

Examining Mother's Related Socioeconomic and Demographic Determinants of Infant and Child Mortality in the Eastern Cape, South Africa



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Examining Mother's Related Socioeconomic and Demographic Determinants of Infant and Child Mortality in the Eastern Cape, South Africa

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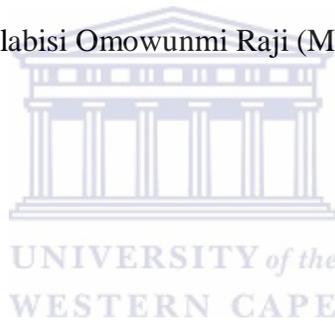


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Declaration

I declare that this MPhil project titled “Examining Mother’s Related Socioeconomic and Demographic Determinants of Infant and Child Mortality in the Eastern Cape, South Africa” is my own work, that it has not been submitted for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by complete references.

Olabisi Omowunmi Raji (Mrs)



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All praises and thanks are due to Almighty Allah, the most Beneficent, and the most Merciful. This research would not have been possible without the help and encouragement provided by many people. First and foremost, I thank Almighty Allah (SWT) for enriching me with his adorable strength to cope through the course of study. I would like to thank my supervisor Dr. A Sathiya Susuman for the accomplishment of the project work. Special thanks go to my honourable lecturer, Dr. G. Tati, for his countless efforts and encouragement throughout the course of study. Lots of gratitude also goes to my loving husband, Abdulrafuu Tunde Raji. He is the inspiration behind my master programme. I thank you for your financial contributions, tireless efforts during day and night, and your moral encouragements. You were never tired of proofreading my work. Special thanks to my children Naeemah and Nasir-Llah for their patience and perseverance throughout the programme. Mummy loves you both. Lastly, I thank all my friends and well wishers.

Dedication

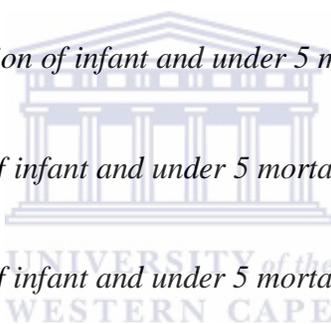
This project work is dedicated to

- My father, Late Alhaji K.A. Ajibola. May his gentle and loving soul rest in perfect peace.
- My sweet mother, my lovely husband and my darling children, Naeemah and Nasir-Llah.



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List of abbreviations

EA:	Enumeration Area
IMR:	Infant Mortality Rate
HIV/AIDS:	Human Immunodeficiency Virus/ Acquire Immunodeficiency Syndrome
MDG:	Millennium Development Goals
MRC:	Medical Research Council
NDHSA:	National Demographic and Health Survey of South Africa
NHIS/SA:	National Health Information System of South Africa
OHS:	October Household Survey
PPS:	Probability Proportional to the Size
PSU:	Primary Sample Units
SADHS:	South African Demographic Health Survey
SPSS:	Statistical Package for the Social Sciences
SSA:	Statistics South Africa
UNICEF:	United Nations Children Emergency Fund
UNPD:	United Nations Population Development Programme

ABSTRACT

Infants and under 5 mortality have been universally researched and its reduction by two-third by 2015 has been announced as one of the millennium development goal of the United Nations. Continuous monitoring in form of studies on mothers related factors that determines infant, child and under 5 mortality appears to be a step towards achieving this goal. Therefore using the Eastern Cape Province as a case study, this study utilises the secondary data of the 1998 South Africa Demographic and Health Survey (SADHS) dataset for children to examine some specific mothers related socioeconomic and demographic determinants of infant and child mortality. As at the time this study is being conducted the SADHS 2003 survey datasets are not available. However, reports that summarize the survey and some preliminary results are available. In this study, infant and child mortality have been grouped into 0-12 months and 13-60 months age at death, which is taken as independent variable. Profiles of the distributions of the dependent and the independent variables are described with the aid of cross tabulation. Demographic factors examined include the age of the mother at the time of delivery, order of birth and birth interval, while the socioeconomic factors examined include working status of the mother, mother's work place (at home work at home or away) mothers' education level, and the place of residence. We found that demographic variables such as age of mothers at first birth, birth order, birth interval, and socioeconomic factors such as mothers' education level, and the place of birth, have a significant effect on the probability of child's survival. Therefore, the postponement of the female age at birth with an appropriate child spacing, nonetheless, the improvement mother's education will enhance

the reduction of infant and child mortality. Steps that may be taken towards improving the health status of infant and child, including ways by which infant and child mortality may be reduced are recommended.



CHAPTER I

INTRODUCTION

1.1 Background to the study

Infants and under 5 mortality are deaths occurring to children either at delivery or during the first five years of birth. They are both measured per 1,000 live births during the year under consideration. A major component of the Millennium Development Goal is the reduction in the infant and child mortality by at least two-thirds by 2015 (*UNICEF, 2006*). To achieve this goal, health planners and international agencies are advocating that more resources be allocated to health sector, while health researchers are concentrating efforts at identifying cost-effective strategies to realise this goal. In the face of global economic meltdown which have adversely affected nations earning and their spending ability, it is very important to identify and rank-order those factors that affect child mortality for effective health interventions and effective public health strategies.

Apart from diseases such as malaria, tuberculosis, diarrhoeal, respiratory infections, HIV/AIDS, and so on, which are major factors responsible for childhood deaths, infant and child mortality are also believed to be associated with some factors which are specific to mothers, environmental, economic and social factors. Thus, there are several studies on determinants of infant and under five deaths each addressing some on these factors. Substantial amount of these studies focused more on the biological determinants, while others are specific to social and demographic determinants. Also, there are volumes

of literature on the socioeconomic and demographic characteristics of mothers in relation to their fertility, but studies on how these characteristics relates to infant and child mortality are increasingly gaining attention of social and health researchers. This increased attention may be partly explained by the fact that infant and child survival has been declared as a component of United Nations Human Development Index [UNICEF, 2006]. Hence, the importance of its measurements cannot be overemphasized. In addition, the threats of new diseases such as HIV/AIDS and the re-emergence of old ones such as tuberculosis and polio have made holistic approach more important now than ever [Chopra *et al.*, 2009].

This work aims to examine the socioeconomic and demographic characteristics that are specific to mothers, such as mothers employment, number of years of school, age of mothers at birth, birth order and place of birth (rural and urban), and how these characteristics proximate affect the rate of infant and child mortality, using the Eastern Cape of South Africa as the study population.

1.2 Justification for the study

Studies specifically linking mother's socioeconomic and demographic characteristics to children health and survival in the Eastern Cape are at best, scant. Yet, recent estimates of infant mortality rate (IMR) levels across the provinces showed that the Eastern Cape has the highest level of about 71 child deaths for every 1,000 live births [NDHSA, 2008]. This was largely attributed to biological factors, such as, HIV/AIDS epidemic as well as diseases such as tuberculosis, diarrhoea and so on (Bradshaw *et al.*, 2004). Concerted efforts are being made by the government and several non-governmental organizations to

reduce the IMR. Most of the efforts are focused on implementing AIDS treatment programmes, as well as HIV/AIDS awareness campaign. However, recent estimates by Bah (2005) suggest that child mortality may be on the increase in South Africa as a whole.

It is therefore, important to widen the scope and depth of studies on child health and survival in the country, especially in the Eastern Cape due its peculiar high rate of IMR. Aside from biological factors, socioeconomic and demographic factors may also significantly contribute to high level of infant mortality. In the Eastern Cape, 70 % of the people live in the rural areas, and slums are widespread in the cities. The situation in the rural areas is typified by lack of necessary health centres and medicines, and non-availability or inadequate number of medical personnel. Also, the spread of HIV/AIDS in this province have also been attributed to poverty-related conditions (Bradshaw et al. 2000). The study will therefore focus on socioeconomic and demographic causes of child and infant mortality, with emphasis given to those causes that are specific to mother.

