compared to 97% of the richest. Ninety two percent of women with paid employment, and 96% of women whose partners had salaried occupations utilized EmONC services compared to 83% among those with no paid employment and 79% among those whose husbands were unemployed or homemakers (Kapula N, *et al.*,2022).

In Pakistan due to certain social and cultural factors. Poor socioeconomic status, limited knowledge about maternal care, and financial constraints among rural people were the main barriers to seeking care. The low status of women and male domination

keeps women less empowered (Omer, S., Zakar, R., Zakar, M.Z. *et al.*, 2021). Women in the highest wealth quintile, those with higher education, and those who were covered by health insurance had higher odds of utilizing maternal healthcare service (Kota K, *et al.*, 2023).

Economic stability is an important source to affording lifestyle choices and paying for quality medical care to remain healthy. A well-paying, steady job is critical for food security and housing stability. Savings are essential for managing chronic conditions or emergencies. However, in 2022, over 7.8 million people in Kenya lived in extreme poverty, the majority in rural areas. Those in steady work may not earn enough to gain access to good quality healthcare. Moreover, chronic conditions or disabilities may put people at an even greater disadvantage. Many studies have shown wide gaps in health outcomes between countries and communities that have different social determinants of health. People living in high income countries have a high life expectancy than those in low income countries (Sherrell, 2021).

2.5 Health Education

Health education is key in increasing access to maternal healthcare services because it has the potential to promote important behavioral changes that could result in increased access to maternal healthcare (Barbi *et al.*, 2021). Through education people gain critical skills, capabilities, knowledge, that improves their health outcomes thus having healthy citizens (Raghupathi and Raghupathi, 2020).

The factors associated with knowledge of birth preparedness and complication readiness were found to be knowledgeable for key danger signs of labor with AOR = 3.685, 95%CI 1.157, 11.737 and knowledgeable for key danger signs of post-

partum period with AOR =5.117, 95%CI 1.388, 18.863 (Mulugeta, Giru, Berhanu, Demelew, 2020)

The study participants indicated they had received education on the need to exclusively breastfeed the baby for 6 months. However, majority of them reported not adhere to the practice because of the view that the breastmilk was inadequate for the baby, hence there was the need to give other food supplements such as mashed kenkey and artificial milk sources, babies get thirsty with time and therefore, there was the need to provide them with water (Ansong, Asampong & Adongo, 2022).

According to a study done in Baringo County Kenya, having knowledge on the individual birth plan increased the utilization of EmONC services (Chesumei, Kiage, Mutai, 2019). Mothers who had good knowledge of the danger signs of labor, were more likely to utilize institutional delivery services (Yoseph, Abebe, Mekonnen, *et al.*, 2020). Women who had good knowledge about the danger signs of pregnancy and delivery related health problems were 3.60 times more likely to utilize institutional delivery service than women who had poor knowledge (Mitikie, Wassie, Beyene, 2020).

A study by Okafar and Yewande (2020) indicated a significant improvement in knowledge of the intervention group from 38.7% respondents who had below average score to none at post intervention .The difference observed was due to the exposure of educational intervention in experimental group.

2.6 Summary of literature review

From the literature review, sociodemographic factors, sociocultural factors and socioeconomic factors are important determinants of utilization of EmONC services.

The transfer of knowledge should go hand in hand with understanding and addressing factors that are a constraint or that can motivate the person to change behavior. Health education should be based on scientific evidence of factors leading to low utilization of EmONC services. According to Flint and Bremer (2024) health education interventions based on the sole transfer of knowledge are not effective in changing behavior. There is a need for other strategies such as policies, services, and infrastructure, and social-cultural promotion. Modifying behavior should have a significant impact on health. Many resources have been wasted promoting behavior that has little or no relevance to health problems.

CHAPTER THREE

MATERIALS AND METHODS

3.1 Study Design

A research design refers to the specific strategies to answer a research question using empirical data (McCombes, 2021). A Randomized control trial double-blind design was used. Randomization in a trial helps to eliminate bias and ensures the two groups being compared are similar, the only dissimilarity that could impact the end results is whether or not they are receiving the intervention. It utilizes a mixed method. According to Poth and Munce (2020) mixed method research is a type of research that integrate and synergize multiple data sources which can assist to study multiplex issues

3.2 Variables

Utilization of EmONC services was the dependent variable and the research focused on; Socio economic factors, Socio demographic, Socio cultural factors, health education intervention as the modifiable variables.

Table 3.1: Variables

Variable		Measures
Socio demographic	Age, Level of education, Religion, Marital status, Residence	Nominal, Ordinal
Socio economic	Source of income, resource mobilization	Nominal, Ordinal
Socio cultural	Women status in the community Socio support systems, beliefs, decision making	Nominal, Ordinal
Health education intervention	Knowledge of danger sign	Ratio
Outcome variable (Categorical)	Utilization or non-utilization of EmONC services	Percentages

3.3 Study Area

The study was conducted at Nakuru County Kenya with an area of 2,325.8 km². The town is located 160 km North West of Nairobi at an altitude of 1859m above the sea level and it is within the region of the Great Rift Valley. It borders Baringo County to the North, Laikipia County to the North East, Nyandarua County to the East, Kajiado County to the South and Bomet County and Kericho County to the West. It has a population of 2,162,202 people (KNBS, 2019). The county has 11 constituencies and 55 electoral wards.

3.4 Target Population

The target population was 11,000 antenatal women aged 15-49 years within the Nakuru (Nakuru County Integrated development plan 2013-2017) and managers of health.

3.5 Study Population

The study population were pregnant mother from 26 to 32 weeks gestation and aged 15-49 years gave Baseline information in regards to uptake of EmONC services. They were two focused group discussions (FGDS)

Pregnant mother 26 to 32 weeks of gestation and aged 15-49 years visiting Antenatal clinic for first visit and meet the selection criteria were enrolled in the study.

3.6 Sampling Procedures

Purposeful sampling method was used to identify Nakuru County because of the high maternal mortality rate. Multistage sampling was used to select the sub county, and ward. Nakuru County has 11 constituencies and 55 electoral wards. Through simple random sampling two constituencies were selected Nakuru North and Molo Then cluster-randomized trial was conducted in the geographically-defined clusters (2

wards Bahati ward and Elburgon ward) which were assigned to either the intervention group (n=10) or the control group (n=10) by computer generated randomization. Allocation to each study group was done on a 1:1 ratio; hence each group had 191 participants. Key informants were purposeful selected.

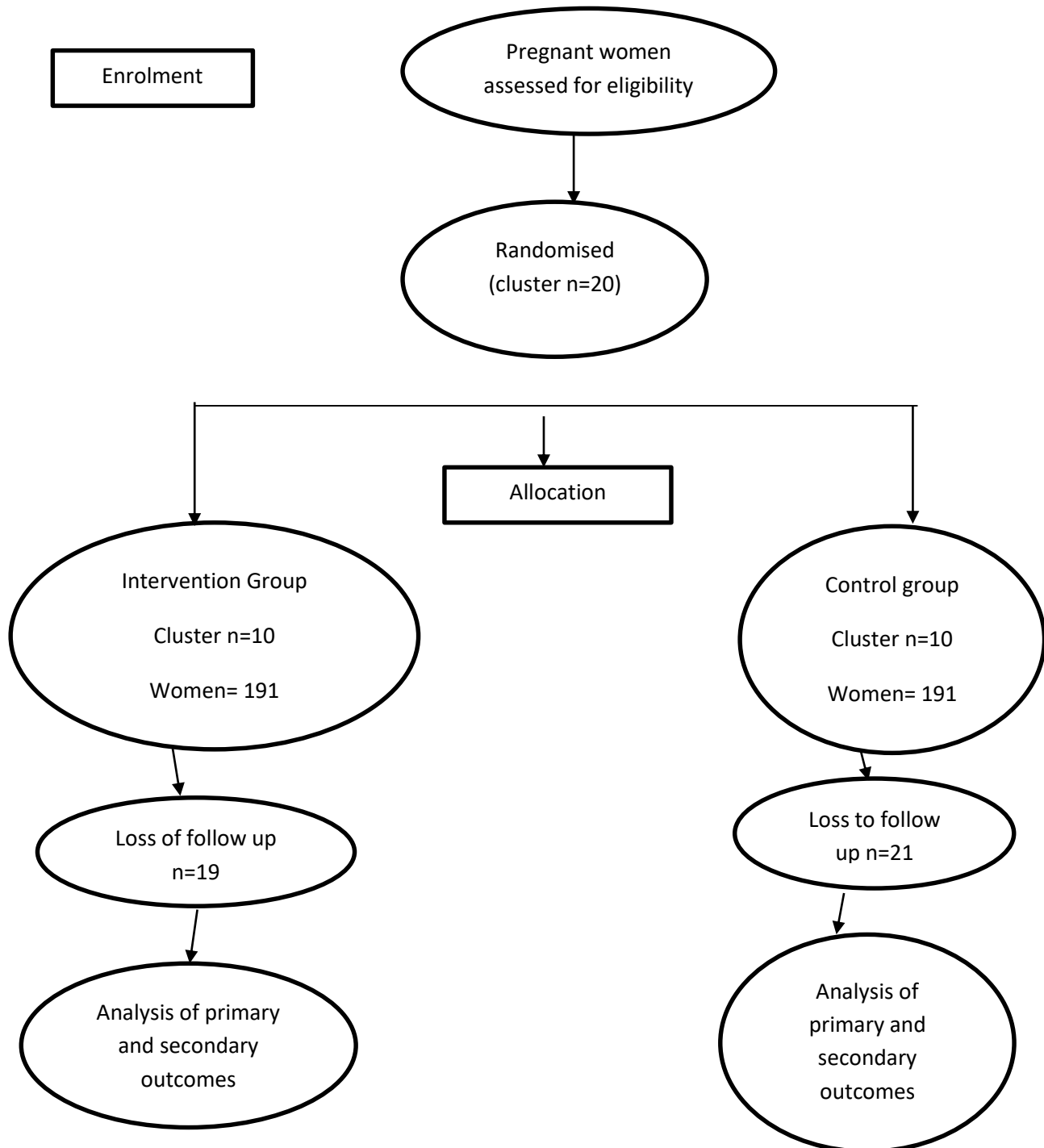


Figure 3.1: Consort flow diagram

3.7 Sample size determination

Kelsey *et al.*, 1996 formula was used for calculation of sample size for randomized controlled trials.

