THE EFFECTS OF WOMEN EMPOWERMENT ON INFANT MORTALITY IN KENYA

By

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DECLARATION

This research paper is my original work and has not been presented for any academic research work in any other institution.

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This project has been submitted for presentation with my approval as the University Supervisor.

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…… **Date: 21/11/2020……**

DEDICATION

This work is dedicated to my family, whose persistence on the importance of education from a tender age has pushed me this far. May the Almighty bless you all in your endeavors.

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I want to give my gratitude to the Almighty God for the energy, wisdom and physical well-being during the study period.

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To my classmates and friends may the Almighty God bless you all; as you all contributed in the success of this research project in one way or another.

ABSTRACT

The study set out to explore the effect of women empowerment on infant mortality in Kenya; using data from the Kenya Demographic and Health Survey of 2014. A composite variable defined as women empowerment index was constructed based on a number of decision-making variables at a household level, using Principal Factor Analysis (PFA) method. Socio economic and maternal factors were analyzed as control variables and this was guided by the concept of Mosley and Chen framework.

Testing for association and independence between infant mortality, women empowerment index and control variables were performed using cross tabulation and chi-square respectively. Survival analysis was used to demonstrate the risk of death with women empowerment index and control variables.

The key finding showed a significant effect of women empowerment on infant mortality, at $p \leq 0.05$. However, socio economic factors used as control variables did not show any statististical relationship. Maternal health factors utilized in the study showed that women empowerment acts through them to significantly influence infant mortality.

A major limitation of the study was lack of a standard measure of women empowerment index since it's a multidimensional variable. Therefore, the study recommends that researchers adopt longitudinal data for better results in computing and defining women empowerment index, rather than the cross-sectional surveys. Since women empowerment is a continuous multifaceted process with temporal relationships. Qualitative studies should also be undertaken and target the factors in county-specific program to be able to understand how culture affects women empowerment specifically in regards to decision making within the households and community at large. The study further recommends strengthening of accessibility to maternal health by resourcing funds so as to reduce the financial burden incurred in seeking maternal health care services.

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ABBREVIATIONS

ICPD	International Conference on Population and Development
IMR	Infant Mortality Rate
KDHS	Kenya Demographic Household Survey
MDGs	Millennium Development Goals
NCPD	National Council for Population and Development
SDGs	Sustainable Development Goals
SSA	Sub- Saharan Africa
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
WHO	World Health Organization
HH	Household

CHAPTER ONE: INTRODUCTION

1.1 Background of Study

Globally, there has been a clarion call to reduce infant mortality especially among low and middle-income countries (WHO, 2020). The second target of the third goal of Sustainable Development Goals (SDGs) aims to end preventable deaths of newborns and children under 5 years of age, by year 2030 with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1000 live births and under-5 mortality to at least as low as 25 per 1000 live births. Infant Mortality (IM) is defined as the death of an infant before his or her first birthday, while Infant Mortality Rate (IMR) is the number of infant deaths for every 1,000 live births (United Nations, 2006). Infant mortality is an index of economic development and provides a general welfare of the population as a whole (Blacker, 1991).

According to World Health Organization (2018), globally IMR stood at 28.2 deaths per 1,000 live births, with Europe having the least IMR of 3.2, while South Asia reported 33.1 deaths per 1,000 live births, which was the highest. In Africa, the IMR is generally high; with Sub-Sahara Africa (SSA) reporting 51.7, while North Africa and Southern Africa reported 19.5 and 27.5 deaths per 1,000 live births respectively. However, there is a noticeable gradual decline in IMR in SSA from 106.6 in 1990 to 91.1 in 2000 and then to 65.2 in 2010 (World Bank, 2019) and further down to 51.7 in 2018 (WHO, 2018). Kenya is not an exception in this gradual decline as KDHS show IMR of 62, 51 and 32 deaths per 1000 live births in 2003, 2008/9 and 2014 respectively. World Bank (2019) estimated that Kenya's IMR was at 32 deaths per 1000 live births by 2017.

The government of Kenya has undertaken a number of policy and legal interventions aimed at reducing childhood mortality. These includes encouraging mothers to deliver at medical facilities, increasing immunization facilities, encouraging exclusive breastfeeding, promoting maternal health care, enhanced hygiene and provision of insecticide-treated bed nets (ITNs) to mothers with new born babies.

The term "women empowerment" is defined as having control and access to the means of making a living on a long term and sustainable basis; as well as receiving the material benefits of this control and access (United Nations Development Fund for women, 2000). Women empowerment addresses inequalities that exist in many communities in the world. Different researchers have defined this construct differently. For instance, (Kabeer, 1999) defined empowerment as one's ability to formulate own choices and act on them or means through which one's choices are exercised. Tam et. al (2014) defined women empowerment as a process of social and personal change through which power, control over their household, and meaningful choices are gained. The term empowerment, especially pertaining women, has been used widely especially in assessment of its nexus with other disciplines. Women empowerment can be looked at in five different dimensions: social, educational, economic, political, and psychological. (Endalcachew, 2016).

Several studies have been carried in regards to women empowerment in the recent past (Kiberet, Zereyusus & Walelign, 2020). Studies done by (Mabsout, 2010) and (Yimer & Tadesse, 2019) reported that a woman who is empowered by control over resources, autonomy, and decision making, experiences improved children's and maternal health outcomes. According to Ramesh & Yothin (2011), women's autonomy, especially mother's literacy and decision making were found to have a significance effect on infant mortality in Nepal.

As of this research, woman's empowerment is defined as a woman's participation levels in choice-making or decision making at household level. Decision making is associated with making a suitable choice from a variety of given or available options and is considered to be the center of all aspects of human life. It is very common in a household set up where partners have to decide and chose options that affect other individuals within the same household.

Discrimination is still experienced among women despite countries achieving progress towards women empowerment. Griffiths (2001) stated that an empowered woman is assumed to have better decision making in regards to children's health. According to Eswaran (2002), decisions regarding intra-household resource allocation determine the infant's health. Otieno & Omollo (2015) stated that the capacity of gathering information, making choices, and women acting well for their betterment, as well as dependents, is a key issue in empowering women. In so regard, if they become empowered, they will consequently better the lives of their children in the process.

Similar studies linking women empowerment and infant mortality have been undertaken in Bangladesh (Hossain, 2015), Nepal (Ramesh and Yothin, 2011) and Indonesia (Stiyaningsih &Wicaksono, 2017). These studies established that women empowerment significantly contribute to the decline of infant mortality. However, Hossain (2015) also found that women employment is associated with increased mortality for infants. This may be due to child care. There is no study, however that has been carried out in Kenya to assess the association and effects of woman empowerment on infant mortality.

1.2 Problem Statement

Empowering women and reducing the infant death rate are goals that all countries are committed to achieve through the SDGs. Kenya targeted to reduce its IMR to 22 deaths per 1000 live births

by 2015, but this has not been achieved, since IMR still stands at 32 deaths per live births by 2017 (World bank, 2019).

Studies carried out by (Hossain, 2015; Ramesh and Yothin, 2011; Stiyaningsih and Wicaksono, 2017) have asssed how empowerment of women has impacted on infant mortality and found that the survival outcomes depend on women empowerment. For instance, a research carried in Indonesia by Stiyaningsih & Wicaksono (2017) examined the associations between women empowerment and infant deaths revealed that household decision making should favor women since they were the primary care givers and in return there would be improved health outcomes for both mother and child. These findings were supported by Hossain's (2015) research carried out in Bangladesh. The results acknowledged that three measures of empowerment (participation in HH decisions, education level and autonomy in movements) contribute significantly to the reduction of infant mortality. However, no research has been done to establish the linkages of infant mortality and women empowerment in Kenya so as to interrogate and understand how women autonomy can improve infant's survival probabilities. Therefore, this research sought to empirically explore the effect of women empowerment on infant deaths in Kenya. In so doing, this paper is also aimed at establishing the influence of women empowerment on infant deaths while controlling for socioeconomic and maternal factors.