1.3 Aims and objectives of the study

This study intended to examine how socioeconomic and demographic characteristics of mothers, such as the level of education, employment status, place of residence, age of mother at birth, birth order and birth interval affect infant and child mortality. Furthermore this work will identify and suggest the probable ways of alleviating the negative effects of these variables on child survival. The specific objectives of the study are the following:

- i. To investigate the overall infant and child mortality level in the Eastern cape Province
- ii. To examine the relationships between mother's related socio-economic factors and the level of infants and child mortality in the study area.
- iii. To predict empirically which of the studied variables these factors are most significant proximate of infant and child mortality in Easter Cape province.
- iv. To compare findings with those already reported for 2003 SADHS for South Africa and Eastern Cape.

1.4 Statements of hypotheses

In this study, hypotheses shall be based on the statements:

1. Infant mortality is lower with mothers having higher education.
2. Child and infant mortality is higher among women younger than 20 years at time of their first birth.
3. Birth interval more than 4 years reduces the infant and child mortality
4. Mothers living in urban area have lower infant and child mortality rate.

1.5 Significance of the study

While other provinces in post-apartheid South Africa have prospered both socially and economically in the last 15 years, the situation in the Eastern Cape is largely at variance with the rest of the country. Eastern Cape is generally believed to be the poorest in the country in term of availability of basic human needs such as good quality water, housing, and basic health services. It is largely rural, and majority of the inhabitants lives in the

rural areas. Urban slums are also prevalent. Therefore, an empirical study on the impact of socioeconomic and demographic determinants on child survival will be important for policy-makers and relevant government parastatals, since it will indicate inequalities in socio-economic conditions and access to health care services specifically. It will also indicate mother's level of access to perinatal care in the province as explain by the place of residence. Existing health policies could thus be improved upon. From the academic point of view, the results obtained will add to existing database on socioeconomic and demographic determinants of infant and child mortality, especially as it relates to women.

1.6 Data capturing process

This study is a survey dataset analysis of the 1998 South Africa Demographic and Health Survey (SADHS) dataset for women and children. As earlier mentioned, we do not have access to the 2003 survey datasets, hence the use of the 1998 data. The SADHS was designed to be a nationally representative probability sample of approximately 12000 households. The country was stratified into the nine provinces and each province was further stratified into urban and non-urban areas. Women aged 15 – 49, all adults aged 15 and over were eligible to be interviewed with the adult health questionnaire. Men aged 15-59 years were also eligible to be interviewed. The survey utilized five categories of questionnaires: a Household Questionnaire, a Women's Questionnaire, a Men's Questionnaire, an Adult Health Questionnaire and an Additional Children Questionnaire. All questionnaires were developed in English and then translated into all 11 official languages in South Africa. The Household Questionnaire was used to list all the usual members and visitors in the selected households. The Women's Questionnaire was used

to collect information from women aged 15-49 in all households. These women were asked questions on the variety of topics such as, background characteristics (age, education, race, residence, marital status, etc.), reproductive history, antenatal, delivery, and postnatal care, breastfeeding and weaning practices, child health and immunization, marriage and recent sexual activity, fertility preferences, adult and maternal mortality, knowledge of HIV and AIDS, husband's background and respondent's work. An important purpose of the Household Questionnaire was to identify women, men and adults who were eligible for individual interviews. In addition information was collected about the dwelling itself, such as the source of water, type of toilet facilities, material used to construct the house and ownership of various consumer goods. The 2003 SADHS survey data set will be obtained from Macro International Inc, USA. The socioeconomic and demographic variables to be considered in this study are available in the SADHS data. The socioeconomic variables that will be used in this study are mother's educational level, labour-force participation, region of residence (urban, rural or urban slum). Demographic variables include the age of the mother at first birth, age of the mother at birth, birth order of child and birth interval.

1.7 Definition of key terms

The following are the relevant key terms and their definitions:

Infant mortality rate: number of children between birth (0 year) and 1 year who die per 1,000 live births for a given year.

Child mortality: number of child deaths per 1,000 children between age 1 and 4 years for a given year.

Under 5 mortality: probability per 1,000 that a new born baby will die before reaching age 5.

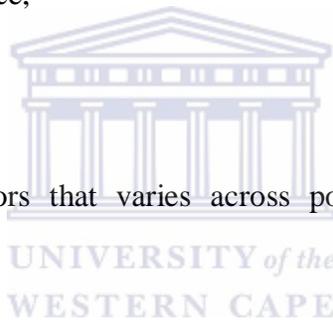
In addition, the following are the selected variables used in this work:

Socioeconomic variables: factors that are related to social and economic condition of a population. These includes

- maternal education,
- Education of partner,
- Type of place of residence,
- Employment status ,

Demographic variables: factors that varies across population samples. These may include

- Age of mother at first birth,
- Birth order of child,
- Birth interval.

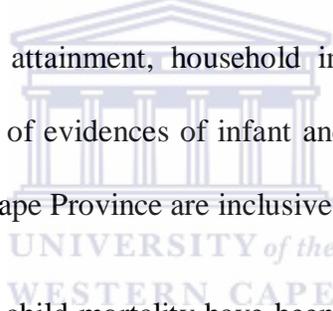


CHAPTER II

LITERATURE REVIEW

2.1 Introduction

This chapter reviews existing literatures on determinants of infants and child mortality, particularly mother's socioeconomic and demographic factors. Areas covered include theoretical evidences of determinants of infant and child mortality, such as, mother's employment status, education attainment, household income level, sex of child and maternal age at birth. Reviews of evidences of infant and child mortality level in South Africa, as well as the Eastern Cape Province are inclusive.



The determinants of infant and child mortality have been a topic of interest to social and medical researchers, though both have different approaches. The latter often focuses more on the biological processes leading to death, and less on the mortality per se. The former does not address the medical causes of death, rather attention is more focused on determinants, levels and patterns of mortality in populations, even though sometimes the mechanism through which the determinants operates to produce the observed mortality may not be that obvious. However, it must be admitted that both medical and social science have contributed significantly to our understanding of child mortality, especially in the developing countries where there has been an increase in the spread of HIV/AIDS,

coupled with malnutrition and forced migration resulting from wars and political instabilities (*Lawn et al. 2005*).

2.2 Theoretical evidences of determinants of infant and child mortality

Mosley (Mosley, 1984) proposed an analytical framework that combines social and medical science methodologies, to study the determinants of child survival in developing countries. In his model, he identifies a set of ‘proximate determinants’ or intermediate variables through which social and economic determinants operate to exert an impact on child mortality. The proximate determinants were grouped into five and these include maternal factors, environmental contamination, nutrition deficiency, injury and personal illness control. The first four proximate determinants influence the health state of a person from that of healthiness to sickness, while the last one determine the rate of sickness (through prevention), and the rate of recovery to healthiness (through treatment). Mosley’s framework defines the disease state of an individual to be a result of combinations of biological and social factors. In other words, the manifestation of a disease is an indicator of combine influence of proximate determinants and biological factors, rather than the latter alone.