The ingredients in calculation was as follows:

Power (1- β): 80%

Two-sided confidence level: 95%

Proportion of outcome in exposed: 76%

Proportion of outcome in unexposed: 62% (KDHS, 2014)

Effect size: 14%

Formula:

$$n_1 = \frac{(Z_{\alpha/2} + Z_{1-\beta})^2 pq(1-p)(r+1)}{r(p_1 - p_2)^2}$$

Where;

$$n_2 = rn_1$$

n_2 = number of unexposed

r = ratio of unexposed to exposed

n_1 = number of exposed

$Z_{\alpha/2}$ = standard normal deviate for two tailed tests based on alpha level

p_1 = proportion of exposed with outcome

p_2 = proportion of unexposed with outcome;

And where: $p = \frac{p_1 + p_2}{r+1}$ and $q=1-p$

The total sample size was calculated by applying the *open epi software* (Dean *et al.*,2010). To take care of attrition there was a 10% increase thus the sample size was 382 women.

3.8 Inclusion Criteria

Pregnant mothers 26- 32 weeks gestation aged 15-49years from the facilities selected and gave consent to be included in the study. Key informant interviewees were required to have been in the facility for at the minimum of six months.

3.9 Exclusion Criteria

Women who were mentally unstable, those from other counties apart from Nakuru County. KII who were sick during the study period.

3.10 Data collection techniques

Structured questionnaire having undetermined and closed ended questions to gather quantitative data was administered by trained research assistants. The principle investigator and one research assistant verified the recruitment of the respondents. The research assistant were community health volunteers who had experience in advocating for various health issues within the community. The assistants were trained on how to collect data as they fill the questionnaire. The interview took between 20 - 30 minutes. Qualitative data was collected in an audio recorder .The key informant interviewing guide questions were undetermined to allow open answering by respondents. The interview took 20 - 30 minutes. A focused group discussion guide was used to collect base line data from pregnant women. Data was collected in three phases

Phase I

The baseline data was collected from documented guidelines and through focused group discussion among pregnant women 26-32weeks of gestation in each of the two sub-counties hospitals. The focused group discussion guide included probe questions, follow up questions and exit questions in-order to understand issues at a deeper level.

Each FGD took 40 - 60 minutes to discuss the issues and involved eight participants. Homogeneity in the FGDs was taken into account so that the participants could feel comfortable expressing their opinions. Before the interview commence, informed consent was required. Audio recording of the discussion was done and transcribing of the FGDs done immediately the conversation was concluded. Notes were also be taken and observation of verbal and non-verbal cues noted.

For the KII, an outlined interview schedule was used based on literature review which was audio recorded and later transcribed.

Phase II

In this phase the intervention tool was developed and verified by two specialists an obstetrician and a midwife.

The intervention involved a health education intervention package to increase knowledge on importance of utilization of emergency obstetric care. The intervention was implemented in Elburgon Sub County. Early registration of pregnancy, where the health education intervention package was administered.

Table 3.2: Health education intervention package

Danger signs in pregnancy	Danger signs during labour and delivery	Danger signs after delivery
<ul style="list-style-type: none"> Any P.V bleeding(APH, Abortion) Severe headache or blurred vision (BP, eclampsia) Swelling of face, hands(BP,eclampsia) Convulsions /fits (BP, eclampsia) High fever (Infection) Laboured breathing (pneumonia, heart problems, severe anaemia) Premature Labour pains Baby moving less or not moving (Fetal distress, Intrauterine fetal death) <p>Feeling weak or tired (anemia, severe disease, multiple pregnancy)</p> <p>Vaginal discharge (STIs)</p> <p>Abdominal pains (STIs, early labour)</p> <p>Genital ulcers (STIs)</p> <p>Painful urination (STIs)</p> <p>Persistent vomiting (severe malaria e. t. c)</p> <ul style="list-style-type: none"> Balanced diet & hydration Early & exclusive breast feeding 	<ul style="list-style-type: none"> Severe headache or visual disturbance Severe abdominal pains Convulsions /fits during labour High fever with or without chills Excessive bleeding during delivery Fowl vaginal discharge Labour pains for > 12 hours Ruptured membranes without labour for > 12 hours Cord ,arm or leg prolapse <p>Provision of care by skilled attendant</p> <p>Importance of hospital delivery</p> <ul style="list-style-type: none"> How long of a drive it is to the hospital Pain relief availability, including epidurals Comfort of the <u>labor</u> and delivery rooms 	<ul style="list-style-type: none"> Delay Placenta delivery > 30 minutes after birth of baby Post-partum hemorrhage Pain on the lower abdominal Seizures Fever with or without chills Bad scented vaginal discharge Mood swings (depression) <p>Individual Birth plan</p> <p>The researcher discuss on the components of birth plan</p> <ul style="list-style-type: none"> Place of birth Skilled attendant Transport Funds Companion at birth Requirement for safe delivery Understanding of the signs of danger Choice maker Emergency funds Emergency transport Blood donor <p>Discuss birth partner/companion</p>

<ul style="list-style-type: none">• Management of RTIs & helminths infestation• Avoidance of alcohol & tobacco• Plan for childbirth (IBP)• Complication readiness <p>To visit targeted postnatal Check ups Visit immunization clinic Follow up exposed baby to TB or HIV To decide on contraception Complementary Feeding</p>	<ul style="list-style-type: none">• Access to trained and competent staff in case of obstetric emergencies• Presence of a NICU in emergency situations• Breastfeeding support•	Danger signs of newborn <ul style="list-style-type: none">• Inability to feed, or stopped feeding well• convulsion or fit after birth• Rapid breaths (> 60 breaths per minute)• chest in drawing• High Temperature(>37.5°C)
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Phase III

This was the recruitment stage and intervention phase which depended on the group the participants was randomly selected.

Elburgon and Bahati ward were selected. Data was collected in one control and one experimental sub county hospital with same characteristics. Any spill-over effects of the intervention was reduced by making sure the control sub county was not neighboring to intervention Sub County.

A baseline study was carried out between late January and May 2020 in both areas to check on the current use of EmONC services, knowledge when pre-natal care should commence and of obstetric danger signs.

The intervention package was then administered in the experimental group and a post assessment was done 42days after delivery as the mothers brought their children to the child welfare clinic.

Phase I and phase II took at most two month and due to the corona epidemic phase III took four months i.e. Data collection period took ten weeks during the duration of pregnancy and 42 days post-delivery.

3.11 Pre-test

Pretesting an instrument is done to gauge the content, format, wording, and arrangement of the tools, and to recognize and remove any sources of confusion, ambiguity, or bias that may affect the responses. A pre-test was conducted at Kuresoi North ward where 10% of the questionnaires were used. A total of 39 questionnaires were used. It checked constancy and suitability of the questionnaire in gathering

required data, establishing estimated time necessary in the administering the tools and modifying it as was applicable.

3.12 Validity

Validity is measure to show the extent that findings precisely shed light and are incorporated to the public (Tazuddin, 2021). It takes into account the integrity of study findings. To ensure validity, participants had to meet the required criteria, that is, pregnant women aged 15-49years 26-32weeks of gestation and women 42 days post-delivery Research assistants were trained on the various instruments. For qualitative data, validity was ensured by use of a well-trained and skilled moderator, triangulation where the research was done from multiple perspectives using several moderators, different locations.

3.13 Reliability

Reliability is the correctness and uniformity of information obtained in a study. An instrument's reliability is the extent to which the findings are in harmony and duplicatable (Mohajan, 2017). Instruments are reliable if duplicate similar outcome. Research assistants were trained on data collection, and close supervision during data collection period. Clear straight forward guidelines were used to ensure their understanding.

3.14 Data analysis and Presentation

Filled questionnaires were inspected for integrality and catalogued. Facts Analysis was done using STATA version 11.2. Study variables were described using summary statistics. Chi-square (χ^2) tests was used to assess the association between variables. Binary logistic regression analysis was also done to control for confounders in the test for associations. The significance level for hypothesis testing was at $p \leq 0.05$. For the

focused group discussion and key informant interviews, a tool was used to track themes that emerge from the interviews. The tool help to identify the relevant contributing factors in the women and help to summarize the theme that emerges from all the qualitative data. The findings have been presented by use of tables and texts. Qualitative data was analysed through thematic content analysis.

3.15 Ethical Consideration

Authority to carry out the study was obtained Kenyatta University graduate school and ethical clearance by research Ethical Review Committee of Kenyatta University, Approval number: KU/ERC/APPROVAL/VOL.1/1 (Appendix VIII). Research permit was obtained from National commission for Science and Technology, Reference number: 262400 (Appendix XIII). Before commencing the study, informed consent was obtained (Appendix III). Measures were taken to ensure privacy and confidentiality of participants.

CHAPTER FOUR

RESULTS

4.1 Introduction

Mother and baby's health is censorious due to high child and mother mortality rates thus the uptake of emergency obstetric and newborn services is paramount to saving their life.

4.2 Response Rate

In the baseline survey, 382 women aged 15-49 years were surveyed, 191 in control and 191 in experimental group. After the intervention, Table 4.1 indicate that 172 respondents the experiment group (Elburgon) and 170 women in the control group (Bahati) participated in final survey.

Table 4.1: Response Rate

Wave	Experimental Group	Control Group	Total
Baseline Survey	191	191	382
Final Survey	172	170	342

4.3 Proportion of women utilizing EmONC Services

Of the study respondents that had given birth majority utilized EmONC services in both control and intervention site. During the baseline there were 72% (n=116) in the control group and 73% (n=113) utilized .In the final survey 75% (n=128) in the control group and 95.93% (n=165) in the Intervention group utilized EmONC services.

Table 4.2: Proportion utilizing EmONC Services

Proportion utilizing EmONC services			
	Utilized	Not utilized	Total
Baseline			
Control Group	116 (72%)	46 (28%)	162 (100%)
Intervention group	113(73%)	41 (27%)	154 (100%)
Final Survey			
Control Group	128 (75%)	42 (25%)	170 (100%)
Intervention Group	165 (96%)	7 (4%)	172 (100%)

4.4 Socio-demographic Factors

4.4.1 Baseline Social demographic factors

Thirty three percent of the respondents at baseline were 25-29 years. Fifty two percent (n=172) had tertiary education, 77% (n=295) were protestants, 84.6% (n=323) were married. Thirty five percent (n=110) of those that had given birth had two children.