1.3 Research Questions

The study sought to answer the following questions;

1. What is the association between women empowerment and infant mortality in Kenya?
2. What is the influence of women empowerment on infant mortality while controlling for socioeconomic and maternal factors?

1.4 Objectives of Study

The general objective of this study was to assess the effects of women empowerment on infant deaths in Kenya.

1.4.1 Specific Objectives

1. To establish the association between women empowerment and infant mortality in Kenya.
2. To assess the effect of women empowerment on infant mortality while controlling for socioeconomic and maternal factors.

1.5 Justification of the Study

According to McGuire (2006), a key show of growth in countries is reflected by its children's well-being, especially infant death rates. UNICEF (2007) and UNFPA (2003) show that there is an association between IMR and the socioeconomic, maternal and environmental situation of the child. The information obtained from this study will help in policy formulation towards the realization of infant mortality reduction; and will also help shape population policies and programs that help further lower infant mortality.

Adding on this, the findings of this study would be utilized by stakeholders to come up with suggestions and recommendations which would increase women participation in decision making within their household level, especially, regarding infant health. Moreover, the findings would come in handy in the efforts to eradicate constraints pertinent to the full exercise of women in decision making and privileges.

1.6 Scope and Limitations

The study targets infants (0-12 months) and utilizes the 2014 Kenya Demographic and Health Survey data, which is a national representative survey on households in Kenya. KDHS data provides information on socioeconomic and demographic indicators required for the study. In the survey, 31,079 women were interviewed. Of the interviewed women, 14,949 of them had live births five years before the survey. The child file was used to obtain the relevant information since the child was the unit of analysis.

A major limitation of the data is under reporting of child deaths, especially those that occurred soon after birth. This is because recording is done retrospectively. To this end only, live births of last five years before the survey are considered in order to minimize on the recall bias.

Secondly, sometimes the correct birth dates can be displaced hence reporting wrong bad dates and this in turn gives wrongly altered mortality trends (Omollo & Otieno, 2005). Sampling and non-sampling errors occur during data collection and processing. Age heaping is also common and this leads to wrong classification of deaths because they are reported in the wrong age bracket.

Thirdly, empowerment is known to be a multidimensional construct with an unknown standard to measure because of the diverse populations across Sub-Saharan Africa. (Doku, Bhutta, & Neupane, 2020) Women in the regions have different perception of (un)empowerment due to cultural diversification, which makes the measure of women empowerment invalid. Hence the questions pertaining empowerment are replied and interpreted in line with their societal contexts and set ups (Schatz & Williams, 2012).

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews existing literature relating to the effect on female autonomy on infant mortality at the household level. The chapter endeavor to undertake a thorough review on the two constructs; women empowerment and infant mortality and then focuses further on factors associated with risk of infant deaths. It also provides conceptual and operational frameworks to be adopted in this study.

2.2 Theoretical Background

Studies looking at determinants of infant mortality have concentrated largely on social, environmental, cultural, and behavioral factors, affecting the likelihood of ill health, disease and death during the infancy period. Mosley and Chen (1984) framework is the most frequently referred in subsequent papers related to infant mortality determinants (Sirohi & Rai, 2019) as it incorporate both proximate and socioeconomic factors. This project conceptualizes the idea that background factors have to work through proximate variables that may predict the risk of mortality. Women empowerment has been conceptualized as one of the proximate factors that influence infant mortality in the presence of background variables (socioeconomic and maternal factors). Studies have argued that women empowerment has a positive effect on infant survival (Ramesh & Yothin 2011; Hossain, 2015; Stiyaningsih and Wicaksono, 2017). In Kenya, mother's age at birth, household wealth index education level of mother and religion are among the major determinants of child mortality (Apunda, 2016)

2.3 Factors Associated with Risk of Infant Mortality

2.3.1 Maternal Factors

2.3.1.1 Age of the Mother

Maternal age is a variable that depicts age of the mother at the time of delivering a child and is a key determinant in child survival. At the time of delivery, a woman below 20 years is considered "young" while a woman above 34 years of age is said to be "old". Childhood mortality rates are considerably higher among children born to women in their forties and lowest among children whose mothers are age 20–29 years at the time of birth (Otieno & Omolo, 2015). According to Caroline et al. (2015), young maternal age leads to increased risk of premature birth and intrauterine growth restriction, increased infant mortality, and child under- nutrition. On the other hand, old maternal age could lead to; increased chromosomal abnormalities, preterm and still births, and intrauterine growth restriction. Ramesh & Yothin (2011) in Nepal revealed that mother's age at the time of giving birth had an influence on infant mortality; infants born to women of old age were more likely to survive up to their first birthday and over. In a study done in Indonesia, Stiyaningsih and Wicaksono (2017) stated that infants born to very young women or older women tend to die due biological problems that lead to complications that may occur during pregnancy or while giving birth. Ageing of mothers make their mammary glands to lose the ability to produce adequate milk which results to early weaning for infants. These findings were backed by Omedi & Wanjiru (2014) who found higher risk of infant death among mothers aged 35 and above years due to anemia and malnutrition. Kibet (2010) also established that younger mothers are inexperienced in taking care of infants.

2.3.1.2 Birth Order

Birth order refers to the order in which infants are born. Desta Mekonnen (2011) stated that an increase in children birth orders have a greater and adverse effect on infant mortality. In Bangladesh, Hossain (2015) found out that many births in the past and with short duration remarkably increased infant mortality. High order births are also attributed to the fact that women who have had more pregnancies will be physically drained and mostly where birth interval is shorter (Koening, Philips, Campbell, & Dsouza, 1990) .

2.3.1.3 Maternal Health

Maternal health entails health women during pregnancy, childbirth, and the postpartum period (UNICEF, 2011). From a study done by Khan (1987), there was a positive health impact on women when they adhere to antenatal and postnatal services. Stiyaningsih and Wicaksono (2017) revealed that birth attendants and antenatal care was associated with high survival probability of infants. This was in line with other previous study (Prameswari, 2007) . Similarly, Hossain (2015) noted that more than two antenatal visits as well as delivering in aid of a professional attendant can reduce the probability of infant mortality. Mekonnen (2013) found out that most women in developing countries either do not receive prenatal care or seek the services in the last days of the pregnancy. Hence, they miss out on useful information such as family planning, obstetric nutrition of the child; which is very important in identification of high-risk pregnancies. Majority of population aren't concerned about postnatal care because they assume that when pregnancy and childbirth are smooth and do not have complications, then physical recovery is guaranteed but unfortunately during this time maternal and infant mortality occur due to preventable complications (Roets, Chelangat, & Joubert, 2018).

Globally, underutilization of maternal services has been termed as one of the leading causes of infant deaths. Improving maternal mortality remain a global clarion call underpinned under the SDGs. WHO (2015) advocates for women to have at least four antenatal visits; once every three months and a last one and a final visit just before giving birth.

In the year 2013, the Kenyan government declared free maternal policy which meant nationwide free maternity services. This move ensured availability and accessibility of maternal services hence achieve the desired outcome according to SDG goal number 3.