Proximate determinants can be directly or indirectly measured in a population based research. For instance, maternal factors such as age and birth interval are measured directly by interview. The level of environmental contamination can be accessed directly by searching for infective agents responsible for a particular disease, or by measuring the impacts of those disease agents on a population. Microbiological examinations of water, food or air can be carried out to identify the agent responsible for diseases such as cholera

and flu, while episodes of disease infections can be measured in a sample population to assess the impact of environmental contamination. Nutrient contents of infant food intake can be measured directly by combined biochemical analysis of food samples as well as physical observations. Personal illness control is commonly assessed by the availability, accessibility, usage and efficiency of preventive services, such as immunizations, malaria prophylaxis, or ante-natal care.

Mosley grouped socioeconomic determinants into three broad categories of variables, according to their degree of complexity. These are individual-level variables, household level variables and community level variables. Individual-level variables include productivity (of household members) norms, traditions and attitudes. Household-level variables are basic (food, water, housing, hygiene, e.t.c.) and non-basic needs (radio, television, telephone, and so on) of a household, and they are ultimately related to income. Community-level variables are 'global' variables, and in most cases, they are outside the control of individuals. These are ecological setting, prevailing political and economic situation, and health system.

With regards to individual-level variables, three elements are very important, and they affect the couple in different ways. The elements are skills, health and time. Skills are usually measured by level of education attainment, and in urban sector, education levels are strongly linked with the type of occupation one is able to get, and the income that comes with it. Thus, education is an important determinant of household assets, consumables, and the preference for child care services, since these are ultimately connected with income. The income effect is most likely to be significant for the survival

of an infant when there is a large disparity in the level of education between the fathers and the mothers. For a child rearing mother however, their level of education affects the child survival in a different way. Health care practices such as the use of contraception, hygiene, nutritional values of child intake, disease prevention and care, are influenced by education level. The health state of a child is also influenced by mother's attitude to breastfeeding, good hygienic practices in food preparation, bathing, and house cleaning. As for women in developing countries, there is usually a competition between the time devoted for child care and time for income-generating work. The prevailing economic situation, typified by increasing cost of living, especially in urban areas, makes women participation in labour force unavoidable. In traditional societies areas however, there is a clear cut division between the role of mothers as a childrearer, and the father as a provider of household needs (*Mosley, 1984*). In most cases, their jobs are limited to cooking, and they may spend time fetching water and firewood (*Ware, 1984*)

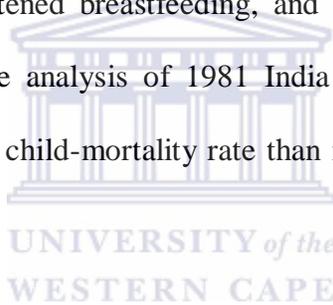
Components of community-level variables include ecological setting, political economy and health system variables. Ecological setting of population includes elements such as climate, soil, rainfall, seasonal variability and temperature. The mutual interactions of these elements affects the quantity and quality of food crops produced, and the availability and quality of water, which in turn have influence on child survival. Certain diseases come with the onset of rainy or dry season, and children are more vulnerable to these diseases. Politico-economic factors influence child health through the availability of physical infrastructures (water, electricity, roads, sewage, fuel and energy, e.t.c.) that are often provided by the State. The presence or absence of these infrastructures impact on

the accessibility and affordability of staple foods, as well as health related products and services, which in turn affects the health state of a population. Another important way through which political economy affects child health is through political institutions in a State. These institutions include local or provincial governments, and they have ties with the centralized authority. Their major roles and functions are to implement policies of the centralized government in their immediate environment. They are often saddled with responsibilities, such as, provision and maintenance of basic health services, and the provision and maintenance of sewage and other waste disposal system. Their importance in reducing child mortality has been emphasized by United Nation Population Division (UNPD, 1983) as well as in recent studies by *Tollman et al. (2008)*. Their efficiency is thus crucial for child survival. Health system variables operates through disease control measures to positively affect the health of a population, and in most cases, they are institutionalized. Health system actions include epidemic disease control such as child immunization, vaccination and quarantine. In some cases health system exercise some supervisory and regulatory role such as in regulating the cost of private health medical services, prices of health related products and sanitary conditions of water, hospitals, public toilet facilities and so on. Other health system actions consist of subsidies on health-related goods and services, and these measures are generally designed to reduce vulnerability or exposure to diseases.

For the purpose of this study, the socio-economic and demographic variables that will be considered are reviewed thus;

2.2.1 Mothers employment status and infant and child mortality

One of the benefits that are usually advanced for women's participation in the labour force is that a higher percentage of their earnings will be directed towards the child welfare needs, compared with earnings of the males (*Mencher, 1988*). In addition to this, women's employment may translate to increased exposure and access to relevant information about child's nutritive, medical and survival needs, as well as information about better childcare practices. However, these likely benefits may be offset by the reduction in the time available to provide personal and timely care of their children. The consequence of this is a shortened breastfeeding, and thus the nutrition of infants is adversely affected. A bivariate analysis of 1981 India census data reveals that rural working women have a higher child-mortality rate than non-working women (*Basu and Basu, 1991*).



2.2.2 Mother's education and infant and child mortality

One of the most explanatory variables in the literature has been mothers' education. In several studies, there have been consistent findings that the children of women having some education do better, although it may vary among the study population (*Ware, 1984*). Education of parents, especially mothers' education has contributed immensely to the determinants of the level of mortality among infant and children under 5. Maternal education of 4-6 years of duration has been investigated to be associated with a fall of 20 percent in infant mortality (*Syamala, 2004*). Better educated mothers are more informed of the modern health facilities as well as the nutrition and the hygienic practises which

are directly associated with infant and childhood diseases and as such able to prevent its occurrence (*Abou-Ali, 2003*).

2.2.3 Household income level

The income level of the household is also an important factor determining the level of mortality among children. In instances where there are low or no income earnings, there will be limit or no access to the basic needs of infants and children under 5. These needs may include hygiene, shelter and food among others. Therefore, in a society where the gap between the rich and the poor is widening, the variations in income may translate to variations in affordability and accessibility to basic human needs, and may result into rising rates of malnutrition and mortality.

2.2.4 Sex of child

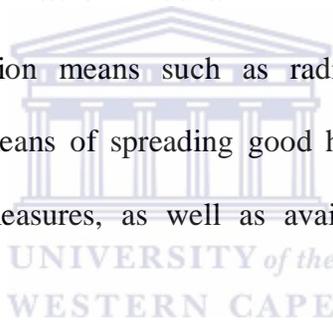
The sex of a child has also been acknowledged to be a determinant and a cause of gender differential in mortality. Recently, women participation in labour force erase this effect and has enable women to have a positive perception of their own worth, and by extension the worth of their female children. This has the net effect of improving the relative survival of female children (*Kosher, 1993*). An alternative hypothesis that have been forward to explain the narrowing of gender differentials in infant mortality rate among working women is that these women have less time to discriminate or provide preferential treatment. Without preferential treatment for males, infant female mortality rates are less likely to differ significantly from that of males (*Kosher and Parasuramanl, 1998*).

2.2.5 Maternal age at birth

Mothers' age at birth is expected to be associated with the level of infants and child mortality. In a number of studies conducted in different parts of the world, it has been revealed that birth to women less than age 18 and above age 35, first and higher order births are tends to have a higher risk of infant child mortality during their year of live. It is believed that a young mother is not biologically matured, thus the possibility of pregnancy related complications are high.

2.2.6 Accessibility to information media

Information and communication means such as radio, television, newspaper and telephone often serves as a means of spreading good hygienic practices, the onset of diseases and precautionary measures, as well as availability of immunizations and vaccinations for children.