This is indicated in table 4.3

Table 4.3: Baseline Socio- demographic factors

	0 (Control Grp N= 191) Freq. (%)	0 (Intervention Grp N= 191) Freq. (%)	Total
Age in Years of Respondents			
15 -19	5 (2.60)	8 (4.20)	13 (3.40)
20 -24	26 (13.60)	35 (18.40)	61 (16.00)
25 -29	73 (38.20)	55 (28.90)	128 (33.60)
30 -34	51 (26.70)	48 (25.30)	99 (26.00)
35 -39	22 (11.50)	42 (22.10)	64 (16.80)
40 -44	11 (5.80)	1 (0.50)	12 (3.10)
45 -49	3 (1.60)	1 (0.50)	4 (1.00)
Total	191 (100)	190 (100)	381 (100.00)
Education Level			
None	2 (1.00)	3 (1.60)	5 (1.30)
Primary	37 (19.40)	8 (4.20)	45 (11.80)
Secondary	61 (31.90)	98 (51.60)	159 (41.70)
Tertiary	91 (47.60)	81 (42.60)	172 (45.10)
Total	191 (100)	190 (100.00)	381 (100)
Religion			
Catholic	26 (13.60)	22 (11.60)	48 (12.60)
Protestant	146 (76.40)	149 (78.40)	295 (77.40)
SDA	19 (9.90)	19 (10.00)	38 (10.00)
Total	191 (100)	190 (100)	381 (100)
Marital status			
Married	162 (84.80)	161 (84.30)	323 (84.60)
Single	27 (14.10)	27 (14.10)	54 (14.10)
Divorced	2 (1.00)	3 (1.60)	5 (1.30)
Total	191 (100)	191 (100)	382 (100)
Number of children			
1	55 (34.00)	46 (30.30)	101 (32.20)
2	62 (38.30)	48 (31.60)	110 (35.00)
3	29 (17.90)	27 (17.80)	56 (17.80)
4	10 (6.20)	22 (14.50)	32 (10.20)
5	6 (3.70)	6 (3.90)	12 (3.80)
6	0 (0.00)	1(0.70)	1 (0.30)
7	0 (0.00)	1 (0.70)	1 (0.30)
8	0 (0.00)	1 (0.70)	1 (0.30)
Total	162 (100)	152 (100)	314 (100)

4.4.2 Final Survey on Socio-demographic factors

Thirty three point two six percent of the women interviewed in both groups were between age 25 and 29 followed by ages 30-34 and 35-39. Forty nine point four percent (n=169) of the respondents had tertiary education while 41.25% (n=141). Majority 73.1% (n=250) were protestant. Most of the women were married 84.21% (n=288) while 14.04% were single. Thirty two point four six percent (n=111) had one child while 28.65% (n=98) had two children, only 1% (n=4) had six children. This is illustrated in table 4.4 below.

Table 4.4: Final Survey Socio demographic Factors

Age in Years of Respondents	0 (Control Grp N=170) Freq. (%)		1 (Intervention Grp N=172) Freq. (%)	Total
15-19	5 (2.94)		0 (0)	5 (1.46)
20-24	30 (17.65)		20 (11.63)	50 (14.62)
25-29	51 (30)		73 (42.44)	124 (36.26)
30-34	40 (23.53)		37 (21.51)	77 (22.51)
35-39	30 (17.65)		33 (19.19)	63 (18.42)
40-44	10 (5.88)		8 (4.65)	18 (5.26)
45-49	4 (2.35)		1 (0.58)	5 (1.46)
Total	170 (100)		172 (100)	342 (100)
Level of Education	0		1	
None	3 (1.76)		2 (1.16)	5 (1.46)
Primary	25 (14.71)		2 (1.16)	27 (7.89)
Secondary	52 (30.59)		89 (51.74)	141 (41.23)
Tertiary	90 (52.94)		79 (45.93)	169 (49.42)
Total	170 (100)		172 (100)	342 (100)
Religion	0		1	
Catholic	26 (15.29)		11 (6.4)	37 (10.82)
Other	2 (1.18)		18 (10.47)	20 (5.84)
Protestant Seventh Day Adventist	129 (75.88)		121 (70.35)	250 (73.1)
Total	170 (100)		172 (100)	342 (100)
Marital Status	0		1	
Divorced	2 (1.17)		2 (1.17)	4 (1.17)
Married	149 (89.65)	139	139 (80.81)	288 (84.21)
Single	19 (11.18)		29 (16.85)	48 (14.04)
Widowed		0	2 (1.17)	2 (0.58)
Total	170 (100)		172 (100)	342 (100)
Number of children	0		1	
1	60 (35.29)		51 (29.65)	111 (32.46)
2	55 (32.35)		43 (25.00)	98 (28.65)
3	33 (19.41)		39 (22.67)	72 (21.05)
4	11 (6.47)		19 (11.05)	30 (8.77)
5	8 (4.71)		17 (9.88)	25 (7.31)
6	3 (1.76)		1 (0.58)	4 (1.17)
7	0		1 (0.58)	1 (0.29)
9	0		1 (0.58)	1 (0.29)
Total	170 (100)		172 (100)	342 (100)

4.5 Socioeconomic factors

4.5.1 Baseline socioeconomic factors

Forty four percent (n=169) of the respondents were house wives, 46.9% (n=179) were unemployed and 70.4 % (n=269) the main source of income was support from the husband.

Table 4.5: Baseline socioeconomic factors

	0 (Control Grp N= 191) Freq. (%)	0 (Intervention Grp N= 191) Freq. (%)	Total
Occupation			
House wife	97 (50.80)	72 (37.90)	169 (44.40)
Farmer	25 (13.10)	44 (23.20)	69 (18.10)
Business	17 (8.90)	34 (17.90)	51 (13.40)
Others	44 (23.00)	30 (15.80)	74 (19.40)
Casual worker	3 (1.60)	4 (2.10)	7 (1.80)
Student	5 (2.60)	6 (3.20)	11 (2.90)
Total	191 (100)	190 (100.00)	381 (100)
Employment status			
Unemployed	99 (51.80)	80 (41.90)	179 (46.90)
Employed	16 (8.40)	11 (5.80)	27 (7.10)
Self Employed	67 (35.10)	88 (46.10)	155 (40.60)
Out of work	3 (1.60)	4 (2.10)	7 (1.80)
Retired	6 (3.100)	8 (4.20)	14(3.70)
Total	191 (100)	191 (100)	382 (100)
Major Source of Income			
Support from Husband	136 (71.20)	133 (69.60)	269 (70.40)
Wages	9 (4.70)	10 (5.20)	19 (5.00)
Salary	11 (5.80)	14 (7.30)	25 (6.50)
Self-earnings	34 (17.80)	30 (15.70)	64 (16.80)
Support from Parents	1 (0.50)	4 (2.10)	5 (1.30)
Total	191 (100)	191 (100)	382 (100)
Resource mobilization			
Support from family/ husband	106 (55.50)	89 (46.60)	195 (51.00)
Support from friends / well wishers	9 (4.70)	8 (4.20)	17 (4.50)
Savings	67 (35.10)	61 (31.90)	128 (33.50)
Other sources	9 (4.70)	33 (17.30)	42 (11.00)
Total	191 (100)	191 (100)	382 (100)

4.5.2 Final Survey Socioeconomic factors

The results show that majority of the women 52.63% (n=180) in experimental and control groups are housewives with percentage scores of 54.65% (n=92) and 50.59% (n=86) respectively. This is followed by those who are farmers with percent scores of 19.19 % (n=33) and 12.35% (n=21) for experimental and control group respectively. Fifty percent (n=85) and 59.3% (n=102) were unemployed while 27.65% (n=47) and 29.07% (n=50) were self-employed in both control and experimental groups respectively. The major source of income for both groups was the husband at 60% (n=102) for control group and 64.53% (n=111) for the experimental group as shown in table 4.6.

Table 4.6: Final Survey Socioeconomic factors

Socio economic Factors			
	0 (Control Grp N=170)	1 (Intervention Grp N=172)	Total
Occupation	Freq. (%)	Freq. (%)	
Businessperson	21 (12.35)	23 (13.37)	44 (12.87)
Casual work	12 (7.06)	10 (5.81)	22 (6.43)
Farmer	21 (12.35)	33 (19.19)	54 (15.79)
Housewife	86 (50.59)	94 (54.65)	180 (52.63)
Other	30 (17.65)	7 (4.07)	37 (10.82)
Student	0	5 (2.91)	5 (1.46)
Total	170 (100)	172 (100)	342 (100)
Employment status			
	0	1	
Employed	27 (15.89)	17 (9.89)	44 (12.87)
Out of work	2 (1.18)	1 (0.58)	3 (0.88)
Retired	9 (5.29)	2 (1.16)	11 (3.22)
Self employed	47 (27.65)	50 (29.07)	97 (28.36)
Unemployed	85 (50.00)	102 (59.30)	187 (54.68)
Total	170 (100)	172 (100)	342 (100)
Major source of Income			
	0	1	
Donations	14 (8.24)	6 (3.49)	20 (5.85)
Salary	11(6.47)	11 (6.40)	22 (6.43)
Self-earnings	30 (17.65)	28 (16.28)	58 (16.96)
Support from husband	102 (60.00)	111 (64.53)	213 (62.28)
Support from parents		0 4 (2.33)	4 (1.17)
Wages	13 (7.65)	12 (6.97)	25 (7.31)
Total	170 (100)	172 (100)	342 (100)
Resource mobilization			
	0	1	
Loans	3 (1.76)	27 (15.7)	30 (8.77)
Other resources	10 (5.88)	11 (6.4)	21 (6.14)
Savings	24 (14.12)	118 (68.6)	142 (41.52)
Support from family	128 (75.29)	10 (5.81)	138 (40.36)
Support from friends	5 (2.94)	6 (3.49)	11 (3.21)
Total	170 (100)	172 (100)	342 (100)

4.6 Socio-cultural factors

4.6.1 Base line socio cultural factors

Majority of the respondents 71.1% (n=271) acknowledged that women were valued in the community, 77.2% (n=295) did not have any food taboos, 89.5% did not have any beliefs related to pregnancy, 42.9% (n=163) the husband was the main decision maker while 57.6% (n=220) the parent was the alternative decision maker as displayed in Table 4.7.