2.3.2 Socioeconomic Factors

2.3.2.1 Mothers Education

Association between mother's education and infant deaths is extensively studied (Kiross, Chojenta, & Barker, 2019) . In Bangladesh, Hossain (2015) found that death of infants are substantially less among the educated mothers. According to Mustafa & Odimegwu (2008), maternal education leads to factors that eventually reduce infant mortality. These factors include providence of better nutrition to both mother and child, delayed entry to marriage and motherhood, and attendance of pre-natal and post-natal care. According to Kibet (2010) infant's survival is associated with mother's education level; whereby increase in education level resulted to a decrease in the occurrence in infant mortality.

Mother's education is important in diffusing knowledge about childcare, cleanliness, sanitation, sterilization, medicine and immunizations needed and capacity to access and utilize services at hand ((Hobcraft, Macdonald, & S, 1984). For instance, (Victoria et al., 1992) while undertaking similar study in Brazil, established that maternal education was associated with perinatal ,infant mortality and three nutritional indicators. They further noted that deaths due to pneumonia

diarrhea, and other infectious diseases were particularly common among infants born to illiterate women.

Kamal (2012) noted that mothers with secondary plus level of education experience reduced levels of infant mortality, this is because education opens up these mothers to knowledge on proper nutritious diet, using family planning methods that result in long birth intervals and provides information on diseases that affects infants and how such diseases can be treated. KNBS (2014) reported that mothers with less than secondary level education had higher odds of experiencing infant mortality as opposed to the ones with secondary education level or higher.

2.3.2.2 Religion

According to Cheptum (2014) religion was associated with utilization of infant services. Another study carried out by Managou (2015) in Mozambique found that mothers affiliated to a religious group had a significant positive effect on child survival. Several differences were found in infant mortality which was attributed to differences in practices as well in socioeconomic status.

2.3.2.3 Household wealth Index

Wealth ranking in households affects the infant survival through demographic, socio-economic and environmental interactions. Hossain (2015) found that odds of death among infants decrease with increase in household wealth. This is due to the fact that there are enough resources to take care of both mother and baby. A study by Yaya (2016) aimed to assess how household wealth disparity and education impacted use of maternal health services among Malawian women. Results indicated that wealth status had substantial effect on usage of all types of maternal health services hence increased chances of infant survival. This study was consistent with Omedi & Wanjiru (2015). Uddin & Kabir (2006) stated that high wealth quintile is associated with lower

infant mortality as a result of proper health-care and nutrition. Another study showed that poorer families experience high infant mortality due to inadequate standards of nutrition, sanitation, housing, and medical care (Frenzen and Hogan 1982).

2.3.2.4 Type of place of residence

According to (Saikia:Sing & Ram, 2013) improper gain by the urban populace in the sharing of public resources (urban bias) makes the women in rural areas to be disadvantaged especially in accessing the health services. Women in urban areas have knowledge and easy access to maternal matters, for example family planning, nutrition, sanitation etc. This reduces the chances of mortality among their kids. These findings were backed up by K'Oyugi (1992). However, Kittur (2014) differed with these remarks by observing that lower survival rates among infants were experienced in urban areas due to the emerging slums and poor living conditions in the slums. In Kenya, infant mortality rates of both rural and urban areas are almost at par but it showed more variation by region according to Otieno & Omollo (2015).

In Kenya, the rate of infant mortality in the urban and rural areas is almost at par but it showed more variation by region. According to a study by Emily et al. (2018), geographical region of residence was found to be significant in relation to IMR in 2014, in a model that also adjusted for rural residence. Interestingly, relative to families living in Nairobi, those in any other region in Kenya had lower odds of child mortality. A study on neighborhood differentials in infant mortality conducted by Measurement, Learning and Evaluation (2010), concluded that urban areas experienced high infant mortality as compared to the rural areas and attributed this increase to an increase in slum settlements in urban areas; where poor socio-economic status lead to underprivileged health and living conditions especially for mothers and their children. K'Oyugi (1992) concluded that rural areas had a higher rate of infant mortality than in urban. Lower

deliveries also require urgent attention mortality patterns in urban were attributed to better sanitation, short distances to health facilities and higher income in urban residents. However, Kittur (2014) differed with these remarks by observing that higher infant mortality rates were in urban areas these finding were attributed to the emerging slums and poor living conditions in the slums.

2.3.2.5 Employment Status

According to West (2006) employed women are more likely to be empowered than their unemployed counterparts. Employment comes with status and income, which on the other hand rises mother's bargaining power in their households and the society as a whole. A study carried out by Alaka Basu & Kaushik Basu (1991) found that women who do not work experience higher levels of childhood mortality. This was inconsistent with other studies done by Kishor (1998) in India and Hossain (1998) in Bangladeshi who found a positive association. High levels of mortality among infants were attributed to lack of enough time, hence less care and infrequent breast feeding.

2.4 Women Empowerment

It has been concluded that women tend to be disadvantaged compared to men in several areas. They have limited chances in making decisions of interest in socioeconomic spheres (UNWomen, 2018).Women empowerment, pertaining notions of independence was advanced by Dyson and Moore in the 1980s, grew in scope and assessment as evaluated in existing social science studies in three decades. Regardless of dissimilarities of various authors who perceive empowerment as a course of realizing independence, these notions essentially share dealings pertaining to freedom of women in making choices impacting their lives. Kabeer (1999) defined

women empowerment as one's ability to formulate own choices and act on them and means through which one's choices are exercised**.**

Women's empowerment has proved to be a function of both socioeconomic and demographic factors in a society. It entails assessing the capacity of women to achieve well-being and perform roles in decision-making, which as many studies show, is an important factor in empowerment. In this research, woman's empowerment is defined as women participation levels in choice-making in households.

2.5 Women empowerment and Infant Mortality

The study on women empowerment has been done among several developing countries, most of them focusing on a single aspect for instance; contraception, nutrition maternal education among others. Studies done by Mabsout R. (2011) and (Yimer F & Tadase F.,2011) reported that a woman who is empowered by control over resources autonomy and decision making, experienced improved children's and maternal health outcomes. According to Eswaran (2002), decisions regarding intra household resource allocation determine the child's health. A research carried in Indonesia by Stiyaningsih & Wicaksono (2017) examined the associations between women's empowerment and infant death rates. Outcomes revealed growing women empowerment reduced chances for infant mortality. The duo continued to argue that household decision making should favor women since they were the primary care givers and in return there would be improved health outcomes for both mother and child. These findings were backed up by Hossain (2015) research in Bangladesh whose results show that three measures of empowerment (the level of education, participation in household decisions and autonomy in movements) contribute significantly to the reduction of infant mortality. Since the nature of

women empowerment is multidimensional, dynamic and also exists at various levels a standard method to measure this phenomenon need to be established because of the diverse populations.