2.3 Area under study: Eastern Cape Province of the Republic of South Africa

The Republic of South Africa is a country located at the southern tip of Africa, with a land area of 1,219,090 (SSA, 2003) square kilometres and 2,798 kilometers coastline on the Atlantic and the Indian Oceans. To the north lie Namibia, Botswana and Zimbabwe; to the east are Mozambique and Swaziland; while Lesotho is an independent country wholly surrounded by South African territory. Eastern Cape is located in the south-east of South Africa as shown in Fig 2.1, bordering Free State and Lesotho in the north, KwaZulu-Natal in the north-east, the Indian Ocean along its south and south-eastern

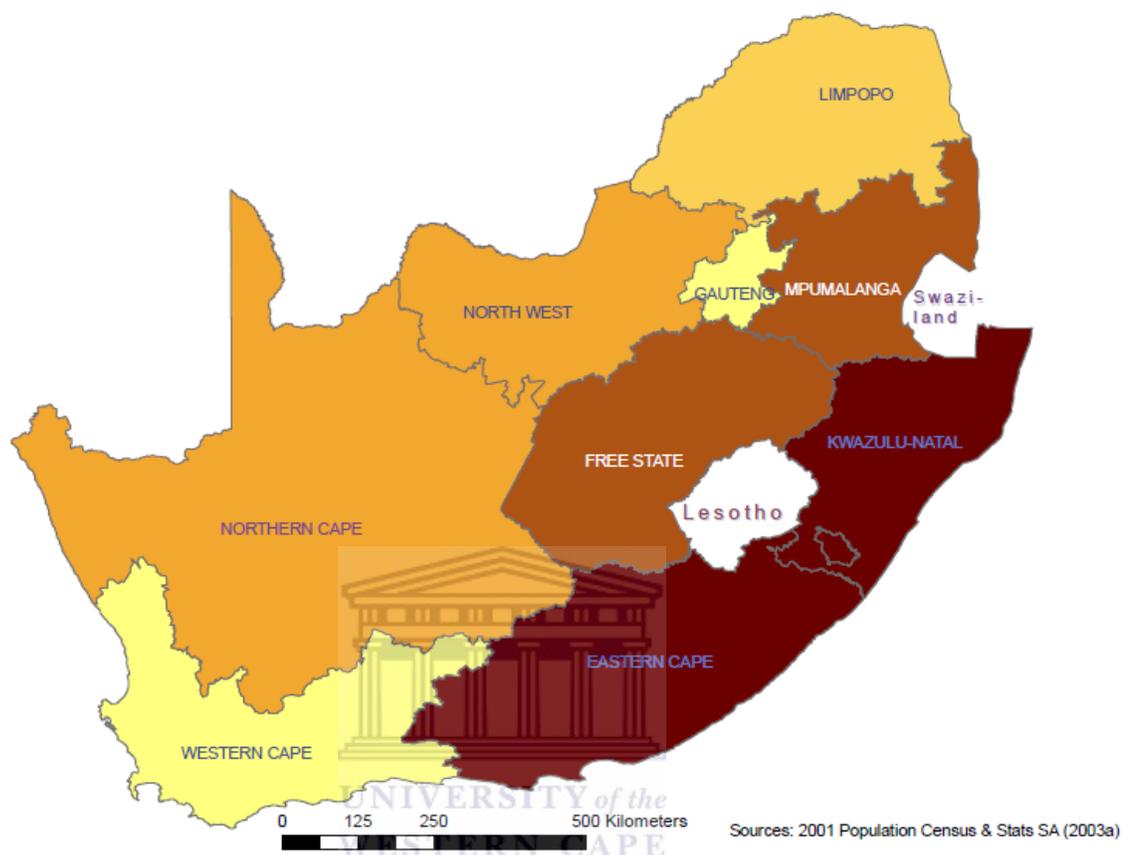


Fig 2.1 South African Provinces (Source: Population Census and Stats SA (2003a))

borders, and Western and Northern Cape in the west. The province encloses 169, 580 square kilometres, constituting 13.9% of the total land area of the country, thus making it in surface area, the second largest province in the country (Statistics South Africa (SSA), 2003). The average population density during 2002 was 41 persons per square kilometre, and about 63% of the province's people lived in rural areas. The Eastern Cape has the second highest poverty levels in South Africa (47% of households below the poverty line, which is based on imputed monthly expenditure of R800 or less) (SSA, 2000b),

combined with the highest provincial unemployment rate (55%) in the country (SSA, 2003).

2.4 Childhood mortality in South Africa

There is some amount of uncertainty as to the exact levels of mortality in South Africa due to her complicated history as well as divergent results from various studies (*Bangha and Simelane, 2007*). Nevertheless, there seems to be a general consensus that mortality decline of the pre-1990s may have levelled-off and that in fact, child mortality may be on the increase (*Bah, 2005*). Also, recent studies have suggested that South Africa may be having some of the worst mortality indicators in Africa to such an extent that many African countries at independence (in the 1960s) may be considered healthier and safer than post apartheid South Africa (*Udjo, 2005*). Udjo further compares the mortality data from the 1996 census with the 1995 and 1998 October Household Survey (OHS) and suggests that childhood mortality levels may have increased during the 1990s across the various population groups. Data from official life tables also seems to support these claims. Underlying these disturbing findings is the fact that South Africa has one of the World's record high HIV/AIDS spread. Other causes of childhood mortality are malnutrition and childhood infections, such as diarrhoea, tuberculosis and other respiratory diseases.

2.4.1 Empirical evidences of infant and child mortality in South Africa

The national infant mortality and under 5 mortality rates as reported in the South African Demographic and Health Survey (SADHS, 1998) are 45 and 59 per 1000 life births

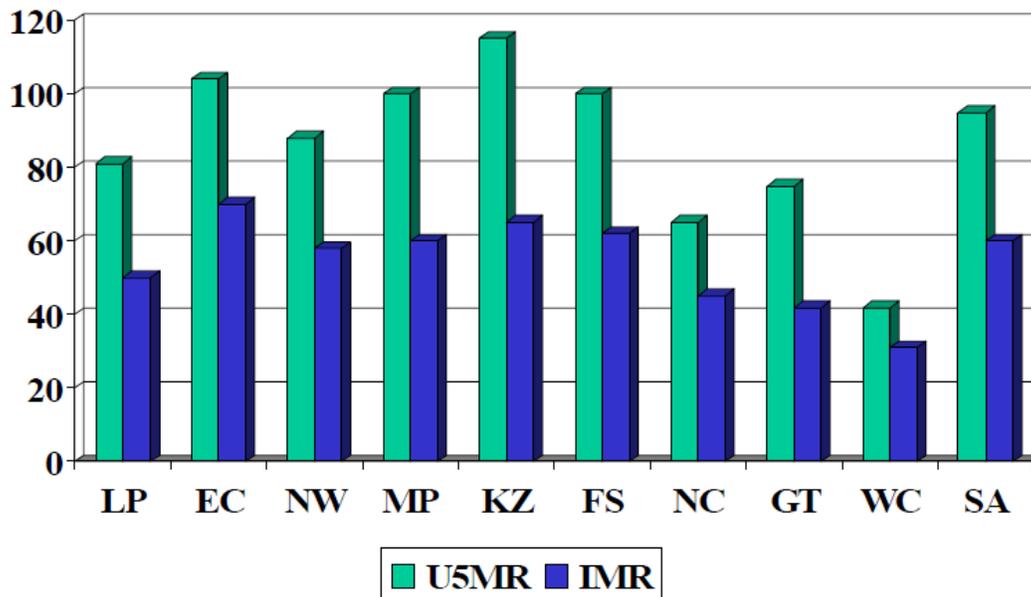


Fig 2.2: Under 5 and infant mortality rates by province in South Africa (taken from Bradshaw et al 2000).

respectively. There are significant variations in the under 5 mortality rates between the provinces, ranging from 30 to little above 60 as shown in Fig. 2.2. The mortality estimates suggest that Eastern Cape and Kwazulu-Natal provinces have the lowest probability for child survival while the Western Cape, Gauteng, and Limpopo have least rates of infant mortality. Specifically, the under 5 mortality rate in the Eastern Cape is about 19 deaths out of every 1,000 births, while the rate is very much higher in the Eastern Cape i.e. 66 deaths per every 1,000 births (*Bangha and Simelane, 2007*). Three-quarter of poor people live in rural areas, of which two thirds are in the provinces of the Eastern Cape, Kwazulu-Natal and the Northern provinces. However, the demography of infant mortality rate in South Africa is such that it is higher among rural populace, and also among families with more than four or more children. It is also higher among mothers with no formal education (*Hoque, 2001*).