Table 4.7: Baseline Sociocultural factors

	0 (Control Grp N= 191) Freq. (%)	0 (Intervention Grp N= 191) Freq. (%)	Total
Women status in community			
Don't status	50 (26.20)	21 (11.10)	71 (18.60)
Prioritized	13 (6.80)	5 (2.60)	18 (4.70)
Respected	9 (4.70)	4 (2.10)	13 (3.40)
Valued	118 (61.80)	153 (80.50)	271 (71.10)
Not recognized	1 (0.50)	7 (3.70)	8 (2.10)
Total	191 (100)	190 (100)	381 (100)
Food taboos			
None	165 (86.40)	130 (68.10)	295 (77.20)
Don't Know	11 (5.80)	24 (12.60)	35 (9.20)
Bananas are not taken in pregnancy	0 (0.00)	1 (0.50)	1 (0.30)
Avoid eggs during pregnancy	15 (7.90)	36 (18.80)	51 (13.40)
Total	191 (100)	191 (100)	382 (100)
Beliefs related to Pregnancy			
NONE	173 (90.60)	169 (88.50)	342 (89.50)
I don't know	18 (9.40)	22 (11.50)	40 (10.50)
Total	191 (100)	191 (100)	382 (100)
Main Decision Maker			
Husband	92 (48.20)	71 (37.20)	163 (42.70)
Self	67 (35.10)	59 (30.90)	126 (33.00)
Both	12 (6.30)	21 (11.00)	33 (8.60)
Parents	20 (10.50)	40 (20.90)	60 (15.70)
Total	191 (100)	191 (100)	382 (100)
Alternative decision maker			
Friend	4 (2.10)	16 (8.40)	20 (5.20)
Relative	11 (5.80)	14 (7.30)	25 (6.50)
Husband	14 (7.30)	12 (6.30)	26 (6.80)
Neighbor	25 (13.10)	66 (34.60)	91 (23.80)
Parent	137 (71.70)	83 (43.50)	220 (57.60)
Total	191 (100)	191 (100)	382 (100)
Alt help in the community			
TBA	23 (12.00)	12 (6.30)	35 (9.20)
Mother In-law	53 (27.70)	33 (17.40)	86 (22.60)
Husband	44 (23.00)	75 (39.50)	119 (31.20)
Relatives	50 (26.20)	54 (28.40)	104 (27.30)
CHVs	21 (11.00)	16 (8.40)	37 (9.70)
Total	191 (100)	190 (100.00)	381 (100)

4.6.2 Final survey socio cultural factors

From the study findings the main decision maker was the husband at 45.32% (n=155) followed by the woman herself at 42.98% (n=147). Sixty one point four percent of the respondents (n=210) stated that the parents were the alternative decision maker. The relatives were the alternative help in the community at 37.72% (n=129) followed by mother in law at 27.19% (n=93) as illustrated in table 4.8.

Table 4.8: Final Survey Socio-cultural factors

	Socio cultural Factors		Total
	0 (Control Grp N=170)	1 (Intervention Grp N=172)	
Women status in community			
I don't know	30 (17.65)	3 (1.74)	33 (9.65)
Prioritized	15 (8.82)	8 (4.65)	23 (6.73)
Respected	17 (10)	3 (1.74)	20 (5.87)
Valued	108 (63.53)	158 (91.86)	266(77.78)
Total	170 (100)	172 (100)	342 (100)
Food taboos	0	1	
Bananas should be avoided in Pregnancy	0	3 (1.74)	3 (0.88)
I don't know	4 (2.35)	8 (4.65)	12 (3.51)
No food taboos	154 (90.59)	147 (85.47)	301 (88.01)
Pregnant women should not take eggs	12 (7.06)	14 (8.14)	26 (7.70)
Total	170 (100)	172 (100)	342 (100)
Beliefs related to Pregnancy	0	1	
I don't know	9 (5.29)	8 (4.65)	17 (4.97)
No beliefs	161 (94.71)	164 (95.35)	325 (95.03)
Total	170 (100)	172 (100)	342 (100)
Main Decision maker	0	1	
Both husband and wife	15 (8.82)	8 (4.65)	23 (6.73)
Husband	122(71.76)	33 (19.19)	155(45.32)
Myself(mother)	22 (12.94)	125 (72.67)	147(42.98)
Parent(s)	11 (6.47)	6 (3.49)	17 (4.97)
Total	170 (100)	172 (100)	342 (100)
Alternative decision maker	0	1	
A friend	3 (1.76)	9 (5.23)	12 (3.51)
A relative	9 (5.29)	24 (13.95)	33 (9.65)
Husband	3 (1.76)	6 (3.49)	9 (2.63)
Neighbor	16 (9.41)	62 (36.05)	78 (22.81)
Parents - mother or f	139 (81.77)	71 (41.28)	210(61.40)
Total	170 (100)	172 (100)	342 (100)
Alt help in the community	0		1
Community health volunteer	22 (12.94)	18 (10.47)	40 (11.7)
Husband	21 (12.35)	22 (12.79)	43 (12.57)
Mother-in-law	77 (45.29)	16 (9.30)	93 (27.19)
Relatives	45 (26.47)	84 (48.84)	129(37.72)
Traditional Birth Attendant	5 (2.94)	32 (18.60)	37 (10.82)
Total	170 (100)	172 (100)	342(100)

On the qualitative data the key informant reported that:

“In most of the families, the husband is the main decision maker and that majority of the community members had no taboos in relation to pregnancy the few women from some communities believed eggs were not good during pregnancy because they would result to a big baby necessitating a caesarian section for the mother”.

4.7 Factors associated with Utilization of EmONC Services

From the findings, there was no significant discrepancy between the control group and the intervention group at the baseline level as shown below.

Table 4.9: Baseline characteristics and Utilization of EmONC Services

	Baseline utilization			χ^2	Df	P-value	OR	95%CI	
	Utilized	Not Utilized	Total					Lower	Upper
Intervention (Elburgon)	113 (73%)	41(27%)	154(100%)						
Control (Bahati)	116 (72%)	46(28%)	162(100%)	0.124	1	0.725	1.093	0.667	1.792
Total	229(72.5%)	87(27.5%)	316(100%)						

4.8 Socio demographic factors influencing utilization of EmONC Services

4.8.1 Baseline sociodemographic factors

From the study findings the level of education was significant at χ^2 40.402, and p value <0.001. Parity was significant at χ^2 43.724 and a p value of <0.001. Table 4.10 demonstrates that.

Table 4.10: Baseline Socio demographic factors associated with utilization

		Utilization of EmONC Services			χ^2 /Fishers'		P-
		Did not utilize	Utilized	Total	Exact	Df	value
Age category	15 - 19	2	2	4			
	20-24	6	32	38			
	25-29	20	87	107			
	30-34	32	63	95	15.445		0.011
	35-39	22	33	55			
	40-44	4	8	12			
	45-49	0	4	4			
Marital status	Married	82	200	282			
	Single	4	25	29	3.145		0.185
	Divorced	1	4	5			
Level of education	None	3	1	4			
	Primary	23	19	42			
	Secondary	45	91	136	40.402		<0.001
	Tertiary	15	118	133			
Religion	Catholic	9	26	35			
	Protestant	64	175	239	0.478	2	0.787
	SDA	13	28	41			
Parity	1	10	91	101			
	2	28	82	110			
	3	23	33	56			
	4	18	14	32	43.724		<0.001
	5	5	7	12			
	6	1	0	1			
	7	1	0	1			
	8	1	0	1			

4.8.2 Socio demographic factors associated with EmONC services utilization

Final Survey

From the study findings various variables were significant. Utilization of EmONC services was significant at χ^2 29.6 and a p value of 0.000, level of education was significant at χ^2 8.61 a p value of 0.035 and parity was also significant at χ^2 18.53 and p-value of 0.010.

Table 4.11: Socio-demographic factors Final survey

		EmONC Service utilization			
		Utilized	Not utilized	χ^2	p-value
Participant's Sub-county	Bahati	128	42	29.6	0.000*
	Elburgon	165	7		
Age category	15-19	3	2	10.09	0.121
	20-24	47	3		
	25-29	110	124		
	30-34	61	16		
	35-39	54	9		
	40-44	14	4		
	45-49	4	1		
Marital Status	Married	242	46	4.18	0.242
	Divorced	4	0		
	Single	45	0		
	Widowed	2	42		
Level of Education	None	3	2	8.61	0.035*
	Primary	19	8		
	Secondary	123	18		
	Tertiary	148	21		
Religion	Catholic	33	4	6.26	0.18
	Protestant	229	41		
	Seventh Day Adventist	31	4		
Parity(# of Children)	1	103	8	18.53	0.010*
	2	88	10		
	3	57	15		
	4	22	8		
	5	19	6		
	6	2	2		
	7	2	0		
	8	2	0		
	9	2	0		

4.9 Sociodemographic Binary logistic Regression

Secondary education influences utilization of EmONC services at AOR 8.791 95% CI 3.631 TO 21.285 and a P-value <0.001. Mothers educated at secondary level had eight times probability to utilize EmONC services as compared to those with no education. Respondents above high school education had two point five times probability to utilize EmONC services. This is shown in table 4.12.

Table 4.12: Multivariate regression to adjust odds ratio on factors influencing EmONC Service utilization

	B	S.E.	Wald	df	P-value	AOR	95% C.I. for EXP(B)	
							Lower	Upper
Age category			0.813	6	0.992			
15 - 19	21.189	18255.64	0	1	0.999	1.59E+09	0	.
20 - 24	20.107	18255.64	0	1	0.999	5.4E+08	0	.
25 - 29	20.302	18255.64	0	1	0.999	6.56E+08	0	.
30 - 34	20.343	18255.64	0	1	0.999	6.83E+08	0	.
35 - 39	20.328	18255.64	0	1	0.999	6.73E+08	0	.
40 - 44	20.344	18255.64	0	1	0.999	6.84E+08	0	.
45 - 49	Reference							
Level of education			24.724	3	0			
Primary	2.816	1.725	2.665	1	0.103	16.718	0.568	491.719
Secondary	2.174	0.451	23.215	1	<0.001	8.791	3.631	21.285
Tertiary	0.919	0.366	6.282	1	0.012	2.506	1.222	5.139
None	Reference							
Parity	0.736	0.155	22.434	1	0	2.087	1.539	2.829
Major source of Income			15.33	4	0.004			
Support from Husband	0.395	1.352	0.086	1	0.77	1.485	0.105	21.001
Wages	-2.132	1.724	1.53	1	0.216	0.119	0.004	3.478
Salary	-1.775	1.569	1.28	1	0.258	0.169	0.008	3.669
Self-earnings	-0.717	1.406	0.26	1	0.61	0.488	0.031	7.676
Support from Parents	Reference							
Constant	-23.926	18255.64	0	1	0.999	0		

4.9.1 Socio-economic factors associated with EmONC Utilization at Base line

None of the socioeconomic factors had association with utilization of EmONC services

Table 4.13: Base line socioeconomic factors and utilization of EmONC Services

		Utilization of EmONC			χ^2 /Fishers	Df	P-value
		Did not utilize	Utilized				
Occupation	House wife	46	95	141			
	Farmer	22	43	65			
	Business	6	34	40			
	Others	12	48	60	9.479		0.074
	Casual worker	0	5	5			
	Student	1	4	5			
Employment status	Unemployed	45	101	146			
	Employed	3	17	20			
	Self Employed	34	101	135	3.602		0.475
	Out of work	0	1	1			
	Retired	5	9	14			
Major source of Income	Support from Husband	73	152	225			
	Wages	2	11	13			
	Salary	2	19	21	10.438		0.025
	Self-earnings	9	45	54			
	Support from Parents	1	2	3			
Resource mobilization	Support from family/ husband	41	123	164			
	Support from friends / well wishers	2	9	11			
	Savings	30	81	111	6.528	3	0.085
	Other sources	14	16	30			

4.9.2 Socio- economic factors associated with EmONC utilization

From the final survey study findings on the socio economic factors resource mobilization was significant at χ^2 18.47 and a p value of 0.010. Table 4.14 illustrates that.