2.6 Summary of the Literature Review

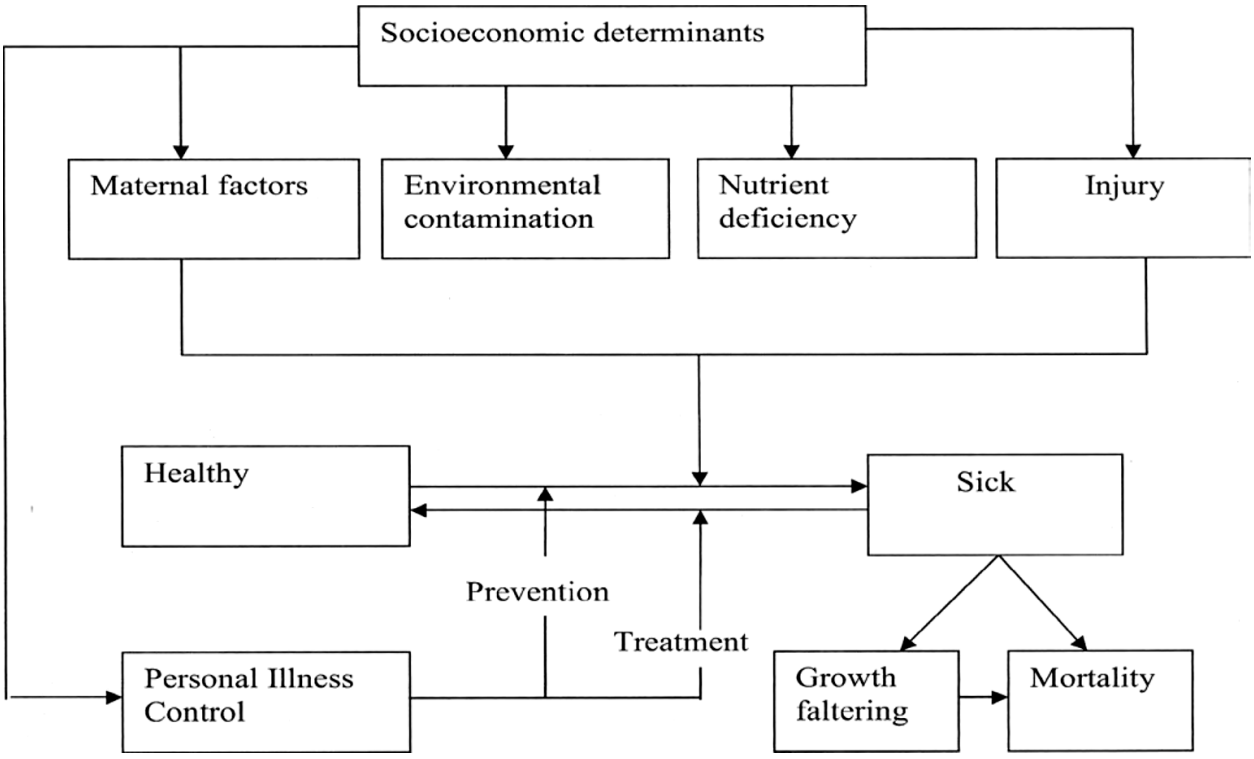
The review of literature brings out the link between women empowerment and infants' survival in developing countries. An empowered woman is assumed to have better decision making in regards to children's health. Infants born to mothers with high household authority and autonomy, measured as indices of freedom of movement and decision-making power, have a lower risk of childhood mortality and more so infant mortality. (Belayet, 2015).Autonomy of women in a household has been associated with better nutritional outcomes To add on that, as a proximate determinant to children's health and mortality (Mosley & Chen, 1984), utilization of maternal health care services was more common among women with greater mobility. Generally, studies done in the past reveal that there exists a correlation between women' s empowerment, and better health care hence high chances of survival for infants. Other factors that have an effect on infant mortality include socio-economic factors which include; maternal level of education, religion type of place of residence, wealth index. This calls for further investigation on other factors influencing infant mortality. Therefore, one of the factors considered in this study is women empowerment.

2.7 Conceptual Framework

This study utilized Mosley and Chen (1984) analytical framework to explain variables that determine infant mortality in developing countries and more specifically in Kenya. It's the most suitable model for research because it provides a theoretical ground for research on infant mortality. It also gives clarification to researchers on factors involved in infant survival so as to

provide a base for formulation of policies and programs. The concept behind Mosley and Chen it incorporates both proximate and socioeconomic factors. This project conceptualizes the idea that background factors have to work through proximate variables that predict the risk of I infant mortality.

Figure 0.1: Illustration of Conceptual Framework



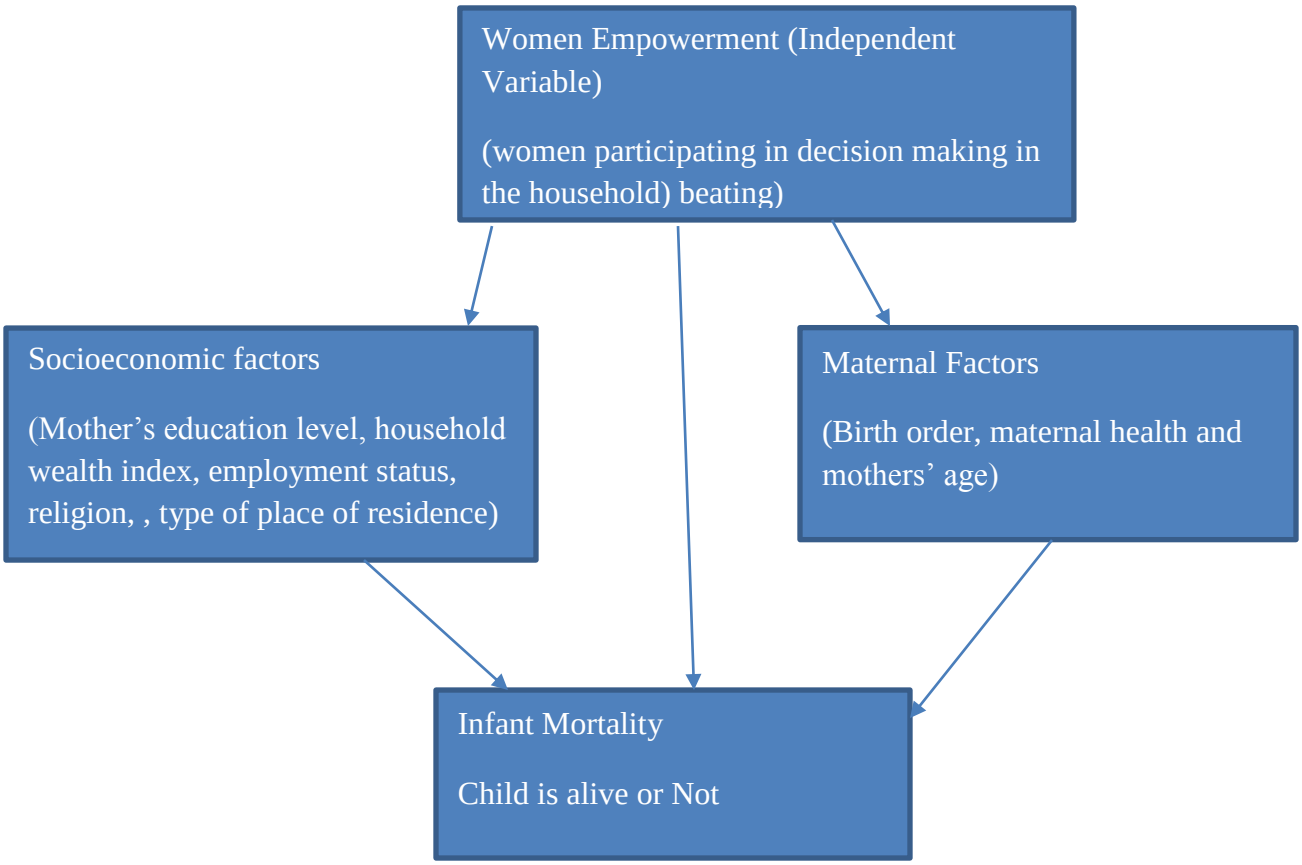
Source: ***Adapted and conceptualized based on Mosley, W. Henry and Chen, Lincoln, C (1984): "An analytical framework for the study of child survival in Developing Countries"***

2.8 Operational Framework

The operational framework incorporated was adapted from Mosley and Chen (1984) conceptual framework revised by the researcher to provide direction about analysis pertaining the effect of women empowerment on infant mortality in Kenya. The selected variables included in the

operational framework were based on important factors (socioeconomic and maternal) through which women empowerment acts through to influence survival of infants. Variables are then organized into a coherent framework linked to one another and to infant survival. Women empowerment has been operationalized as women participating in decision making in the household only. This study did not include employment as a dimension of empowerment but as a control factor. The indicators of women empowerment as well as other variables included in the operational framework were selected from the KDHS (2014). Socio economic factors included were; mother's education, wealth index, employment status, religion, type of place of residence while maternal factors included birth order, maternal health and mothers' age.

