**CHILDHOOD MORTALITY TRENDS IN KENYA: A COMPARISON OF RURAL AND URBAN AREAS**

RESEARCH PROPOSAL

STA 450

A Research Project Submitted to **Department Of Mathematics And Computer Science** In The **School Of Science And Technology**

Requirements For The Award Of The Degree Of **Applied Statistics With Computing**, University Of Kabianga Main Campus.

May, 2022

# **DECLARATION**

This research project is our original work and has not yet been presented in any other University for partial fulfilment of a degree or a diploma.

This research has been submitted for examination with our approval of the university supervisor.

Sign: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# **DEDICATION**

This research proposal is dedicated to our parents for their encouragements and support financially. We also wish to dedicate this project to our fellow comrade and the university of Kabianga fraternity.

**ACKNOWLEDGEMENT**

Our acknowledgment is to the Almighty God for the sustenance during the course of this research proposal. Also, we acknowledge our supervisor Madam Alala for the professional advice and guidance she gave us all through this research.

Table of Contents

[**DECLARATION** 2](#_Toc103606850)

[**DEDICATION** 3](#_Toc103606851)

[**ABSTRACT** 7](#_Toc103606852)

[**ABREVIATIONS** 8](#_Toc103606853)

[**CHAPTER 1** 9](#_Toc103606854)

[**1.1 Background of the study** 9](#_Toc103606855)

[**1.2 STATEMENT OF THE PROBLEM** 9](#_Toc103606856)

[**1.3 PURPOSE OF THE STUDY** 9](#_Toc103606857)

[**1.4 SPECIFIC OBJECTIVES** 9](#_Toc103606858)

[**1.5 HYPOTHESIS** 9](#_Toc103606859)

[**1.6 SIGNIFICANCE OF THE STUDY** 9](#_Toc103606860)

[**1.7 LIMITATION OF THE STUDY** 9](#_Toc103606861)

[**1.8 ASSUMPTION OF THE STUDY** 10](#_Toc103606862)

[**CHAPTER TWO** 11](#_Toc103606863)

[**LITERATURE REVIEW** 11](#_Toc103606864)

[**2.1 Introduction** 11](#_Toc103606865)

[**2.2 Review of the related literature** 11](#_Toc103606866)

[**2.3 Theoretical framework** 11](#_Toc103606867)

[**2.4 Conceptual framework** 12](#_Toc103606868)

[**2.5 Identification of the knowledge gap** 12](#_Toc103606869)

[**CHAPTER THREE** 13](#_Toc103606870)

[**RESEARCH METHODOLOGY** 13](#_Toc103606871)

[**3.1 Introduction** 13](#_Toc103606872)

[**3.2 Research Design** 13](#_Toc103606873)

[**3.3 Location of study** 13](#_Toc103606874)

[**3.4 Target population** 13](#_Toc103606875)

[**3.5 Data collection instruments** 13](#_Toc103606876)

[**3.6 Data analysis and presentation** 13](#_Toc103606877)

[3.6.1 Types of the model to be used 14](#_Toc103606878)

[**3.7 Ethical issues/ethical consideration** 15](#_Toc103606879)

[3.7.1 Ethical issues 15](#_Toc103606880)

[3.7.2 Ethical consideration 15](#_Toc103606881)

[**REFERENCES** 16](#_Toc103606882)

# **ABSTRACT**

Background

We describe trends in childhood mortality, paying attention to the differentials between the urban–rural areas in Kenya

Methods

This study will use data collected between 2010 and 2020 from the Kenya Demographic and Health Surveys (KDHS),to estimate infant mortality rate(IMR) ,child mortality rate(CMR) and under five mortality rate (U5MR)

**Keywords:** Infant mortality, Child mortality, Under five mortality.

# **ABREVIATIONS**

KDHS Kenya Demographic and Health Surveys

IMR Infant Mortality Rate

CMR Child Mortality Rate

U5MR Under Five Mortality Rate

DHS Demographic and Health Survey

KNBS Kenya National Bureau of Statistics

# **CHAPTER 1**

# **1.1 Background of the study**

Between 1990 and 2015, significant progress was made towards reaching the the goal of reducing mortality of children under the age of five years by two thirds.

According to a recent research by the Kenya Demographic and Health Surveys(KDHS) the number of fatalities among children under the age of five in Kenya decreased by almost 40% since 1991 to 2011.This decrease however was not consistent across regions in Kenya, urban areas like Nairobi, Kisumu had the highest decline as compared to rural areas which had the slowest rate of decline and high mortality remained.