Table 4.14: Final survey socio- economic factors associated with EmONC utilization

		EmONC Service Utilization		χ^2	p-value
		Utilized	Not utilized		
Participant's Sub-county	Bahati	128	42	29.6	0.000*
	Elburgon	165	7		
Occupation	Business	39	5	4.216	0.519
	Casual Work	20	2		
	Farmer	48	6		
	House wife	148	32		
	Other	33	4		
	Student	5	0		
Employment status	Employed	39	5	4.365	0.359
	Out of work	3	0		
	Retired	8	3		
	Self employed	87	10		
	Unemployed	156	31		
Major Source of Income	Donations	19	3	4.897	0.557
	Salary	20	2		
	Self-earnings	55	5		
	Support from Husband	169	36		
	Support from parents	7	1		
	Wages	23	2		
Resource mobilization	Loans	26	4	18.479	0.010*
	Other sources	19	2		
	Savings	133	9		
	Support from family	106	32		
	Support from friends	9	2		

**4.10 Socio-cultural factors influencing utilization of EmONC services at
Baseline**

4.10.1 Baseline Socio-cultural factors influencing utilization of EmONC services

None of the sociocultural factors showed a significant association with utilization of EmONC services as shown in table 4.15.

Table 4.15: Socio-cultural factors influencing utilization of EmONC services at Baseline

		Utilization of EmONC		Total	χ^2 /Fishers	Df	P- value
		Did not utilize	Utilized				
Women status	Don't know	10	48	58	5.682	1	0.206
	Prioritized	2	11	13			
	Respected	3	7	10			
	Valued	71	157	228			
	Not recognized	1	5	6			
Food taboos	None	73	177	250	1.753	1	0.676
	Don't Know	5	19	24			
	Bananas not taken in pregnancy	0	1	1			
	Avoid eggs during pregnancy	9	32	41			
Beliefs related to pregnancy	None	81	205	286	0.942	1	0.396
	I don't know	6	24	30			
Main decision maker	Husband	35	109	144	2.343	3	0.504
	Self	34	71	105			
	Both	7	23	30			
	Parents	11	26	37			
Alternative decision Maker	Friend	5	10	15	1.544	4	0.819
	Relative	4	18	22			
	Husband	5	16	21			
	Neighbor	24	57	81			
	Parent	49	128	177			
Alternative Help in the community	TBA	10	25	35	1.529	4	0.821
	Mother In-law	14	48	62			
	Husband	31	74	105			
	Relatives	25	58	83			
	CHVs	7	23	30			

4.10.2 Socio- cultural factors associated with EmONC services utilization

On the sociocultural factors the women status was significant at χ^2 9.02 and a p value of 0.029, the main decision maker at χ^2 12.94 and a p value of 0.005 and alternative help in the community at χ^2 20.51 and a p value of 0.000 as depicted by table 4.16.

Table 4.16: Final survey Socio- cultural factors associated with EmONC services utilization

		EmONC Services		χ^2	P-value
		Utilized	Not utilized		
Participant's Sub-county	Bahati	128	42	29.6	0.000*
	Elburgon	165	7		
Women status	Don't Know	25	8	9.028	0.029*
	Prioritized	22	1		
	Respected	14	6		
	Valued	232	49		
Food taboos	Don't know	11	1	3.951	0.413
	Bananas not taken in pregnancy	3	0		
	None	254	47		
	Proteins(Avoid eggs)	35	1		
Beliefs related to Pregnancy	None	277	48	1.0394	0.308
	Do not know	16	1		
Main decision maker	Both husband & Wife	18	5	12.941	0.005*
	Husband	123	32		
	Self (woman)	137	10		
	Parents	15	2		
Alternative decision maker	A friend	11	1	10.685	0.058
	A relative	30	3		
	Husband	9	0		
	Neighbor	73	5		
	Parents	170	40		
Alternative help in Community	CHVs	37	3	20.515	0.000*
	Husband	37	6		
	Mother in law	67	26		
	Relatives	119	10		
	TBAs	33	4		

4.11 Chi square test for goodness fit Control Group

There was no significance difference in the control group from base line to final survey OR 1.209, CI 0.742 to 1.969 and P-value 0.446. Table 4.17 illustrates that.

Table 4.17: Chi square test for goodness fit Control Group

	Control Group (Bahati) Utilization		Total	χ^2	Df	P- value	OR	95% CI	
	Utilized	Not Utilized						Lower	Upper
Baseline	116 (72%)	46(28%)	162(100%)	0.58	1	0.446	1.209	0.742	1.969
Final Survey	128 (75%)	42(25%)	170(100%)						
Total	244	88	332						

4.12 Chi square test for goodness fit Intervention Group

There was a statistical significance in utilization of EmONC services among the Intervention group when we compare the baseline and final survey. After administration of the Health Education intervention package, the respondents were eight times likely to utilize the services at OR 8.552, 95% CI 3.705 TO 19.742, P-value <0.001. Table 4.18 shows that.

Table 4.18: Intervention group comparison

Intervention Group (ELBURGON) utilization									
	Utilization		Total	χ^2	Df	P- value	OR	95%CI	
	Utilized	Not Utilized						Lower	Upper
Baseline	113(73%)	41(27%)	154(100%)	32.916	1	<0.001	8.552	3.705	19.742
Final survey	165(96%)	7(4%)	172(100%)						
Total	278(85%)	48(15%)	326(100%)						

4.13 Chi square Test for Independence

From the study findings the chances of EmONC services utilization after intervention was high. Those that received the intervention were seven times likely to utilize than

those that did not receive the health education with an OR 7.734, 95% CI 3.363 to 17.787 and a P-value < 0.001 when we compare the intervention group and the control group. Shown in Table 4.19 below.

Table 4.19: End term utilization for both groups

	End term utilization			χ^2	Df	P-value	OR	95%CI	
	Utilized	Not Utilized	Total					Lower	Upper
Control (Bahati)	128(75%)	42(25%)	170(100%)	29.662	1	<0.001	7.734	3.363	17.787
Intervention (Elburgon)	165(96%)	7 (4%)	172(100%)						
Total	293(86%)	49(14%)	342(100%)						

4.14 Health Education intervention package aspects influencing utilization of EmONC Services

From the study findings, the knowledge on individual birth plan influenced uptake of utilization of EmONC service at χ^2 18.675 and a p-value of 0.002. Knowledge of the respondents of the components of a birth plan was significant at χ^2 19.512 and a p-value of 0.000. The knowledge on the danger signs and how to tell the health problem becoming worse was significant at χ^2 11.201 and p-value 0.011. This is in Table 4.20.

Table 4.20 Health intervention package associated with utilization of EmONC Services

		EmONC Service Utilization		χ^2	p-value
		Utilized	Not Utilized		
Participant's Sub-county	Bahati	128	42	29.6	0.000*
	Elburgon	165	7		
Knowledge on IBP	Baby mother package	4	1	18.675	0.002*
	Finances	86	11		
	I do not know	106	32		
	Identifying a hospital	16	0		
	Transport issues	3	1		
	Plan on how to give birth	78	4		
Components of a birth plan	Finances	11	4	19.512	0.000*
	I do not know	106	32		
	Package & others	169	13		
	Transport	7	0		
Pt treatment at the HF	Privacy	71	10		
	Kindness & empathy	136	25		
	Appropriate information provided	23	3		
	Respected	63	11		
Perception of HCW	Good	253	45	1.197	0.55
	Not heard	39	4		
	Rude	1	0		

How to obtain money	Fund raising	45	12	18.225	0.001*
	Health insurance	64	20		
	loans	43	7		
	savings	60	8		
	Support from friends/well wishers	81	2		
HF visit cost	Transport Cost	160	14	12.656	0.005*
	Personal Effects	38	9		
	I do not know	49	16		
	Hospital bills	46	10		
How to know a problem is worse	Cannot recognize	27	7	11.201	0.011*
	Mother looks weak	187	35		
	Mother complains LP	79	6		
Perception of HF improvement	No	9	1	9.896	0.019*
	Not sure	17	9		
	Relatively	3	0		
	Yes	264	39		
Perception on equip of the HF	Do not Know	71	9	26.53	0.000*
	No	44	5		
	Yes	178	35		

Qualitative discussions with the women revealed that most women did not know about the individual birth plan and the components of a birth plan. For instance one woman said that:

“I have never heard of that plan, I only know about family planning”

Another mother said

“Some pregnant women suffer in their houses for lack of someone to help and even others, especially the young mothers cannot tell the danger signs of pregnancy”

The key informant reported that

“Sometimes due to the shortage of nurses and heavy workload , it may not be possible to individualize care to the mothers by administering focused health education for the mother in the antenatal care because the more time you spend on the client the more the queue grows and the mothers begin to be impatient.”

Another informant reported that

“If the nurse on duty wants to have a break and be able to finish serving the mothers in the queue, then they need to be very fast at attending to the clients. In that regards they will only focus on the abdominal palpation without health educating the mothers to save on time since the saying work not documented is work not done is applied in all the situations, the nurse will document on the register that the various aspects of focused antenatal care are done when in actual sense they were never done”.