Figure 0.2: Illustration of operational Framework



Conceptualized from Mosley, W. Henry and Chen (1984)

CHAPTER THREE: METHODOLGY

3.1 Introduction

This chapter discussed approaches and methods used in obtaining and analyzing the data. It also gives details on data sources, target population, sampling frame, statistical procedures and approaches applied for analysis to arrive at the conclusions.

3.2 Sources of Data

Data utilized was from Kenya Demographic and Health Survey (KDHS) 2014, which is the most recent Demographic Health Survey, conducted by the Kenya National Bureau of Statistics. Kenya Demographic and Health Survey (2014) is the fifth survey conducted in Kenya and follows similar surveys conducted in 1989, 1993, 1998, 2003, and 2008-09. It provides information to help monitor and evaluate population and health status in Kenya. Besides, it's the first national survey to provide estimates for demographic and health indicators at the county level. The individual child file was utilized because it provides information about for children born 59 months prior to the survey.

3.3 Variables of Interest

The following variables were used in this study;

Table 0.1: Variables of Interest

V008	Date of Interview
B3	Date of birth of child (CMC)
B5	Child is alive (1 = Yes, 0 = No)
B7	Age at death in months (imputed)
V212	Maternal age
M14, M15, M70	Maternal health
V47	Birth Order
V501	Marital status
V130	Religion
V102	Type of residence
V106	Education level
V731	Employment status
V190	Wealth Index

3.4 Data Quality

Evidently, KDHS 2014 data had some omissions and shifting of infant deaths from one year to the other (KNBS 2014). Both sampling and non-sampling errors had an influence on the data. Non-sampling errors occur during data collection and data processing. They include misidentification of the appropriate households, misinterpretation of queries by either interviewer or interviewee and data entry errors. On the other hand, sampling errors are estimates

of inconsistency among probable samples. Even though the level of inconsistency is unknown precisely it can be calculated from survey outcomes.

To reduce inaccuracies in recording of age at death, the interviewers were advised to inquire for deaths reported at one year to determine a more accurate age in months. The accuracy of reporting of the age at death greatly affects childhood mortality estimates and distorts the age pattern of mortality. Selective exclusion from the history of births of infants who died is another data quality issue in KDHS (2014) data, this leads to inaccurate mortality estimates. This is most common for deaths that happen during infancy. One of the ways these exclusions can be identified is through checking the proportion of neonatal deaths with infant deaths. Evidence of death underreporting is identified when neonatal deaths are very low compared to infant deaths. However, KDHS 2014 questionnaire had detailed consistency checks that were in-built to ensure accuracy of information obtained from birth histories (Ogolla, 2012).

3.5 Measurement of Women empowerment

For this research, women empowerment was measured by participation in decision-making (V743) assessed by answers to the problem "Who makes the decisions in regard to the following;

a. Spending earnings of the respondent
b. Spending husband's/partner's earnings
c. Acquisition of large household items
d. Daily purchases
e. Respondent's health care
f. Type of food to be cooked daily
g. Visiting family or relatives.

They were assessed by the following answers;

a. Woman alone
b. Woman with spouse
c. Woman with someone else
d. Partner/ Husband alone
e. Somebody else
f. other

Binary response variables are created by merging categories; a) b) & c) to be '1' which denotes respondent's participation in decision making; while d), e) and f) to be '0' which denotes non-participation of the respondent in the decision-making process.

3.6 Data Analysis Methods

3.6.1 Principal Component Analysis

Principal component analysis (PCA) was used on the variables associated with women empowerment index to remove multicollinearity and create a new variable called women empowerment index. PCA is a technique used to reduce many variables that share common similarities (Gray, 2017). It focuses on reducing large variables into smaller ones called principal components, which will in turn account for variance in the original variables. In this case the variables included who usually decides on; spending respondent's earnings, money earned by husband, large household purchases, daily purchases, respondent's health care, type of food to be cooked daily and visiting family or relatives.

3.6.2 Ranking using NTILES

The components of the variable 'Women empowerment Index' were ranked using 'NTILES' in SPSS Version 22.0. For ranking, the first component which SPSS automatically computes is used, then rank all the women (mothers of children) by this first component and three categories of women empowerment index are generated as; 1-Low, 2- Medium and 3-High.

3.6.3 Chi square test

Association that exist between infant death, women empowerment and control variables were evaluated basing on chi-square assessments.

3.6.4 Survival analysis

Survival function is the probability that a subject survives beyond a point in time. According to Hosmer & Lemeshow (1999), survival model is considered most suitable method to analyze the survival of child under one year. It is very useful for analysis of censored data. Primarily, the model is meant to study follow-up times particularly in years, months, weeks or days. It consists of an event (failure) and censored data at the end of the follow up. Censored data refers to missing event dates such as where subjects are lost to follow-up.

In this study, two-fold of information was collected; i) information on newborns during the period which was based on the assumption that monitoring of these children was done from day one upto the end of one year of life, and ii) sorted data on infant mortality.

Cox proportional hazard models were used to analyze the data. Cox proportional hazard model refers to a semi-parametric method that relates the time of an event usually death or failure, to a number of explanatory variables known as covariates expressed as;

i) Survivorship function S(t)

$S(t) = P$ *(a newborn surviving longer than t from first day of life)*

$S(t) = P(T > t)$

$S(t) = 1 - P$ *(a newborn dying before t from first life)*

$S(t) = 1 - F(t)$ Where;

$S(t)$ is a non-increasing function of time with properties

$$S(t) = \begin{cases} 1 \; for \; t = 0 \\ 0 \; for \; t = \infty \end{cases}$$

ii) The hazard Function

$$h_i(t,X) = h_0(t)\exp\ (\beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \cdots + \beta_p X_p)$$

$$h_i(t,X,\beta) = h_0(t)\exp\ \sum_{i=1}^{p} \beta X_i$$

Where;

$h_i(t,X)$ is the risk of death for child *i* at time t

$h_0(t)$ is the baseline hazard function

$X = (x_1, x_2, x_3, \ldots x_p)$, are the used variables;

β = vector of unknown coefficients of the explanatory variables x_i.

To identify the unadjusted effect of individual variable on the risk log-rank test was applied;

$$\frac{h_i(t)}{h_0(t)} = \exp \sum_{i=1}^{p} \beta_i X_i$$

In this study, the Cox proportional hazard models are used to compare the survival curves for infants with ages lees than one year. Variables whose B values are positive imply increased

hazard hence decreased survival times. This means that as the predictor increases the hazard of the event increases and the predicted survival duration decreases. On the hand, negative coefficients indicate increased survival times or decreased hazard. Exp (B) is the ratio of hazard rates that are one unit apart on the predictor.