## **1.2 STATEMENT OF THE PROBLEM**

Reducing child mortality by implementing on how to improve children survival by improving health care services, water and sanitation, infrastructure and good housing.

## **1.3 PURPOSE OF THE STUDY**

The objective of this study is to examine the differences in mortality trends of children under five years in Kenya living in urban and rural areas.

## **1.4 SPECIFIC OBJECTIVES**

In this study, our specific objectives will be;

i)To estimate the trend and differences between childhood mortality in rural and urban areas in Kenya

ii)To make policy recommendation towards reducing the child mortality rate in Kenya

## **1.5 HYPOTHESIS**

The formulated question this study intends to answer is; are there any disparities in the mortality rate trends in rural and urban areas?

## **1.6 SIGNIFICANCE OF THE STUDY**

i)The KDHS will be in position to know reduction of infant mortality and death cases in future.

ii)The citizens living both in urban and rural areas will be in a position to understand what causes infant mortality and how to manage it.

iii)This will help the country to be aware of mortality trend if its either increasing or decreasing so as to provide necessary and adequate resources.

## **1.7 LIMITATION OF THE STUDY**

Lack of adequate data or no data at all is a major limitation in this research of child mortality

Since the study is country based, it will be hard to break the data into smaller groups that are to be used for future predictions.

## **1.8 ASSUMPTION OF THE STUDY**

The secondary data that will be obtain from our sources are accurate and true.

The model developed will be adequate for studying the future trend

# **CHAPTER TWO**

# **LITERATURE REVIEW**

## **2.1 Introduction**

This chapter provides an overview of childhood mortality trend in Kenya in both rural and urban areas in general. This chapter also include talks from relevant literature on how urban and rural areas are different in term of childhood mortality. Theoretical and conceptual framework is discussed in this chapter.

## **2.2 Review of the related literature**

In Kenya, previous studies have revealed poor child health results. For example, substantial levels of child malnutrition have been observed with a countrywide stunting prevalence of 35%(KNBS and ICF Macro,2009). Only 56 percent of children with acute respiratory infections (ARI) received care from a health care provider, according to the KDHS and only 43 percent of women gave birth at a health facility (KNBS). Kenya urban population is expanding at a rate of 4% per year, with the proportions of Kenyans living in cities estimated at 22% in 2010. (Unhabitat, 2008).

The trends and determinants of childhood mortality are discussed in this chapter with a broader perspective of African nations. Hodge and Jimenez-Soto (2013) suggest that the globe has seen a significant decline in child mortality. Sub-Saharan countries have seen a 50 percent decline in child mortality since 1990. However, UNIGME (2018) reports that majority of child deaths occur in sub-Saharan Africa. Similarly, projections of the UN indicate that more than half of the world's under-five deaths will be happening in sub-Saharan Africa by 2050 (Okiro and Ayieko, 2018). Research studies need to be undertaken to determine the trends, causes, and mitigation strategies against child mortality in less-developed countries (Okiro and Ayieko, 2018). The procedures for the direct and indirect approaches in estimation under-five mortality rates are discussed in this chapter.

The determinant of child mortality from literature reviewed are classified as demographic, socio-economic and environmental factors. Also health care services have significant impact in child survival since the provide services such as education, access to clean water and sanitation thus improving Childs health status.

## **2.3 Theoretical framework**

i)Gender stratification theory

Gender stratification theory argue that improving women status, particularly through education and other means, will greatly increase women ability to access the socio-economic resources and knowledge needed for proper infant nutrition and care resulting in reduction in infants’ death (Wang 2014)

ii) Modernization theory

Industrialization and its economic development lower infant mortality by improving healthcare, education, nutrition and other factors. Moore et al, Babones (2008) and others have confirmed and reported that infant and child mortality vary in a negative manner with the level of industrialization.

iii)Dependency theory

This theory argues that dependent relationships core and peripheral countries encourage resources and surplus extraction, resulting in limited resources for public health, family planning, nutrition and other factor that infant and child mortality (Shandraelal 2011). The link between several indicators of dependency has yielded various result in child mortality (Frey and Field 2000).