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 DISCUSSION

5.1.1 Proportion Utilizing EmNOC Services among women of Reproductive Age

There is a 23% increase in women utilizing EmONC services in the intervention group from 73% to 96% in the final survey. This agrees with the Kenya Demographic Health Survey (2022) that revealed that 82% of live births and still births occurred at a hospital. It also supports a study in India where skilled birth attendance was at 72.7% while 27.3% were home deliveries (Pinjari V, Rakshase B, Ashish P., 2023). The study contrasts a study in the Western region of Kenya by Ikamari (2020) that revealed 54% utilized EmONC services. It is in contrast with a study in India by Paul, Pintu & Chouhan, and Pradip. (2020) where only 52% utilized EmONC services.

Generally, the rise in numbers of mothers utilizing EmONC services in the experimental group can be attributed to the health education intervention package. Health Education has been proved to be an important aspect in utilization of maternal services as it helps in the creation of awareness of various health aspects thus leading to mother making informed decisions to improve their wellness.

Qualitative interviews revealed that the health facilities were always the first point of health care whenever they mothers required urgent attention. Various barriers to attending EmONC were noted such as poor conditions of roads and financial constraints and means of transport.

5.1.2 Socio demographic Factors Influencing uptake of EmONC

Thirty six percent of the respondents were between 25-29 years and there was no significant difference in respondent's ages. This concurs with a study in Tanzania by Masoi 2023 that indicates 72% of respondents were between ages 20-32 years, a study in India that indicated 60% were between ages of 25- 34 years (Pintu & Chouhan, 2020). It also concurs with a study in Eldoret, Kenya that showered no statistical difference in the distribution of respondents (Maritim *et al.*, 2023). It is in contrast with a study where 38% respondents were ages 21-25 years while 36% were above 25 years (Pinjari, Rakshase, Ashish, 2023).

Eighty four percent were married. Majority of mothers (91%) were housewives and only 9% were employed. Majority 77.4% (n=295) and baseline were protestant while 73% (n=250) were protestant. This is contrary to a study on awareness and Uptake of Maternal and Child Health Benefit Schemes Among women in South India where most of the study participants aged 20–30 years (81.2%) and majority were Hindus (89.6%) (Unnikrishnan B, *et al.*, 2020) and a study by Pintu and Chouhan, (2020) where 78.9% of the respondents religion was Hindu, 16.1% Muslims.

About 90% of the respondents were educated. This concurs with a study by Sharma *et al.*, (2020) that indicated majority (51.66%) had a primary education, 25.55% were illiterate and only 3% were found to have graduate degree. It contrast a study where 13% were illiterate, 21% had primary education, 33% secondary education and 28% tertiary education (Pinjari, Rakshase, Ashish, 2023). The level of education was significant at χ^2 40.402 and a p value <0.001. Parity was significant at χ^2 43.724, pvalue <0.001. Mother educated at high school level had 8.791 times probability of

utilizing EmONC services at χ^2 23.215 and p value <0.001 . This contradicts studies in developed countries that showed no influence between educational status and screening services (Chrysostomou *et al.*, 2018). It concurs with a study on the influence of education on health highlights that tertiary education, is a vital aspect in child immunization, death of children below one year critical, life expectancy, and enrollment rates (Raghupathi and Raghupathi, 2020). It agrees with Ikamari (2020) educated women have a 2.04 times probability of utilizing health services. Higher educated women were almost 2 times, 3.6 times and 1.6 times more likely to have ≥ 4 ANC visits, institutional delivery and PNC check-ups, respectively (Pintu & Chouhan, 2020).

Parity influenced uptake of EmONC services at χ^2 43.724, P. value = < 0.001 . This is in line with a study in Ghana by Adjei *et al* 2019 that indicate parity influence uptake of EmONC services. The study is in contrast with a study in Western Kenya by Ikamari (2020) that revealed utilization of ANC services declined with parity. This implies that having given birth has a positive effect on the utilization of emergency obstetric and newborn care services in Elburgon and Bahati. A mother who has given birth before, understands the labour process, the complications that are likely to occur thus is more likely to go to the hospital in case of an emergency.

5.1.3 Socio economic Factors Influencing uptake of EmONC

From the study findings there was no statistical significance between socioeconomic factors and utilization of EmONC services at baseline level. However during the final survey resource mobilization was significant at χ^2 18.47 and a p value of 0.010. This concurs with D.J.McMaughan, (2020) study that showed low SES is associated with reduced access to care and poor health outcomes. Similarly, a study on socioeconomic

determinants of maternal health service uptake revealed that a woman from a rich family had a one point seven chances to commence early prenatal visits (Ikamari, 2022). The more a woman has access to money, the higher chances that she will utilize EmONC services to increase the survival rate of the newborn.

5.1.4 Socio-cultural Factors Influencing uptake of EmONC

Majority of the respondent confirmed that women's status in the community were valued at 71.1% (n= 271) during baseline and 77.7 % (n=266) in the final survey. Majority of the respondents did not have any food taboos at 77.2% (n=295) for the baseline and 88.1% (n=301) in the final survey. From the study findings the main decision maker was the husband at 42.7 % (n=163) during baseline and 45.32% (155) respectively. At the baseline, there was no significant difference between sociocultural factors and utilization of EmONC services. At final survey, women's status was significant at χ^2 9.02 and a p-value of 0.029. The main decision maker at χ^2 12.94 p-value of 0.005. This is probably due to the confounding factors. This study concurs with a study on Maternal decision-making and uptake prevention of mother to child transmission of Human Immunodeficiency virus services where women who participated actively had a 2.00 to 2.89 probability $p < 0.005$ of utilizing the services (Ford CE, *et al.*, 2019).

5.1.5 Health Education intervention package on Uptake of EmONC services

After administration of health intervention package in the experimental group, the mothers that received the health education were seven times more likely to utilize EmONC services at χ^2 29.662 95% CI 3.363 – 17.787, & a p-value < 0.001 . Knowledge of individual birth plan was associated with uptake of EmONC services at χ^2 18.67, a p-value of 0.002, Knowledge of the components of a birth plan was

associated at χ^2 19.512, a p-value of 0.000. This concurs with a study on the role of health education on the uptake of cancer screening by Hirpa *et al.*, (2020). It concurs with a study by Lambert, Wang, Tsai, (2022) that indicated that participants' knowledge toward prenatal risk factors improved after the educational intervention in prenatal diet choices, physical activities, maternal smoking, alcohol use, and excess gestational weight gain ($p = .001$, $p < .001$, $p = .03$, $p = .02$, $p = .03$, respectively). The knowledge of danger signs influenced uptake of the services at χ^2 11.201 & a p-value of 0.011.

Eighty one percent of the respondents from the control group did not have knowledge on the individual birth plan nor the components of the plan while 100% of the respondents in the experimental group were aware on the individual birth plan and the components of the birth plan. Majority of the respondents 47.67% reported the individual birth plan to be a plan by the mother on how they intended to give birth. Majority knew of the danger signs during pregnancy and childbirth. This concurs with a study that revealed the respondents were knowledgeable on danger signs in pregnancy, labour, postnatal and new born neonate 113(26.8%), 47(11.1%), 60(14.2%) and 46 (10.9%), respectively. Sixty four percent of primigravida women were knowledgeable on birth preparedness (Mulugeta, Giru, Berhanu, Demelew, 2020).

Awareness on childbirth challenges was a major issue influencing utilization of EmONC services where various issues influenced the respondents to visit the health facilities 82.5% in control group and 94.1% in the experimental group of the respondents said due to complications of excessive bleeding, while 12% in control and 2.3% in experimental were not sure. This is contrary to a study by Hirpa *et al.*,

(2020) on the role of health education on uptake of cancer of the cervix revealed lack of time and knowhow were the reasons for not getting screened.

On knowledge on the conditions of the health facilities, majority of the respondents, 144(83.72%) in the experiment group argued that health facilities are offering good services and 67(38.95%) who argued that the facilities were well equipped. In the experimental group 30% and control group 28% thought that these facilities have insufficient drugs to deal with their problems and that they are often asked to buy medicine from outside suppliers. Shortage of drugs is a big challenge in most local hospitals especially in developing countries.

The study also reveals that majority of the women in the two regions received quality care while noting that health workers have a positive attitude towards them and their work. It was also established that most women were aware of the challenges associated with pregnancies and delivery. Key complications likely to be experienced by the women during delivery that were mentioned by the women include excessive bleeding, and danger of death for both the mother and the child.

5.2 Conclusions

- i. The number of women who utilized EmONC services increased by 23% when comparing the baseline survey and final survey.
- ii. The education level and parity of the woman determined the uptake of EmONC services.
- iii. On the socio cultural factors women status, main decision maker and alternative help in the community were important in utilization of EmONC services.

- iv. Health education intervention package had a positive influence on the uptake of EmONC services

5.3 Recommendations

From the study's conclusions, this thesis makes the following policy recommendations:

- i. Health education to done to pregnant mother on various sociodemographic, sociocultural and socioeconomic factors influencing utilization of EmONC Services.
- ii. Given that health education has been found to influence utilization of EmONC services positively, it will be imperative to empower health workers to know the importance of health education on the uptake of services and administer it to the clients.
- iii. Increasing identical health education interventional approaches to enhance utilization of EmONC services care in Kenya where there is low utilization.

5.4 Suggestion for Further studies

Given the relevance of health education to improve population health, there is inadequate research to measure the level of health literacy and improve the literacy in diverse population. More research is required on the health education approaches to make them more user friendly and reduce communication barriers. This study has focused on facility based health education on uptake of EmONC services. There is a need for a further study to focus on community health education on utilizing of maternal and child health services.

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APPENDICES

Appendix I: Informed Consent Form

Research Title: HEALTH EDUCATION INTERVENTION ON UPTAKE OF EMERGENCY OBSTETRICS AND NEWBORN CARE SERVICES AMONG WOMEN OF REPRODUCTIVE AGE IN NAKURU COUNTY, KENYA.

Introduction

I am Nancy Maingi, A student in Kenyatta University School of Public Health. I am conducting research on **HEALTH EDUCATION INTERVENTION ON UPTAKE OF EMERGENCY OBSTETRICS AND NEWBORN CARE SERVICES AMONG WOMEN OF REPRODUCTIVE AGE IN NAKURU COUNTY, KENYA.**

Feel free to ask any question that may arise in the process or about the study.