3.7 Recoding of Variables

Control variables in this study were recoded into categories so as to fit in the cox regression analysis.

Table 0.2: Operationalization and Recoding of Variables

Child Dead	0 = Dead 1 = Alive	Dependent Variable
Independent Variable		
Women Empowerment Index	1= Low 2= Medium 3= High	Independent Variable
Maternal Variables		
Birth Order	1 = 1(first birth order) 2= 2-4 (second birth order) 3= 5+ (High birth order)	Background variable
Maternal Age	1= < 18 years 2= 18-34 years 3= 35+ years	Background variable
Antenatal care	0= 0 visits 1= 1-2 visits 3= > 2 visits	Background variable
Place of delivery	1= Home 2=Public facility	Background variable

	3= Private facility 4= Others	
Post-natal care	0=No 1= Yes 2= Don't know	Background variable
Socio-economic Variables		
Wealth Index	1 = Poor 2= Middle 2= Rich	Background variable
Employment Status	1=No 2=Yes	Background variable
Place of Residence	1= Urban 2= Rural	Background variable
Mothers Education	1= no education 2=primary 3= Secondary or higher	Background variable
Religion	1=Christians 2=Muslims 3=Others	Background variable

Source: ***Study analysis data***

CHAPTER FOUR: EFFECT OF WOMEN EMPOWERMENT ON INFANT MORTALITY IN KENYA

4.1 Introduction

This chapter highlights the results of this study. The results are presented in two approaches; bivariate analysis and cox-proportional hazard model. The first section shows various independent variables (IV) used in the study. They include cross tabulation with the dependent variable (DV) and then their elaborated associations. The second section presents the results of survival analysis using Cox Proportional Hazard Regression.

The major limitation of the data was under reporting of infant deaths, especially those that occurred soon after birth as recording is done retrospectively (five years before the survey). Therefore, deaths that were reported to have occurred at one year were probed further, so as to obtain a more accurate age in months.

4.2 Association between Infant Mortality and Study Variables

This section sought to investigate the association between risk of infant mortality and the independent variables. Table 4.1 below shows the results where, out of 4,032 infants born five years before the survey; 123 infants died before celebrating their first birthday. Below are findings of the association between the independent and dependent variables.

Covariates	INFANT MORTALITY				Pearson Chi-square	P-value
	Yes		No			
	N	%	N	%		
	123		3909			
Maternal Factors						
Maternal age						
<18yrs	44	35.8%	1573	44.2%	**1.548**	**0.461**
18-34	66	53.7%	1875	55.6%		
35+	13	10.6%	461	0.2%		
Birth Order						
First	22	17.9%	924	23.6%	**4.21**	**0.122**
Second	61	49.6%	1998	51.1%		
Third +	40	32.5%	987	25.2%		
Maternal Health						
ANC Visits						
No visits	18	14.6%	250	6.4%	**15.648**	**0.000*** **
1-2 visits	13	10.6%	691	17.7%		
>2 visits	92	74.8%	2968	75.9%		
Postnatal check ups						
Yes	17	13.8%	1103	28.2%	**49.784**	**0.000**
No	35	28.5%	748	19.1%		
Don't know	71	57.7%				
Delivery place						
Home	49	39.8%	1534	39.2%	**8.329**	**0.040**
Public facility	61	49.6%	1917	49.0%		
Private facility	8	6.5%	404	10.3%		
Other	5	4.1%	54	1.4%		
Socioeconomic factors						
Employment Status						
Employed	76	61.7%	2169	55.5%	**0.892**	**0.345**
Not employed	47	38.3%	1740	44.5%		
Wealth Index						
Poor	74	60.2%	2166	55.4%	**4.409**	**0.11**
Middle	25	20.3%	654	16.7%		
Rich	24	19.5%	1089	27.9%		
Place of Residence						
Urban	39	31.7%	1292	33.1%	**0.097**	**0.755**
Rural	84	68.3%	2617	66.9%		
Maternal level of Education						
No education	25	20.3%	850	21.7%	**1.42**	**0.492**
Primary level	69	56.1%	1986	50.8%		
Secondary or higher level	29	23.6%	1073	27.4%		
Religion						
Christian	101	82.1%	3121	79.8%	**0.648**	**0.723**
Muslim	20	16.3%	662	16.9%		
No religion	2	1.6%	107	2.7%		
Women empowerment index						
High	6	4.9%	64	1.6%	**7.473**	***0.024**
Medium	103	83.7%	3340	85.4%		
Low	14	11.4%	505	13.0%		

4.3 Women Empowerment Index

Women categorized as medium in empowerment experienced a very high (83.7%) rate of infant mortality while low empowered women experienced lower levels (11.4%) of infant mortality. About 5% of infants born to women categorized as high in empowerment index died before their first birthday. This was in line with other studies done by Stiyaningsih and Wicaksono (2017) Belayet (2015) who established that women who are highly empowered have reduced chances of infant mortality. There was a significant association between women empowerment and infant mortality (Chi-square =7.473 p=0.024).

4.4 Maternal Factors

4.4.1 Age of the mother

About half of infant deaths (53.7%) were experienced among women aged between 18-34 years, while a third (35.8%) of infant deaths were among women aged below 18 years. A small proportion (13%) of the older mothers (above 35 years) experienced infant mortality. However, there is no significant association between maternal age and infant mortality (Chi-square =2.582 p=0.275).

4.4.2 Birth Order

Almost half of infant deaths (49.6%) were among mothers with second birth order, while the least (22%) deaths were experienced by mothers in the first birth order category. Nearly a third, (32.5%) of infant deaths were experienced by women who were in their third or higher birth order. This indicate that high birth order were associated with high infant deaths (Hossain 2015). However, this association is not significant (Chi-square 4.21 p=0.122).

4.4.3 Maternal Health

High rates of deaths (74.6%) among infants was experienced by women who accessed prenatal care more than two times; while 10% was experienced by mothers who attended antenatal care once or twice. Moreover, only 14.6% of infant deaths were experienced among women who did not attend any prenatal care. This could imply that frequency of visits attenuates the risk of infant mortality (Mekonnen 2013). This association is strongly significant (Chi-square =15.648 p= 0.000).

For post-natal care, about a third (28.5%) of dead infants belonged to the mothers who did not attend postnatal care clinics within the first two months after giving birth, while 13.8% belonged to mothers who received postnatal care within the same period. This is a clear indication that postnatal care services for newborns are associated with high chances of infant survival as any preventable complications could be detected early (Roets 2018). Almost half (59.9%) of infant deaths were experienced by mothers who were not aware whether they had post-natal care. A strong significant association between postnatal care and infant mortality was found. (Chi-square= 49.784 p= 0.000).

About half (49.6%) of infant deaths were experienced among women who delivered in public hospitals, while slightly above a third (39.8%) of infant deaths were experienced by women who delivered at home. Only 6.5% of infant deaths were experienced by women who delivered in private hospitals. However, there existed a significant association between place of delivery and infant mortality. (Chi-square =8.329 p=0.040).

4.5 Socio-Economic Determinants

4.5.1 Employment status

About six in ten (61.7%) of infant deaths were experienced by women who were employed, while 38.3% of infant deaths were among the unemployed ones. This was in line with the results of a study done by Kishor (1998) in India, who found a positive association and concluded that high levels of mortality were attributed to lack of enough time, hence less care and infrequent breast feeding. There was no significant association between employment and infant mortality. (Chi-square =0.933 p=0.627).