2.4.2 Infant and child mortality in the Eastern Cape Province

The high child mortality in the Eastern Cape has been adduced to HIV/AIDS prevalence as well as the spread of communicable diseases, perinatal conditions and nutritional deficiencies. The HIV/AIDS epidemic in the Eastern Cape accounts for about 40% of children (0-4 years) death (*Bradshaw et al., 2000*). It should be mentioned also that there are disparities in mortality conditions within the provinces. For instance, in the Western Cape, it has been reported that children born in Beaufort West has nine times the chances of dying during the early childhood than his or counterpart born in Simonstown. In the Eastern Cape, the disparity in probability of survival within the province almost approaches double digit (*Bangha and Simelane, 2007*). These may be attributed to historical apartheid policies which have made certain sections of South Africa society to have easier access to better conditions of living, such as, good health facilities, water, and housing. In addition, crimes that are specifically targeted at children which sometimes results in deaths are prevalent in these disadvantaged communities.

CHAPTER III

DATA AND METHODOLOGY

3.1 Introduction

This chapter describes and explains methods, techniques and procedures used in the collection of vital information which are related to this study. The following items namely; study and sample designs, study population, procedure for data collection and data analysis using SPSS version 17, are all discussed.

3.2 Study design

The study was based on secondary data analysis of the 1998 South African Demography Health Survey. The datasets were obtained from the website: <http://www.measuredhs.com/countries>.

The survey was undertaken as a part of the National Health Information System of South Africa (NHIS/SA) intended to assist policy makers and programme managers in evaluating, designing programmes and strategies for improving health services delivery in the country. The Department of Health provided the funds and played an active role in the management of the survey, while the Medical Research Council (MRC) co-ordinated the survey, provided the technical input, and undertook the processing and analysis of the data. Some of the survey objectives are to provide

- Basic demographic rates, particularly the fertility and childhood mortality levels.
- Breastfeeding practices

- Maternal and child health, and
- Awareness of HIV/AIDS.

It should be emphasized once again that as at the time this analysis is being carried out, the SADHS 2003 survey datasets are not available from the webpage-based data base, that is, the <http://www.measuredhs.com/countries>. However, reports that summarise the survey and some preliminary results are available.

3.3 Sample design

The 1998 South African Demographic Health Survey (SADHS) was designed to be a nationally representative probability sample of approximately 12000 completed interviews with women between the age group 15-49. The sampling frame consists of approximately 86000 Enumeration Area (EAs) created by the central Statistics Service for 1996 Census. In each Stratum, a two stage sample was selected; the Primary Sample Units (PSUs) which was selected with the Probability Proportional to the Size (PPS).

3.4 Study population

Out of a sample frame of 86000 EAs, a total of approximately 12000 women of reproductive age group 15-49 were interviewed in the survey. The data provided by these women as well as death occurring to infants and to children under 5 are examined.

3.5 Study variables

The variables which were studied in this study include the following as itemised in the Table 1.

Table 1: Representation of variable and their description

Variable	Description
<i>Independent variable</i>	15-19, 20-24, 25-29, 30-34, 35-39
Age at birth	40-44, 45-49
Mothers education	No education Complete primary Incomplete primary Complete secondary Incomplete secondary Higher education
Employment Status	Not Working Professional Tech. Man. Clerical Agricultural worker/self-employed Skilled manual Unskilled manual
Birth order	1-2 3-5

	6+
Interval between births (less than 4 years)	No Yes
Place of residence	Urban Rural
<i>Intermediate variables</i>	
Number of children ever born	Live births
Number of children dying	Probability of dying
<i>Dependent variable</i>	
Infants and child mortality	Age at death (in months) per 1000 live births

3.6 Data processing

Some variables which are continuous are classified in order to enhance easier interpretation, these variable include birth order and the age of mothers at first birth. Birth interval less than or equal 4 is chosen in order to limit the possibility of continuous response. The dependent variable, that is, infant and under 5 mortality may be denoted as ${}_1q_0$ and ${}_5q_1$ respectively.

Deaths occurring at both infancy and childhood are estimated from the age at death of infants (in months), and the total number of children ever born was estimated for exactly one to five years before the survey. The number of observations for the Eastern Cape Province was 5753 and 2538

reported not to have given birth in the past five years. A total live birth of 4682 was calculated for 3213 women who reported to have given birth (between 1 to 3 live births to a woman) in the past five years before the survey. A total of 608 deaths were reported for infant and child i.e. (0-12 and 13-60 months) (SADHS, 1998).

Infant mortality rate (IMR) is calculated as the ratio of deaths at infant (one year of age or younger) to the total live births (per 1000 live births). On the other hand, child mortality rate is defined as the ratio of deaths at age 1 and less than 5 to the total live births (per 1000 live births).

3.7 Data analysis and methods

The Statistical package used to analyze the data was SPSS version 17. Analysis was done on two different levels namely; univariate and bivariate. The univariate analysis involves the descriptive statistic of the respondents, while the bivariate analysis involves the cross tabulations, which enables the determination of the relationship and the dependent variable and the independent variable. The *proportion of children dying* will be used as the intermediate variable

3.8 Study limitations

This study utilises the secondary data, available for the 1998 South Africa Demographic and Health Survey (SADHS, 1998) dataset for women and children. The data sets for SADHS, 2003 are not available, rather, only the reports for 2003 are available. In relation to infant and child mortality, only some selected socioeconomic and demographic factors are considered. Biological causes of child deaths are not within the scope of the study.

CHAPTER IV

DATA ANALYSIS AND FINDINGS

4.1. Introduction

This chapter sets out to analyse the infants and under 5 mortality dependence on the various maternal factors, using the data provided by the South Africa Demographic and Health Survey (SADHS, 1998) for the Eastern Cape Province of South Africa. A profile of the study population is represented, using a descriptive percentage of the respondents by some selected factors disaggregated by urban and rural residence. Then, the distributions of the dependent variables, which are infant, child and under 5 mortality, across the independent mother's related demographic and socioeconomic factors are represented by series of cross tabulations. The explanations to these analyses are used to enhance the study hypotheses. Since this study was done using the SADHS 1998 data, we compare our findings with relevant results from SADHS 2003 reports. It should be mentioned once more that, SADHS 2003 datasets are not available as at the time this study was being conducted.

4.2. Profile of study population

Table 2 below shows that more of the respondents have at least a complete primary education as compare with those who do not have education nor a complete education. 85.9% of the total respondents are not currently working and access mostly government

hospitals. According to the table, there are more teenage pregnancies both in the urban and the rural centres.