Purpose of the research

The purpose of this study will be, to assess the **HEALTH EDUCATION INTERVENTION ON UPTAKE OF EMERGENCY OBSTETRICS AND NEWBORN CARE SERVICES AMONG WOMEN OF REPRODUCTIVE AGE IN NAKURU COUNTY, KENYA.**

Type of Research Intervention

This research will involve an interviewer based questionnaire.

Participant selection

I am inviting all women 15-49years admitted in the community to participate in the research.

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. You may change your mind later and stop participating even if you agreed earlier.

Confidentiality

The information collected from this research will be kept confidential. Information will be put away and no one but the researchers will be able to see it. Any information

you have given will have a number on it instead of your name hence your identity cannot be traced.

Right to Refuse or Withdraw

You do not have to take part in this research if you do not wish to do so. You may also stop participating in the research at any time you choose. It is your choice and all of your rights will still be respected.

There is no monetary benefit to participate in the study however, the information received from you will help set up strategies to improve maternal health in the county.

You can ask any questions about any part of the research study, if you wish to. Do you have any questions?

Certificate of Consent

I have read the foregoing information. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate as a participant in this research.

Name of Participant _____ Signature of Participant _____

Date _____ Day/month/year

Statement by the researcher/person taking consent

I have accurately read out the information sheet to the potential participant, and to the best of my ability made sure that the participant understands.

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability.

I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

A copy of this Informed Consent Form has been provided to the participant.

Name of Researcher/person taking the consent_____

Signature of Researcher /person taking the consent_____

Date _____

Appendix II: Questionnaire English & Kiswahili

1) How old are you?

15-19 () 20-24 () 25-29 () 30-34 () 40-44 () 45-49 ()

Je, umekamilisha umri wa miaka mingapi?

15-19 () 20-24 () 25-29 () 30-34 () 40-44 () 45-49 ()

2) What is your marital status?

Married () single () divorced () widowed () In Union () Never married ()

Je hali yako ya ndoa ni ipi?

Ndoa () Moja () Talaka () Mjane () Kamwe ndoa ()

3) Have you attended school?

Yes () No ()

Je, [NAME] amewahi kwenda shule?

Ndio () Hapana ()

4) What is your highest level of education you have completed?

None () Nursery () Primary () Post-primary / vocational () Secondary (A or O level) () College (middle level) () University () Don't know ()

Je, umekamilisha kiwango gani cha juu kabisa cha elimu?

Sijasoma () Nasari () Elimu ya Msingi () Kozi () shule ya upili () Stashahada () Chuo kikuu () Sijui ()

5) What is your religion?

Catholic () Protestant () Seventh day Adventist () Muslim () No religion () Other (specify)

Je, unashiriki dini gani?

Katoliki () Madhehebu ya kiprotestanti () Mkristo wa Sabato () Muislamu ()

Hana dini () Nyingine (taja)

6) Where is your residence?

Unaishi wapi?

7) Have you ever given birth?

Yes () No ()

Umewahi kubarikiwa na watoto?

Ndio () Hapana ()

8) If yes, how many children have you ever given birth to?

Children who are alive _____ Children who are Dead _____ Total

Number of children _____

Kama ndio, umebarikiwa na watoto wangapi

Watoto waliohai _____ watotot walioaga _____ numbari kijumla _____

9) What is the age of your last child? _____ Years _____
months

Taja umri wa mtotot wako kitindamimba ? Miaka _____ Miezi

10) Where did you deliver? At home () in hospital ()

Ulimpata motto wapi? Nyumbani () Hospitalini ()

11) What is your occupation?

Unafanya kazi ipi?

12) What is your current employment status?

Employed for wages () Self-employed () Student () Out of work

(Unemployed) () Housewife () Retired ()

Je sasa hivi kazi kuu kwako ni ipi?

Muajiriwa anayelipwa marupurupu () Nimejiajiri () Mwanafunzi () Mke

nyumbani () Mstaafu ()

13) Which is your major source of income?

Salary () Wages () Donations from well-wishers () Support from husband ()

Support from children ()

Je, kazi kuu yako ni ipi?

Mshahara () Marupurupu () mchango kutoka marafiki () bwana () watoto ()

14) What determines the facility that the mother visits for health care services

Money? () Transport? () Gender of the doctor? () Risk that woman or baby will die? ()

Je nini haswa humfanya mwanamke kuamua kutembelea kituo cha afya?

Fedha () Nauli () Jinsia ya daktari () Hatari ya kifo cha mama au mtototo ()

15) What are some of the perception on utilization of health facility in your area?

Je ni maoni yapi yanayowashawishi jamii kutembelea kituo cha afya kilichoko karibu

16) What is the status of women in your community?

Je mwanamke amepewa cheo gani katika jamii?

17) Which food taboos exist in the community in relation to pregnancy and childbirth?

Je, katika jamii miiko ipi ya chakula inayofwawa katika mambo ya uzazi?

18) What other beliefs exist in the community in relation to pregnancy and childbirth?

Je, ni imani gani iliyopo katika jamii kuhusu mambo ya uzazi?

19) Who makes the decision to seek help for a woman if she experiences a problem in childbirth?

Je, ninani katika jamii anayefanya maamuzi kuhusu mwanamke wakati anapopata changamoto wakati wa uzazi?

20) Who is the alternative decision-makers (e.g., if husband is not at home)?

Je ninani anayefanya maamuzi kwa niaba ya mume?

21) Who is consulted about such a decision?

Je ninani anayehusishwa kuhusu idhini hiyo

22) What factors influence the decision-making about going to a health facility?

Je ni mambo yapi yanayochangia maamuzi ya kutembelea kituo cha afya?

23) Who can help her? [in the community]

Relatives () Husband () Traditional Birth attendants () Mother in-law ()

Community health volunteers ()

Je ni nani anayeweza kumpa msaada

Jamaa () Mume () Mkunga wa jadi () Mama mkwe .. () Wasaidizi wa afya katika jamii ()

24) Where would she be taken first?

Je, atapelekwa wapi kwanza ?

25) What are the problems involved in taking her to seek care?

Je aishida zipi zinazowakumba wakati wakutafuta matibabu?

26) How would she reach the health facility?

Je, atafika vipi katika hospitali?

27) Where would she get the money?

Je, atapata fedha wapi?

28) What have you heard about the local hospital (give facility name)?

Je umesikia lipi kuhusu hospitali iliyo karibu nawe?

29) Do people get good care there?

Yes No Don't Know

Je watu hupata matibabu mazuri?

Ndio Hapana Sijui

30) Is the facility equipped to handle obstetric emergencies? Yes No Don't know

Je hospitali in avivaa vya kukumbana na changamoto za uzazi

Ndio Hapana Sijui

31) Has the care improved at this hospital in recent years?

Je matibabu yameimarika katika hospitali hii kwa miaka ya hivi majuzi?

32) What are some reasons to go there?

Je ni sababu zipi za kuenda hapo?

33) What are some reasons not to go there?

Je nisababu zipi zakutoenda hapo?

34) Where else might you go/take a woman who has a problem?

Je ni wapi pengine waweza kumpeleka mwanamke aliye na shida wakati wa uzazi?

35) What are some of the things that can go wrong when a woman gives birth?

Je ni mambo yapi yaweza kuharibika wakati wa uzazi?

36) Are these problems dangerous to the woman?

Je mambo haya ni ya kutia maisha ya mama hali mahututi

37) How do you know when the problem has become serious?

Je utajuaje shida imekuwa hali mahututi?

38) What should be done if a woman experiences one of these problems?

Je, nini nihatua ipi haswa yafaa kuchukuliwa wakati kama huu?

39) Are there other health facilities in the area where you might take a woman who has a problem?

Je, kuna hospitali zingineo karibu waweza kumpeleka mama aliye hali kama hii?

40) What are the costs involved in going to the other hospital?

Je gharama ya kumpeleka hospitali ni ipi?

41) How would the family obtain the money for this? What would be done if they cannot get the money?

Je familia itapata aje fedha kwa shida hii? Je ni msaada upifamilia yaweza pata kama hawawezi pata fedha hizi?

42) What do people say about the staff at the health facility?

Je, Kijijini watu husemaje kuhu wauguzi walioko hospitalini?

43) In your own perception are doctors and nurses respectful of patients?

Yes () No ()

Kwa maoni yako, wauguzi huwaheshimu wagonjwa?

Ndio () Hapana ()

44) Explain your answer above by putting a tick if you agree with the statements below

They treat them with

Respect ()

Kindness and empathy ()

Ensures privacy and confidentiality ()

Provide appropriate information ()

Tafadhali fafanua jibu lako kwa kutia tick katika sentensi zifwatazo

Wauguzi :

Huwaheshimu ()

Huwa na roho ya utu ()

Huhakikisha wameweka mambo yao siri ()

Huwapa mawaidha yanayofaa ()

45) In your opinion, what is an individual birth plan?

46) List components of a birth plan.

Appendix III: Key Informant Interview Guide

1. What do you understand by the term EmONC services?
2. What is your role in the provision of these services?
3. What are the constraints you encounter while offering EmONC services?
4. What do you think hinders clients from utilizing EmONC services?
5. In your opinion are the staffs in the county qualified and available to offer EmONC screening services in the county?
6. What strategies have you put in place to improve EmONC services?
7. What religions, traditional and cultural practices of the community influence utilization of EmONC services?
8. Is the community involved in supporting EmONC services?
9. What participation does the community have in utilization of EmONC services?
10. Is there an existing health facility in the immediate locality or district that can respond to obstetric emergencies?
11. What are some of the signal functions offered in the health facility?
12. Is there an obstetrician, surgeon and anesthetist available 24 hours a day, 7 days a week?
13. How many qualified midwives and nurses are available?
14. Are water and electricity supply available?
15. How far away is the facility?
16. What are the road conditions and what modes of transport are available?
17. Does the security situation allow staff to work in the health facilities at night?
18. What are the present social structures of the population?
19. Are there women's groups and social workers who can help with emergency funds and transport?
20. Are there TBAs and do they carry out deliveries?
21. What proportion of deliveries takes place at home?

Appendix IV: Focused group discussion Guide

1. What are EmONC services

Je, msaada wa EmONC ni upi?

2. What factors influence uptake of EmONC services

Je ni mambo yapi yanayoshawishi kutafuta msaada wakati wa uzazi?

3. During your last pregnancy did you deliver in a health facility?

Kwa mimba yako ya mwisho ulijifungulia wapi?

4. What services did you receive from the facility during your last pregnancy?

Je, Ni msaada gani uliupata katika kituo cha afya wakati huo?