4.5.2 Wealth Index

Poor households have been associated with high infant deaths. This is due to scarcity of resources to take care of the baby as well as lack of proper nutrition for both the mother and the infant (Uddin & Kabbir,2006). This study similarly found out that six in ten, (60.2%) of infant deaths were experienced by mothers from poor households compared to their counterparts from middle and rich households who experienced almost the same rate of infant mortality at 20.3% and 19.5% respectively. The results did not show a significant association between wealth and infant mortality. (Chi-square =4.409 p=0.11).

4.5.3 Place of residence

Infant deaths were high (68.3%) among women residing in rural areas, which was twice as much (31.7%) as for women residing in urban areas. There existed no significant association between place of residence and infant mortality (Chi-square =0.097 p=0.755). Residing in rural areas has been associated with a high number of infant deaths attributed to inaccessibility of health services, poor sanitation and nutrition (K'Oyugi 1992).

4.5.4 Maternal Education

Regarding education level, women who possess primary level education experienced a high number of infant deaths (56.1%), compared to the uneducated ones and those with secondary or higher level of education, at 20.3% and 23.6% respectively. There was no significant association between these two variables (Chi-square =1.42 p=0.492).

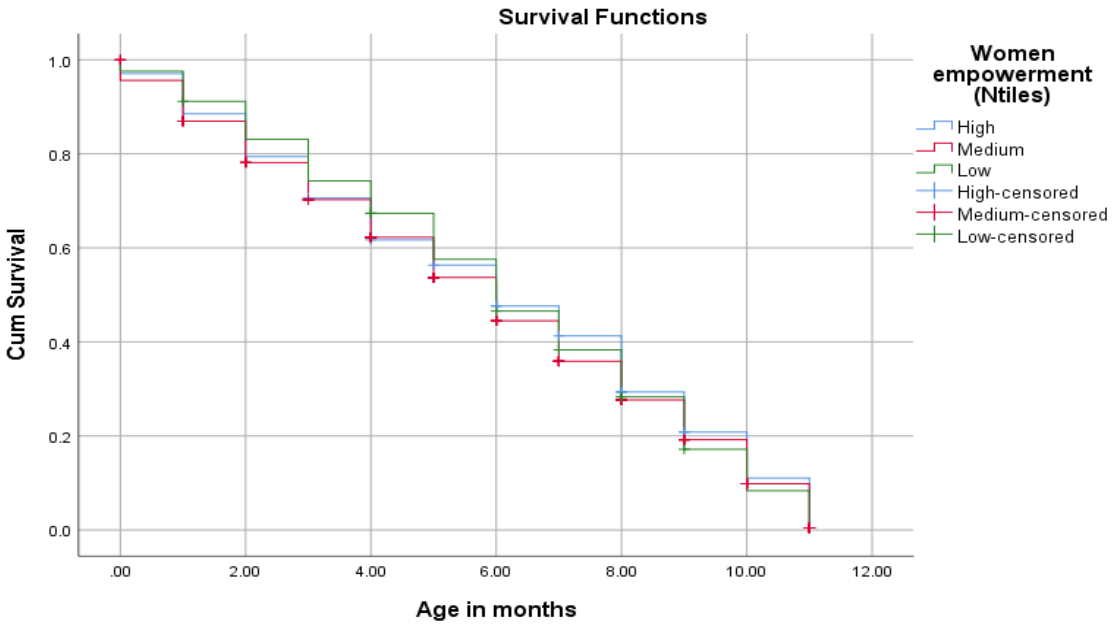
4.5.5 Religion

About eight in ten (82.1%) of infants born to women of Christian affiliation died before celebrating their first birthday, while 16.3% of infants who died during the same period belonged to Muslim mothers. Religion was not significantly associated with infant mortality. (Chi-square =0.648 p= 0.723).

4.6 Kaplan Meier Estimate Curve

Figure 4.1 below illustrates Kaplan-Meier estimates of infant mortality curve. Each of the descending step presents one or more death of an infant. Infants born to low empowered women have better probability of survival compared to women born to high empowered women. Medium empowered women have the lowest probability of infants' survivorship as presented below.

Figure 0.3: Kaplan-Meier Survival Curves for Women Empowerment



4.7 Cox Proportional Hazard Regression of Study Variables on Infant Mortality

This section presents hazard ratio estimates of infant mortality using cox proportional regression method after controlling for socioeconomic and maternal variables in the model as shown in Table 4.2 below. Cox regression analysis shows that the model fitness is good. (Chi- square= 54.65 p=0.000)

Table 0.3: Cox Hazard Regression of Study Variables on Infant Mortality

Covariate	Exp(B)	95%CI	SE	Exp(B)	95%CI	SE	Exp(B)	95%CI	SE
Women Empowerment									
High-**REF**									
Medium	**2.809***	(1.080-7.312)	0.488	**0.39***	0.153-0.994	0.478	**0.341***	0.116-1.009	0.553
Low	1.128	(0.645-1.971)	0.285	**0.344***	0.132-0. 898	0.489	0.424	0.117-0.899	0.532
Education									
No educ- **REF**									
Primary level				1.215	0.715-2.067	0.271	2.122	0.817-5.511	0.487
Secondary +				1.065	0.550-2.061	0.337	2.144	0.654-7.036	0.606
Wealth Index									
Poor- **REF**									
Middle				1.043	0.649-1.677	0.242	1.26	0.440-3.855	0.381
Rich				0.602	0.344-1.053	0.285	0.709	0.074- 1.309	0.470
Employment									
Unemployed-**REF**									
Employed				1.056	0.554-2.014	0.248	0.83	0.380-1.813	0.399
Religion									
Christian- **REF**									
Muslim				1.112	0.639-1.935	0.283	1.237	0.642-8.616	0.446
No Religion				0.545	0.133-2.242	0.722	0.589	0.078-4.467	1.033
Place of residence									
Rural- **REF**									
Urban				1.108	0.720-1.704	0.220	1.131	0.685-5.341	0.342
Birth order									
1st Birth O-**.REF**									
2nd Birth Order							1.58	0.135-1.576	0.437
High Birth Order							2.017	0.209-4.545	0.518
Maternal Age									
<18 years- **REF**									
18-34 years							1.023	0.124-8.452	1.078
35+ years							0.622	0.062-6.215	1.174
Antenatal care									
No visits- **REF**									
1-2 visits							**0.299****	0.089-1.003	0.618
>2 visits							0.499	0.183-1.361	0.512
Postnatal care									
No- **REF**									
Yes							0**.267****	0.146-0.488	0.307
Don't know							2.955	0.25734.0	1.246
Delivery place									
Home- **REF**									
Public facility							0.92	0.460-1.838	0.353
Private facility							0.795	0.240-2.632	0.611

Model Parameters									
2Log likelihood	1821.3			213.14			675.86		
df	2			13			21		
P-value	0.066			0.346			0.0000		

***=0.05 **=0.01 REF-Reference category**

Model 1 displayed in Table 4.2 below show the relationship between children of women who are differently empowered and the hazard ratio for infant mortality. The results indicate that infants whose mothers were middle empowered are 1.81. times more likely to die than the infants whose mothers were highly empowered (HR=2.81). Similarly, infants whose mothers were lowly empowered are 0.128 times more likely to die compared to infant whose mothers were highly empowered at the time of birth (HR=1.128). There was a significant effect of women empowerment on infant mortality.