Table 2: Percentage distribution of respondents by some selected variable disaggregated by urban and rural residence in the Eastern Cape. The figures in the parenthesis are in percentage

Variable	Category	Urban Frequency (%)	Rural Frequency (%)
Mothers educational level	No education	95 (19.2)	10 (8.9)
	Incomplete primary	197 (39.7)	22 (19.6)
	Complete primary	64 (12.9)	18 (16.1)
	Incomplete secondary	126 (25.4)	47 (42.0)
	Complete secondary	10 (2.0)	9 (8.0)
	Higher education	4 (0.8)	6 (5.4)
	Total		496 (100)
Mothers currently working	No	426 (85.9)	70 (62.5)
	Yes	69 (13.9)	42 (37.5)
	Total	495 (99.8)	112 (100)
Place of delivery	At home	36 (7.3)	1 (0.9%)
	Government hospital	44 (8.9)	9 (8.0%)
	Day hospital	2 (0.4)	1 (0.9%)
	Private hospital	-	1 (0.9%)
	Total	82 (16.5)	12 (10.7)
Birth order	1-2	245 (49.4)	76 (85.8)

	3-5	186 (37.5)	32 (18.6)
	6+	65 (13.0)	4 (3.6)
	Total	496 (100)	112 (100)
Age of mothers at first birth	< 19	283 (57.1)	71 (63.4)
	20-24	175 (35.3)	35 (31.35)
	25-29	35 (7.1)	5 (4.5)
	30+	3 (0.6)	1 (0.9)
	Total	496 (100)	112 (100)
Preceding birth interval < 4years	No	83 (16.7)	14 (17.1)
	Yes	331 (66.7)	68 (82.9)
	Total	414 (83.5)	82 (82.9)

Source: SADHS, 1998: values in the parenthesis shows the percentage distribution

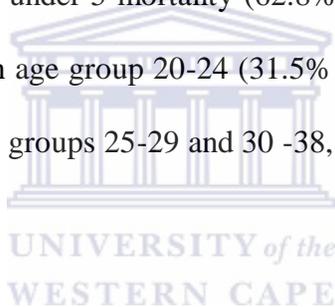
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4.3. Demographic proximate of infant and child mortality

4.3.1 Pattern in infant and under 5 mortality by mothers according to their age at first birth

Age of women at birth, particularly age at first birth has been broadly researched, and has been shown to have an influence on the health and survival of children (Syamala, 2004). In these earlier studies, it has been shown that women of age less than 19 years tend to exhibit a higher risk of child mortality at birth, compared to births by older women. This appears to be in conformity with the distribution in Table 3 on the text page, as observed in the present study. Out of the total death (608) occurring to both infants and under 5 children in the Eastern Cape, a total of 519 deaths occur between age 0 and 12 months (infant) while 89 occurs between age 13 and 60 months (under 5). Mothers who gave

birth at ages of less than or equal 19 are observed to have the greatest number infant death of 57.4%, while mothers of relatively older ages, i.e. between 20-24, the proportion of infant death reduces to 35.1% . The proportion infant death for mothers who are between the ages 25-29 is 6.9%, while at age group 30-38, infant mortality is lowest. Hence, in the Eastern Cape, the infant mortality reduces with age of the mothers. The proportion of children dying after the age of 1 and before their fifth birthday is 89 of the total of 608 deaths occurring to both infant and under 5. A similar pattern as that of infant mortality is also observed among the categories if women. Mothers of age group less than or equal to 19 have the highest under 5 mortality (62.8% of 89). However, the mortality reduces for mothers of between age group 20-24 (31.5% of 89), while it is quite low for older mothers of within the age groups 25-29 and 30 -38, having 4.5% of 89 and 1.1% of 89 respectively.



The result of the analysis above justifies the hypothesis that infant and child mortality are lower for mothers who are older than 20 years, as stated in section 1.4.

Table 3: Table showing the distribution of Infant and under 5 mortality by Mother's age at first birth in the Eastern Cape

Infants and under 5 mortality	Age of respondent at 1st birth				Total
	<= 19	20- 24	25-29	30 -38	
0-12 months	298 57.4%	182 35.1%	36 6.9%	3 .6%	519 100.0%
13-60 months	56 62.9%	28 31.5%	4 4.5%	1 1.1%	89 100.0%

Source: SADHS, 1998

4.3.2. Pattern in infant and under 5 mortality by mothers according to their preceding birth interval

Birth interval is another demographic variable of mothers that has been researched by a number of scholars to have substantial effect on the survival of children, particularly at infancy (Syamala 2004). Table 4 on the text page shows the proportion of deaths occurring at infant and under 5 explained by the interval preceding the birth of a child. In this study, birth interval less than or equal to 4 years has been used as our reference for comparison. From the Table 4, a total death of 413 was reported for both infant and under 5 children, 359 deaths are occurring at infants while 54 occur after age 1 and before age 5. About seventy percent (69.6%) of the deaths occurring at infant are for birth interval less than or equal to 4 years while 30.4% are for birth interval more than 4 years. This implies that children who are born after 4 years interval have more chances of living up to their first birthday than those who are born with less than 4 years preceding birth interval in the Eastern Cape. Out of the total of death reported for under 5, 77.8% occur when the preceding birth interval is less than 4 years, while the proportion of these deaths, for birth interval greater than 4 are 22.2%. This depicts that under 5 mortality among births with less 4 years preceding birth interval are 3 times more than births with 5 years and above preceding birth interval in the Eastern Cape Province. This in conformity with statement of hypothesis that birth interval of more than 4 years reduces the infant and child mortality.

Table 4: Distribution of infants and under 5 mortality by the preceding number of years of birth interval in the Eastern Cape

Infants and under 5 mortality	Birth interval <= 4 years		Total
	No	Yes	
0-12 months	109 30.4%	250 69.6%	359 100.0%
13-60 months	12 22.2%	42 77.8%	54 100.0%

Source: SADHS, 1998

4.3.3. Pattern in infant and under 5 mortality by mothers according to their birth order

Infant and child mortality as explained by the birth order number is represented in Table 5. An overall of 608 deaths were reported for both infant child mortality, with 519 deaths occurring at ages 0-12 months and 89 occurring at 13-60 months in the Eastern Cape. The proportion of the deaths reported at 0-12 months for first and second order births is 51.3%, this then reduces for 3-5 order of birth to 36.2%, while higher order births are having the lowest proportion of these deaths (infant mortality). Similarly, proportion of the deaths at under 5 is highest for first and second order births (61.8%), while it reduces at birth order 3-5 to 33.7%, while the proportion of the total death (89 deaths) occurring at under 5 for higher order births is 4.5%. It is bit difficult to offer convincing explanation for this observed trend, as there is not much higher birth order reported in the survey data. However, it is sufficient to say that deaths occurring to children before their first birthday

(85.4% of 608 deaths) are more than those who dies between ages 1 and 5 (14.6% of 608 deaths), despite the birth order.

Table 5: The percentage distribution of infant and child mortality by birth order

Infants and under 5 mortality	Birth order number			Total
	1-2	3-5	6+	
0-12 months	266 51.3%	188 36.2%	65 12.5%	519 100.0%
13-60 months	55 61.8%	30 33.7%	4 4.5%	89 100.0%

Source : SADHS, 1998

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4.4. Socioeconomic proximate of infant and child mortality

Researchers have also investigated the relationships between infant and under 5 mortality in relation to socioeconomic characteristics of mothers, and have established substantial associations between them (Argeseanu, 2004). In the sections that follow, we calculate and discuss the percentage differential and pattern of infant and under 5 mortality based on some identified some socioeconomic factors, such as mother employment status, mothers work place, mothers education, and the place of residence.