5. Did you pay any fee to access services during your last pregnancy?

Je, ulilipa malipo yoyote kupata msaada kwa mimba yako ya mwisho?

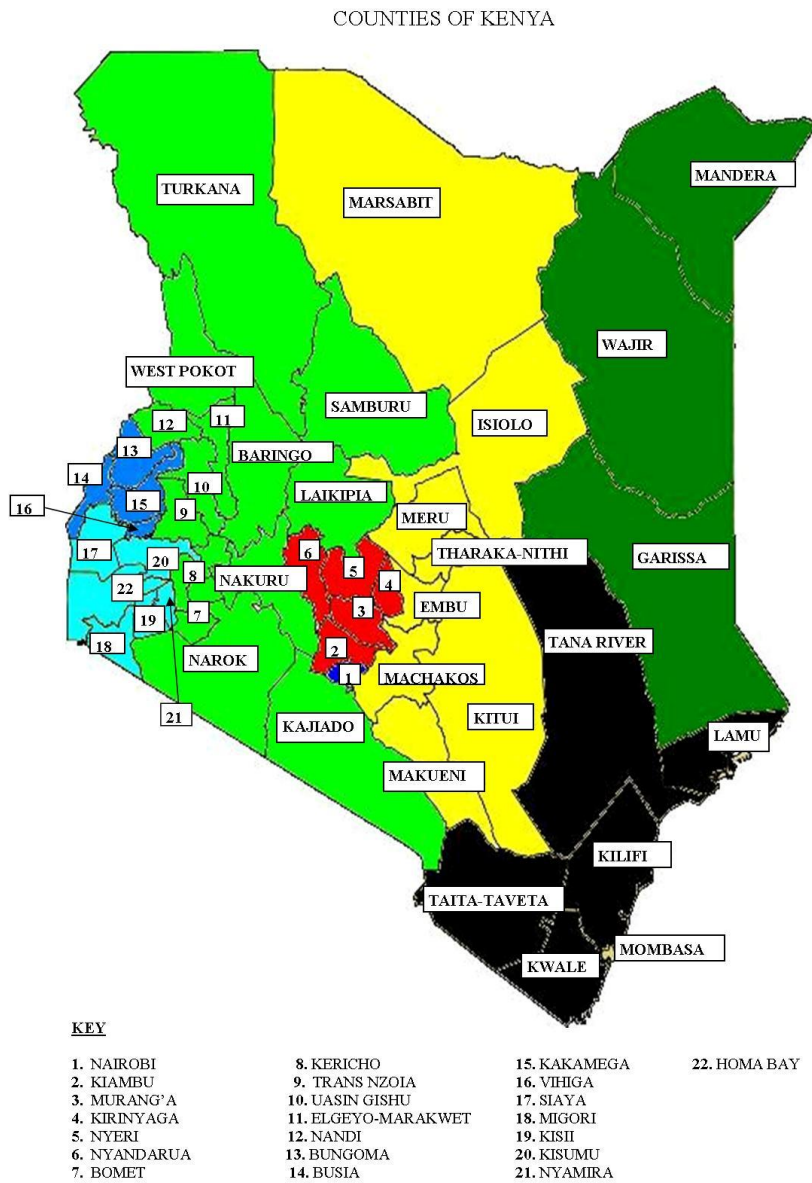
6. What is the role of the community in utilization of EmONC services?

Je, jamii inajukumu lipi katika mambo ya uzazi

7. What are some of the beliefs in the community in relation to pregnancy and childbirth?

Je jamii ina imani gani kuhusu mabo ya uzazi?

Appendix V: Map Showing the Counties in Kenya



Appendix VI: Ethics Review Committee



KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE

Fax: 8711242/8711575
Email: kuerc.chairman@ku.ac.ke

Website: www.ku.ac.ke

P. O. Box 43844,
Nairobi, 00100
Tel: 8710901/12

Our Ref: **KU/ERC/APPROVAL/VOL.1/1**

Date: 21st August, 2019

Maingi Nancy
P.O Box 43844, 00100
Nairobi.

Dear Ms. Maingi

**APPLICATION NUMBER: PKU/1062/I1162 ROLE OF COMMUNITY
MOBILIZATION OF UPTAKE OF EMERGENCY OBSTETRIC AND NEWBORN
CARE SERVICES AMONG WOMEN OF REPRODUCTIVE AGE IN NAKURU
COUNTY, KENYA**

1. IDENTIFICATION OF PROTOCOL

The application before the committee is with a research topic "**Role of Community Mobilization of Uptake of Emergency Obstetric and Newborn Care Services among Women of Reproductive Age in Nakuru County, Kenya**". Received on 25th July, 2019 and discussed on 13th August, 2019

2. APPLICANT

Maingi Nancy

3. SITE

Nakuru County, Kenya

4. DECISION

The committee has considered the research protocol in accordance with the Kenyatta University Research Policy (section 7.2.1.3) and the Kenyatta University Ethics Review Committee Guidelines and **APPROVED** that the research may proceed for a period of **ONE** year from **13th August, 2019**.

5. ADVICE/CONDITIONS

- i. Progress reports are submitted to the KU-ERC every six months and a full report is submitted at the end of the study.
- ii. Serious and unexpected adverse events related to the conduct of the study are reported to this committee immediately they occur.
- iii. Notify the Kenyatta University Ethics Committee of any amendments to the protocol.
- iv. Submit an electronic copy of the protocol to KUERC.

**When replying, kindly quote the application number above.
 If you accept the decision reached and advice and conditions given please sign in the space provided below and return to KU-ERC a copy of the letter.**



**PROF. JUDITH KIMIYWE
 CHAIRMAN ETHICS REVIEW COMMITTEE**



I NANCY KIMANI accept the advice given and will fulfill the conditions therein.

Signature.....  Dated this day of..... 20TH SEPT 2019.

cc.
 DVC-Research Innovation and Outreach

Appendix VII: Approval of Research Proposal



KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke

Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 57530

Internal Memo

FROM: Dean, Graduate School

DATE: 3rd May, 2019

TO: Ms. Maingi Nancy
C/o Population Repr. Health & Community
Res. Mngt Dept.
Kenyatta University

REF: P97/27681/14

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

This is to inform you that Graduate School Board at its meeting of 18th April, 2019 approved your Research Proposal for the Ph.D. Degree, entitled "Role of Community Mobilization on Uptake of Emergency Obstetric and Newborn Care Services among Women of Reproductive age in Nakuru County, Kenya".

You may now proceed with your Data collection, subject to Director General, National Commission for Science, Technology & Innovation

As you embark on your data collection, please note that you will be required to submit to Graduate School completed supervision Tracking Forms per semester. The form has been developed to replace the progress Report Forms. The Supervision Tracking Forms are available at the University's Website under Graduate School webpage downloads.

By copy of this letter, the Registrar (Academic) is hereby requested to grant you substantive registration for your Ph.D. studies.

Thank you.

REUBEN MURIUKI
FOR: DEAN, GRADUATE SCHOOL

c.c. Registrar (Academic) Att. Mr. Likam
Chairman, Population Reproductive Health & Comm, Res. Mngt. Department

Supervisors:

1. Prof. Margaret Keraka
C/o School of Public Health & App. Human
Sci. Dept.
KENYATTA UNIVERSITY
2. Dr. Drusilla Makworo
Dean, School of Nursing
JKUAT
C/o Dept. Repr. Health & Community
Res. Mngt

RM/cao

Appendix VIII: Research Authorization

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke

Website: www.ku.ac.ke

OUR REF: P97/27681/14

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Date: 3rd May, 2019

The Director General,
National Commission for Science, Technology & Innovation,
P.O. Box 30623,
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR MS. MAINGI N. NANCY REG. NO. P97/27681/14

I write to introduce **Ms. Maingi** who is a Postgraduate Student of this University. She is registered for Ph.D. Degree programme in the **Department of Population Reproductive Health & Community Resource Management** in the School of Public Health & Applied Human Sciences.

Ms. Maingi intends to conduct research for a Ph.D. thesis entitled, **“Role of Community Mobilization on Uptake of Emergency Obstetric and Newborn Care Services among Women of Reproductive age in Nakuru County, Kenya”**.

Any assistance given will be highly appreciated.

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'E. Kimani', written over a blue horizontal line.

PROF. ELISHIBA KIMANI
DEAN, GRADUATE SCHOOL

KM/cao

Appendix IX: Research Authorization from Department of Health Services



DEPARTMENT OF HEALTH SERVICES NAKURU COUNTY

Received
C. J.



Ref No. NCG/CDMS/INVOL/1/311

DIRECTOR ADMIN & PLANNING
NAKURU COUNTY
P.O BOX 2600-20100
NAKURU

3rd January, 2020

TO
NANCY MAINGI
KENYATTA UNIVERSITY

Received and
Approved.
Handwritten
Signature



RE: RESEARCH AUTHORIZATION

This letter serves as an authorization from the Department of Health Services Nakuru for you to conduct research on *“Role of community mobilization on uptake of emergency obstetric and newborn care services among women of reproductive age in Nakuru County Kenya”*.

The study is in line with the County Research priorities in the county research agenda and therefore the researcher is expected to present and submit the final report to the County Research and Development Unit.


ELIZABETH KIPTOO
FOR/COUNTY DIRECTOR ADMIN & PLANNING
NAKURU

CC:

- All Medical Superintendents, Nakuru
- All Sub County Team Leads, Nakuru
- All Facility In charges, Nakuru

Appendix X: Research Authorization from Ministry of Education

MINISTRY OF EDUCATION
STATE DEPARTMENT OF EARLY LEARNING OF basic EDUCATION

Telegrams: "EDUCATION",
Telephone: 051-2216917
When replying please quote
Email: cdenakurucounty@gmail.com
Ref. CDE/NKU/GEN/4/1/21 VOL.II/159



COUNTY DIRECTOR OF EDUCATION
NAKURU COUNTY
P. O. BOX 259,
NAKURU.

5th December, 2019

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION - NANCY MAINGI
PERMIT NO. NACOSTI/P/19/1934

Reference is made to letter NACOSTI/ P/19/1934 dated 10th October,2019.

Authority is hereby granted to the above named to carry out research on "*Role of community mobilization on uptake of emergency obstetric and newborn care services among women of reproductive age in Nakuru,*" Nakuru County for a period ending *10th October,2020.*

Kindly accord her the necessary assistance.

G.N. Kimani
FOR: COUNTY DIRECTOR OF EDUCATION
NAKURU



Copy to:

- Kenyatta University