iv)Developmental state theory

This theory states that state can work in a way that promote human well-being and reduce infant mortality (Evans 1995). This actions may include direct attempt to minimize infant mortality through prenatal and postnatal care programs, as well as indirect program such as investment in public health and well care programs that that eliminate inequities in access to good nutrition, health care and other services

## **2.4 Conceptual framework**

Conceptual model of childhood mortality has developed in various directions depending on the interest of the investigator. All however, there exists a certain finite number of variable trough which all socio-economic or background must operate

i)Environmental contamination (exposure to diseases)

ii)Personal illness control-to reduce morbidity through behaviors that limit exposure (preventive measures such as sleeping under mosquito nets)

iii)Maternal factors i.e maternal age

iv)nutritional inputs

The conceptual framework that we propose includes

i)Careful examination on the determinant of childhood mortality

ii)Careful examinations on the structure and limitation of the KDHS data. (i.e this study fails to accommodate the nutritional inputs)

## **2.5 Identification of the knowledge gap**

There will be a narrowing in the gap in childhood mortality due to changes like education to mothers on the importance of medium duration of exclusive breastfeeding, child immunization and health seeking for childhood illness mostly in rural areas as compared to urban areas more especially those living in slums.

The narrowing gaps between urban and rural areas may be attributed to the deplorable living conditions in urban slums. To reduce morbidity greater emphasis is needed on the urban slums.

# **CHAPTER THREE**

# **RESEARCH METHODOLOGY**

## **3.1 Introduction**

In research study, Methodology refers to the discussion regarding the specific methods chosen and used in research paper to accomplish your projects objectives. Research studies have different methodology that depends on the nature of the study, objective of the study and the data to be collected. Under this research, the nature of the study is demographic and we are interested in analyzing the trends in childhood mortality.

## **3.2 Research Design**

A research design is a procedure for collecting, analyzing, interpreting and reporting data in research studies.

The study will use secondary data obtained through Demographic and Health Surveys (DHS) in Kenya. The data will comprise demographic data and regression on childhood mortality in Kenya from the year 2010 up to 2020.

## **3.3 Location of study**

The study is to take place between Urban and Rural areas in Kenya. In this study, we examine trends in under-five mortality in Kenya, paying particular attention to the changes in urban–rural differentials over time.

## **3.4 Target population**

The target population is the infants under five years of age living in both rural and urban areas in Kenya.

## **3.5 Data collection instruments**

We will use online secondary data obtained through Demographic and Health Surveys (DHS) in Kenya.

## **3.6 Data analysis and presentation**

Infant mortality, child mortality and under 5 mortalities are the required data to be analyzed. We use direct method to calculate infant mortality rates(IMR) for children aged 0-11 months, child mortality rate(CMR)for children aged 12-59 months and under five mortality rates(U5MR) for children aged 0-59 months by cohort and place of birth (urban or rural) based on the date of birth, child survival status and age at death.

We will use R as our tool to analyse the demographic data.

### 3.6.1 Types of the model to be used

i)Multiple regression model will be used to determine child mortality or survival. The dependent variable here will be the infants age while the independent variable will be rural and urban residence.

i.e Chances of infant morbidity is dependent on various input variables like health issues, place of residence either urban or rural, sanitation and many others.

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Where

Y- Dependent variable

-Independent (explanatory variables)

a-intercept

b, c, d-slopes

£-error

ii)Chi-square test

Chi-square statistics is commonly used for testing relationship between categorical variables

there is no difference of child mortality between urban and rural areas

there is difference in child mortality between urban and rural areas

Where

=the observed frequency

=the expected frequency

Where the observed frequency will be the number of infants deaths and the expected frequency will be

## **3.7 Ethical issues/ethical consideration**

### 3.7.1 Ethical issues

i)Poor housing conditions

ii)Inadequate water and sanitation which leads to diseases such as diarrhea and cholera hence increasing child mortality

iii)Limited education-most women do not know the importance of breastfeeding and thus they end up not breasting their infants well hence provision of education to them will help

iv)Malnutrition

v)inadequate health care services

### 3.7.2 Ethical consideration

i)Immunization of children

ii)Use of insecticides treated nets –treated nets prevents infants from contacting malaria hence leading to 7% in infant mortality

iii)Healthcare seeking for childhood illness

iv)Access to improved source of drinking water and sanitation-this will prevent infections such as diarrhea and cholera thus leading to reduction in infant mortality

v)Breastfeeding-optimal breast feeding is good to infants since its associated with 12% reduction in under five mortalities.

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