Model 2 illustrated in Table 4.2 below shows the women empowerment has a significant effect on infant mortality even after incorporating socioeconomic factors. Mothers with medium empowerment index are 0.61 times less likely to experience infant mortality compared to mothers with high empowerment at the time of infant birth (HR=0.39). Low empowered women are 0.66 times less likely to experience infant deaths than highly empowered women at the time of birth (HR=0.34). Socioeconomic covariates did not show any significant effect on the risk infant mortality.

Model 3 illustrated in Table 4.2 below shows the effect of women empowerment on infant mortality after incorporating socioeconomic and maternal variables as background variables. Women empowerment showed a significant effect on infant mortality. Mothers with medium empowerment index had 0.66 times less likely to experience infant mortality compared to mothers with high empowerment at the time of infant birth (HR=0.34). Low empowered women

hare ve 0.58 times less likely to experience infant deaths than highly empowered women at the time of birth (HR=0.424).

Mothers who did 1-2 antenatal visits are 0.61 times less likely to experience infant death as compared to mothers who did not make any visit at the time of infant birth (HR=0.299). Women who had more than 2 antenatal visits on the other hand are 0.51 times less likely to have infant deaths as compared to mothers who did not make any visit at the time of infant birth (HR= 0.499).

Women who delivered in a public facility are 0.92 times less likely to experience infant mortality (HR=0.08) compared to women who delivered at home while women who delivered in a private facility are 0.8 times less likely to experience infant mortality with reference to the ones who delivered at home (HR=0.205).

Mothers who sought postnatal care within the first two months had 0.267 times less likely to experience infant mortality compared to their counterparts who did not seek postnatal care within the same period of time (HR= 0.733). On the other hand, mothers who were not aware of postnatal care are 0.195 less likely to experience infant deaths (HR=2.95). Place of delivery did have a significant effect on infant deaths.

Note: All the background variables used had an effect of increasing the coefficients of women empowerment index.

CHAPTER FIVE: SUMMARY, CONCLUSION & RECOMMENDATIONS

5.1 Introduction

This chapter underscores the summary of this study as well as conclusion and recommendations. The first section highlights summary and conclusion on women empowerment and selected control variables on infant mortality. The second section outlines recommendations that will inform policy makers.

5.2 Summary of findings

The study sought to establish the linkages between women empowerment and infant mortality, as well the influence of women empowerment on infant deaths with socioeconomic and maternal factors as control variables.

The study showed that high empowered women experienced the least number of infant deaths. Infants born to young mothers below 18 years of age, as well as infants in the high order birth category had high chances of survival. Generally, majority of infant deaths were experienced by women who did not seek maternal health i.e. antenatal care and post-natal care. Women who delivered in public facilities also experienced high levels of infant deaths while the ones who delivered in private hospitals had the least number of infant deaths. Employed women reported high levels of infant deaths than unemployed women. Mothers from poor households experienced a high number of infant deaths than their counterparts from middle and rich households. Majority of deaths among newborns was among women residing in rural areas. Women with primary level education also showed a high risk of infant deaths as opposed to women with no education or secondary or higher level of education. Most of the infants born to

mothers of Christian affiliation also died before celebrating their first birthday compared to infants born to mothers of Muslim affiliation. More so, there existed a significant relationship between women empowerment and infant mortality These findings were in line with other studies done by Stiyaningsih & Wicaksono (2017) and Belayet Hossain (2015).

Maternal health i.e. antenatal care, post-natal care and delivery place was found to have a significant association with infant mortality. These results are consistent with a study done by Khan (1987) which explored the relationship between maternal health and child health during early infancy; and concluded that exists is a positive health impact on the newborn when women receive these services.

Nearly a third of infant deaths were experienced by women who were in the high birth order. This is in line with the results of a study carried out in Nepal by Hossain (2015), who found out that many births in the past and with short duration remarkably increased infant mortality.

Mothers residing in rural areas experienced a very high number of infant deaths compared to their counterparts in urban areas. Residing in rural areas has been associated with a high number of infant deaths attributed to inaccessibility of health services, poor sanitation and nutrition (K'oyugi 1992).

This study also found that majority of employed mothers experienced infant mortality compared to the unemployed ones. This was the same with the results of a study done by Kishor (1998) in India, who found a positive association between employed mothers and infant mortality. He concluded that high levels of infant deaths were attributed to mothers' lack of enough time, hence less care and infrequent breast feeding. These studies were backed up by Hossain (2015) when he found that women employment led to increased infant deaths.

Infants born to mothers from poor households were at a high risk of dying as opposed to infants born to mothers from middle and rich household wealth index. These results were consistent with others. (Frenzen and Hogan,1982) (Uddin & Kabir, 2006) & Yaya (2016). Poor households lack standards of nutrition, sanitation, housing, and medical care.

Form the Kaplan Meier curve, the findings suggested that medium empowered women have the lowest probability of survivorship of infants.

5.3 Conclusion

The results of the study confirm that women empowerment measured by decision making within the household is crucial to curbing infant deaths among women of child-bearing age and therefore, women empowerment predict the risk of infant mortality in Kenya. None of the socioeconomic variables included in the multivariate analysis captured the effect of women empowerment on infant mortality. However, maternal health factors such as mother's prenatal & post-natal care as well as place of delivery are among variables that women empowerment acts through to significantly reduce infant mortality according to this research. Finally, the study also implied that women empowerment is not the only variable that reduces infant mortality. Additionally, women empowerment acts through some factors but not all to influence infant survival.

5.4 Recommendations for programmes and policy implications

This study revealed women empowerment as a key determinant of curbing deaths of infants which leads to improved health status and hence rise in level of development. Policies and mechanisms of breaking down cultural, religious and ethnic obstacles which prevent amicable interaction of both genders to make effective decisions on matters health within households

should be encouraged. Programs should include interventions to improve a woman's ability to negotiate with her partner regarding involvement in decision-making within the household, including decisions related to her own health and children's health.

Employment status has been linked with decrease in chances of survival among infants. This does not mean discouragement of women employment but it implies need for more feasible care choices for employed mothers.

It is vital for government to increase household wealth in order reduce poverty and also to achieve infant health. Women from poor households would have to be empowered through alternative means of livelihood to improve upon their welfare which will facilitate health care utilization including infant health care services.

As observed, infant mortality was explained by maternal health. Accessibility to maternal health should be improved by strengthening and effectively resourcing National Health Insurance Fund, (NHIF), will encourage more people to enroll to reduce the financial burden incurred in seeking maternal health care services. Mothers ought to be enlightened to effectively attend maternal health care services.

5.5 Recommendations for further research

A more valid measure of women's empowerment that is both generalizable to Sub-Saharan countries and also robust enough to develop region specific indicators should be considered. There is lack of a standard or consistent way of measuring women's empowerment in low- and middle-income countries as most of them have diverse contexts. (Doku, 2020). This is because some of countries have few dimensions of empowerment and this makes it hard to be generalized.

Longitudinal studies should be carried out to measure women empowerment instead of cross-sectional surveys. This is because women empowerment is a long continuous process (Rowlands, 1995). Evidence need to be summarized for each method applied to determine the effect of women empowerment on child's health. Ideas should be provided for future research.

Qualitative studies should be considered targeting the factors in county-specific program to be able to understand how culture affects women empowerment specifically in regards to decision making within the households and community at large. Additionally, In-depth studies should also be carried to explore why women continue to experience infant mortality and from such information better programs and policies to help in addressing the issue in Kenya.

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