4.4.1. Mothers employment status

Mothers' employment status is an important socioeconomic factor that determines the survival of infant and children under 5. Mother's participation in labour force provides

some positive effects on their income earnings (*Kosher et al., 1998*). This is because, when compared to the income of the fathers, mother's incomes are more directed towards the child welfare needs. Table 6 on the text page provides the distribution of infants and under 5 mortality based on working status of mothers. According to the Table 6, the total number of deaths reported for both infant and under 5 for the two categories of mothers are 607 deaths, of which 518 deaths are occurring at infant and 89 deaths occur at under 5. Also 82.4% of the deaths at infants are for non working mothers while 17.6% are for mothers who are currently working. The proportion of children dying between the age 1 and 5 for non-working mothers is 77.5% while for working mothers, the proportion of the death reported at under 5 is 22.5%.

Table 6: Distribution of Infant and under 5 mortality by mothers working status in the Eastern Cape

Infants and under 5 mortality	Mothers currently working		Total
	No	Yes	
0-12 months	427 82.4%	91 17.6%	518 100.0%
13-60 months	69 77.5%	20 22.5%	89 100.0%

Source: SADHS, 1998

4.4.2 Differentials in infant and under 5 mortality by working mothers who work at home or away.

Women participation in the labour force is beneficial for infants and under 5 survivals as shown in Table 6. However the benefits of mother's employments as regards to infant and child survival are even more enhanced by the type of employment (Kishor et al. 1998). The benefits of mothers employment may depend on whether women work at home, or away from home, and whether they earn cash for work or not. Table 7 shows the distribution of infant and under 5 mortality by mother's place of work, that is, at home or away from home.

It is observed that a total of 127 deaths were reported for these categories of mothers place of work, of which 105 (82.7 %) deaths are occurring at infants and 22 (17.3%) are occurring after age 1 and before age 5. The proportion of deaths reported, to children between ages 0-12 are higher for mothers who work at home 57(54.3%), while for women who work away is 48 (45.7%). The proportion of the children dying between 12 and 60 months are more among the women who work at home (63.6% of 22 deaths), compare to women who work away (36.4% of 22 deaths).

From the results in the Table 6, we can safely say that infant and child mortality may be lower among women who are working due the translation of the women's employment into higher financial resources which may be directed towards infant and child welfare. However, Table 7 also indicate that in addition to working status of mothers, working outside the home also enhances the chances of exposure and access to relevant information about best practices in child bearing and child rearing. It also allows the

mothers to engage the world outside the home on better nutritive, medical and survival needs of infants.

Table 7: The percentage distribution of Infants and under 5 mortality by mothers work locations

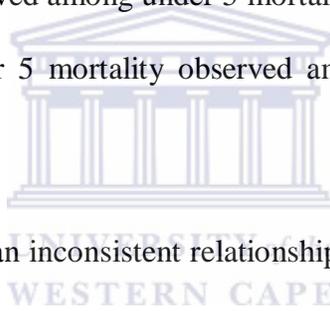
Infant and under 5 mortality	Works at home or away		Total
	At home	Away	
0-12 months	57	48	105
	54.3%	45.7%	100.0%
13-60 months	14	8	22
	63.6%	36.4%	100.0%

Source: SADHS, 1998

4.4.3 Education of mothers

Education of mothers has emerged out an important determinant of survival of infant and child according to studies conducted by Mosley (*Mosley and Chen1989*) and Ware (*Ware, 1984*). Highly educated mothers are expected to have a reduced mortality among their infants and children. This is because better educated women are more aware of the modern health facilities, are better informed about nutrition and hygiene, and can invariably prevent some common child hood diseases (*Syamala, 2004*). On the text page is the distribution of infant and under 5 mortality by mothers' education. According to the Table 8, a total of 608 deaths were reported for the Eastern Cape Province. Of this total,

519 deaths are reported for infant mortality while 89 deaths are occurring to children between 13-60 months. Out of the proportion of deaths occurring at infant, mothers with incomplete primary education have the highest proportion, 187 (36%) followed by the mothers with incomplete secondary school education, 150 (28.9%). Mothers with no education have 88 (17%) of the deaths at infant mortality, while proportion of the deaths at infant are low among mothers who have a complete primary and secondary education, 67 (12.9%) and 17 (3.3%) respectively. Only 10 (1.9%) of the deaths occurring at infant are observed among women with higher level education. A similar pattern as that of infant mortality is observed among under 5 mortality of same category of mothers, except that there are no under 5 mortality observed among women with higher level education.



In the above analysis, there is an inconsistent relationship between the level of education and the observed infant and child mortality, although little or no mortality are observed for mothers with completed secondary and tertiary education. Nevertheless, the analysis confirms the statement that infant mortality is lower with mothers having higher education.

Table 8. Percentage distribution of Infant and under 5 mortality by Mothers' educational attainment

Infants and under 5 mortality	Educational attainment						Total
	No education	Incomplete primary	Complete primary	Incomplete secondary	Complete secondary	Higher	
0-12 months	88 17.0%	187 36.0%	67 12.9%	150 28.9%	17 3.3%	10 1.9%	519 100.0%
13-60 months	17 19.1%	32 36.0%	15 16.9%	23 25.8%	2 2.2%	0 .0%	89 100.0%

Source: SADHS, 1998

4.4.4 Differentials in infants and under 5 mortality by place of residence

Previous studies concerning the place of residence and infant and child mortality have shown that mortality is higher in the rural areas compared to the urban areas (Syamala, 2004). This may be attributed to availability of health facilities and access to information about prevention and cure of common but deadly diseases that peculiar infants and children. This is consistent with our observation, as shown in Table 9. Infant and child mortality are generally higher in rural area than urban area (SADHS, 1998). The total number of death occurring for both infant and under 5 mortality in the Eastern Cape for the two categories of place of residence is 608 deaths. Of these deaths, 519 are reported as occurring to children of age between 0-12 months, and 89 deaths are occurring at ages between 13-60 months. Out of the deaths occurring at age 0-12, 428 (82.5%) are rural

residence, while 91(17.5%) of the deaths are urban residence. 68(76.4%) of deaths occurring to under 5 are attributed to the rural areas while 21(23.6%) of deaths occurring to under 5 are attributed to the urban centres. This justifies the hypothesis that mothers living in urban areas have lower infant and child mortality rate than those in the rural areas.

Table 9: Percentage distribution of infants and under 5 mortality by place of residence in the Eastern Cape

Infants and under 5 mortality	Type of place of residence		Total
	Urban	Rural	
0-12	91 17.5%	428 82.5%	519 100.0%
13-60	21 23.6%	68 76.4%	89 100.0%

Source: SADHS, 1998

4.5 Differentials in the trend of infant and under 5 mortality; Evidence from SADHS 1998 and SADHS 2003 reports for South Africa

The most recent estimates of the 1998 South Africa Demographic and Health Survey are centred around 1996, and shows that slightly more than two-third of all deaths occurring at under 5, occur in the first year of life and one-third occur in the first month of life in South Africa. While for the 2003 report, the most recent period of estimates was 2001 and shows that three quarter of all deaths under 5 occur in the first year of life and one-

quarter occur in first month of life. Socioeconomic factors related to this study mention in the reports include mother's place of residence and education. In the 2003 report, it is shown that infant and under 5 mortality is consistently higher in non urban residence than in urban residential areas. Simillar trend was also observed in the 1998 SADHS report, although the magnitude of the difference differs. Maternal educational attainment, as known, play an important role in the determinant of child mortality, and this was also established in the 1998 SADHS report, where it was reported that an increase number of years spent in schooling results in lower mortality rates for children. For instance, women with a secondary level education have substantially lower under 5 mortality, compared to those of lesser education attainment. However, the SADHS 2003 report is in contradiction to this, and the survey appears to be inconsistent with this well established trend. It has been proposed that as far as the relationship between women education and child survival is concerned, the SADHS survey is not a reflection of South African reality. Our analysis, as shown in this study however confirms that a relationship exists between between women education and child survival.

Ideally, as it is established that demographic factors of mothers influence childhood mortality, the reports of the 1998 SADHS also shows an expected *U* shaped relationship between age of mothers at birth and infant and child mortality, for instance, the older the age of mothers, the lower the infant and child mortality and vice versa, until certain ages where very old mothers may exhibits increasing infant and child mortality. Women who are younger than 20 years old are having slightly higher infant and under 5 mortality rates

than women between 20 and 40 years of age. This is also similar to the report of 2003 SADHS, and is consistent with our analysis, as shown in this study.

The reports for both surveys also show the relationship between birth order and childhood mortality that is consistent with the international trends. There is high mortality with the first born children, and children mortality decreases with higher birth orders. The report also shows that birth interval also have substantial influence on infant and childhood survival.



CHAPTER V

CONCLUSION AND RECOMMENDATIONS

This study examines some mother's related demographic and socioeconomic variables that determine infant, child, and under 5 mortality in the Eastern Cape of the Republic of South Africa. This study has found a wide variation in the percentage distribution of infant and under 5 mortality across the selected variables. This study has revealed the general level of Infant and under 5 mortality in the Eastern Cape of South Africa. The results of the exploration of the age at death of infants and under 5 has shown that, generally the level of infant mortality is higher than level of under 5 mortality across all the investigated maternal factors. Results of our analyses justify all the statements of the hypotheses as stated in section 1.5.

According to our findings (based on cross tabulation), there seem to be an inconsistent relationship between mothers' educational attainments and infant and under mortality. While mothers with no education have considerably low infant and under 5 mortality, mothers with incomplete primary and incomplete secondary education have a higher percentage of infant and under 5 mortality, whereas mothers with completed primary and secondary education have also quite a low infant and child mortality. Demographic factors that are examined in this work are the age of mothers at first birth, birth order, interval of birth, all of which are determinants of infant, child, and under 5 mortality rate.

The implications of the finding from this study are described as follows: the postponements of mother's age at marriage to above 20 years, delay in the time (age) at which child bearing starts, and appropriate child spacing, will have a significant effect in reducing the level of infant and child mortality. Also, women who are highly educated are better informed on ways of taking care of themselves and the infants. This may be attributed to the fact that they are exposed to the outside world where information on childbearing and child rearing are better accessed. This is also the case when mothers work away from home and earn cash from work. In this case however, there is an added advantage in that income from such efforts are directed towards improving the child's welfare, as compared to when the only source of living comes solely from the father.

In the Eastern Cape, particularly in the non-urban residence, there is a high level of female illiteracy and school drop-outs are high. This may affect the overall improvements in mothers and child health in that society (SADHS, 1998) with the consequence that infant and child mortality rate are not decreasing. Therefore, government should provide more schools, job opportunities and educative forum, where women participate and thus have better understanding of child rearing, as well as family planning. In addition, more clinics and hospitals, especially those devoted to child care, should be built in rural areas. There should be special incentives for medical and health personnel working in predominantly rural areas, such as in the Eastern Cape. No efforts should be spared towards providing better health for the children. It is one of the major elements of the Millennium Development Goals (MDG).

REFERENCES

Abou-Ali, H (2003), “Child Mortality, Wealth and Education: direct versus indirect effects”, accessible online at: <http://gupea.ub.gu.se/dspace/handle/2077/2802>.

Argeseanu, S (2004): “Amenities, Risks, and Child Mortality in Rural South Africa”, *African Population Studies*, 19(1):13-33.

Bah, S. (2005): “HIV/AIDS in light of death registration data: In search of elusive estimates, in the “Demography of South Africa” (M. E. Sharpe Publishers, New York: 120-159).

Bangha, M.W, and Simelane S. (2007): “Spatial differentials in childhood mortality in South Africa: Evidence from the 2001 Census”. *African Population Studies*; 22(2):3-21

Basu, A. M. and Basu R. (1991): “Women’s economic roles and child survival: the case of India. *Health Transition Review*; 1: 83-103

Bradshaw, D., N. Nannan, R. Laubscher, P. Groenewald, J. Joubert, B. Nojilana, R. Norman, D. Pieterse, and M. Schneider: South African Burden of Disease Study. Estimates of Provincial Mortality: Eastern Cape Province. MRC Burden of Disease Research Unit, 2000.

Chopra, M, Lawn, J. E, Sanders, D (2009): Achieving the health Millennium Development goals for South Africa: challenges and priorities, DOI: 1016/S0140-6736 (09) 61122-3, accessible online at: www.thelancet.com

Hoque, A. M (2001): “Childhood mortality in Kwazulu-Natal-2001”. Epidemiology unit. Department of Health, Kwazulu-Natal.

Kosher, S., Parasuraman S. (1998): “Mother’s employment and infant and child mortality in India”, in the National family and health surveys reports, International Institute of Population Sciences, Mumbai, India.

Kosher, S (1993): “May God gives son to all: Gender and child mortality in India”. *America Sociological Review*; 58 (2):247-265.

Lawn, J. E, S. Cousens, Zupan J. (2005): 4 million neonatal deaths: When? Where? and Why?, 365: 891-900, accessible online at:
<http://image.thelancet.com/extras.05art1073web.pdf>

Mencher, J. P (1988): “Women’s work and poverty: Women’s contribution to household maintenance in South India”. In Daisy Dwyer and Judith Brace, Eds. *A home divided: Women and income in the third world*, Stanford, California: Standard University Press.

Mosley, W.H., and Chen C. L. (1984): “An analytical framework for the study of child survival in developing countries”. *Population and Development Review*; 10:25-45

Mutata, M. E., Odimegwu C. (2008): “Socioeconomic determinants of infant mortality in Kenya: Analysis of Kenya DHS 2003”. *Journal of Human and Social Sciences*; 2 (2):1-15.

National Department of Health South Africa (NDHSA). Demographic health survey, 2003, Pretoria: National Department of Health, South Africa, 2008.

South Africa Demographic and Health Survey (SADHS, 1998): Department of Health full report, 1999.

Statistics South Africa (1998): “The people of South Africa, Population Census, 1996: Census in Brief”, Report No. 1: 03-01-11 (1996). Pretoria: Statistics South Africa.

Statistics South Africa (2003): “Census 2001: Census in Brief”, Report No. 03-02-03 (2001). Pretoria: Statistics South Africa.

Syamala, T. S. (2004): "Relationship between socio-demographic factors and child survival: Evidence from Goa, India". *Journal of Human Ecology*; 16 (2): 141-145.

Tollman S M, K. Kahn, B. Sartorius, et al. (2008), Implications of mortality transition for primary health care in rural South Africa: a population-based surveillance study, *Lancet* 2008: 372, 893-901.

Udjo, E. O. (2005): "An examination of recent census and survey data on mortality within the context of HIV/AIDS", in "The Demography of South Africa" (M. E. Sharpe Publishers, New York: 90-119)

UNICEF: *Sates of the World's Children (2006-2009): Excluded and Invisible*, accessible online at: www.unicef.org

United Nation Population Division (1983): "Mortality and health policy: Highlights of the issues in the context of the World Population Plan of Action."

Ware, H (1984): "Effects of Maternal Education, Women's Roles, and Child Care on Child Mortality", *Population and Development Review*, Vol. 10, Supplement: Child Survival: Strategies for Research (1984): 191-214.

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