UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

FACTORS ASSOCIATED WITH UNDER-5 MORTALITY IN SOUTH AFRICA: TRENDS 1997- 2002

by

Peter Buwembo

SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

MASTER OF SOCIAL SCIENCE IN SOCIOLOGY

IN THE FACULTY OF HUMANITIES
UNIVERSITY OF PRETORIA
PRETORIA

SUPERVISOR: DR NJ BOMELA
MARCH, 2010

ACKNOWLEDGEMENTS

I would like to thank my supervisor, Dr Nolunkcwe Bomela, whose guidance, encouragement, perseverance and support made it possible for me to finish my thesis. I am grateful to the Head of department, Professor Janis Grobbelaar who afforded me the opportunity to finish my Master's Programme.

Lastly I would like to thank the management of Statistics South Africa for providing me with the resources I required for my studies and for allowing me to use their data.

DECLARATION

This mini dissertation represents original work of the author and has not been submitted in any form to another university. Where work of others has been used it has been acknowledged and referenced in the text. The research for this study was performed at the University of Pretoria during the period January 2009 to January 2010.

ABSTRACT

The objective of this study is to investigate the trends in relative contribution each selected factor makes to the chance of a child's death over time in South Africa for children born 5 years preceding 1997 and 5 years preceding 2002. Attention was paid to the role played by socio-economic factors, biological and maternal factors, environmental factors, nutrient deficiency factors and health seeking behaviour factors. The study investigates whether the association of a specific factor to under-5 mortality persist over time.

Data from the 1997 October Household Survey and the 2002 General Household Survey were used. Births that occurred in the five years preceding each survey were analysed in relation to the survival of the child and socio-economic factors, biological and maternal factors, environmental factors, nutrient deficiency factors and health seeking behaviour factors. Logistic regression was used to determine the relative contribution of each factor for the two periods under review.

Under-5 mortality was significantly associated with eight factors during 1993-1997 period namely; mother's education, mother's place of residence, sex, birth order, birth interval, mother's age at the time of delivery of the subject child, nutrient deficiency and place of delivery. However, during the 1998-2002 period only five factors were significantly associated with under-5 mortality. These were mother's education, sex, birth interval, type of dwelling and place of delivery. This suggests changing patterns in factors associated with under-5 mortality between the two birth cohorts: 1993-1997 and the 1998-2002 birth cohorts.

Key words

Under-5 mortality, Socio-economic, environmental, Maternal, Nutritional, Health-seeking, HIV/AIDS, Household survey.

Table of contents

Page

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS/ ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
ASSA	Actuarial Society of South Africa
CSS	Central Statistics Service
EA	Enumeration Area
GHS	General Household Survey
HIV	Human Immunodeficiency Virus
MDG	Millennium Development Goal
OHS	October Household Survey
PSU	Primary Sampling Area
SADC	Southern African Development Community
SADHS	South African Demographic and Health Survey
SAS	Statistical Analysis Software
SPSS	Statistical Package for Social Scientists
UNICEF	United Nations Children's Fund
WHO	World Health Organisation

CHAPTER 1

1. INTRODUCTION

1.1 Background and trends in under-5 mortality

It is estimated that worldwide 10.5 million children aged 0-4 years died in 1999, about 2.2 million or 17.5% less than a decade ago. According to a UNICEF[1], WHO[2], The World Bank and UN Population Division (2007) report, world wide the number of children dying before the age of five has reached a record low, falling below 10 million for the first time in 2006.

The decline has however not been evenly distributed. There are still some regional differentials. The WHO (2006) estimates that on average about 15% of newborn children in Africa are expected to die before reaching their fifth birthday. The corresponding figures for many parts of the developing world are in the range of 3-8% and for Europe under 2%. Infant and under five mortality rates are by far the highest in Sub Saharan Africa, where underdevelopment, armed conflict and the spread of HIV/AIDS have seriously undermined efforts to improve child survival. The estimated under-five mortality rate exceeds 200 deaths per 1 000 live births[3] in ten countries in this region. Infant and child mortality rates also remain relatively high in South Asia.

Omar, et al. (2000) give a good summary of the global trend of infant and child mortality. There have been dramatic declines in mortality in almost all countries of the world, regardless of initial levels, socio-economic circumstances and development strategies. In advanced economies the declines were already

[1] *United Nations Children's Fund,*

[2] *World Health Organisation*

[3] *A live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, breathes or shows any other evidence of life-such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles-whether or not the umbilical cord has been cut or the placenta is attached. Each product of such a birth is considered a live birth.*

apparent at the end of the 19th century. In the period leading to 1970 under-5 mortality in these countries was 27 deaths per 1 000 live births, this declined to 10 deaths per 1 000 live births in the period 1970-1990. In the decade that followed under-5 mortality declined to 7 deaths per 1 000 live births. The 2006 figures indicate that under-5 mortality further declined to 6 deaths per 1 000 live births. The decline took place during the time of steady economic growth and major improvements in nutrition, housing, and living conditions. Garenne and Gakusi (2005) point out that during the above developments, the first benefits were improvements in water and sanitation, hygiene, and child feeding practices and the development of vaccinations. UNICEF (2004), identifies new, better, more effective and costly medicines, technology, and interventions as the main contributor to the steady decline in mortality rates in the industrialized countries during the period 1990-2003.

In the developing countries, under-5 mortality has declined, however it is still high compared to the developed regions. In the period 1960-1970 under-5 mortality was 164 deaths per 1 000 live births and it further declined to 128 deaths per 1 000 live births during 1970-1980 period. In the following decade a further decline to 103 deaths per 1 000 live births was observed. The downward trend continued beyond the year 1990. The 2006 figures indicate that under-5 mortality in this region declined to 79 deaths per 1 000 live births. However, East Asia and the Pacific, Latin America and the Caribbean, and Central/Eastern Europe and the Commonwealth of Independent States had achieved under-five mortality rates of below 30 deaths per 1 000 live births. Achieving the Millennium Development Goal (MDG) 4 target requires that the under-5 mortality rate declines, on average, by 4.4 percent annually between 1990 and 2015. These regions achieved this benchmark through 2006 or came closer to it, putting them on track to achieve the MDG4 target (UNICEF, et al. 2007: 7).

A common pattern is visible in the regions mentioned above. Speculation is that specific regional convergence has taken place of various policies and practices, perhaps mediated through regional institutions or informal policy networks. Murray, et al. (2007) suspect that some other factors might have been shared across these regions, such as educational or environmental policies or the key driver of mortality change, accumulation of stocks of household, community, and national physical and human capital. All these put together could have driven the mortality decline in these regions. UNICEF (2004) identified common conditions in countries where progress has been slow. Access to clean water is low; percentage of births not attended to by skilled personnel is high; percentage of under-5 moderately or severely underweight is high; percentage of one year olds who did not receive 3 doses of DPT[4] is high, and; percentage of children under 6 months of age who are not exclusively breastfed is high.

Some of the developing regions have lagged behind in their overall development. For example, in South Asia the rate at which mortality declined has been low compared to other parts of Asia. In the period 1960-1970 under-5 mortality was 199 deaths per 1 000 live births. In the period 2000-2006 the under-5 mortality was reported to be 83 deaths per 1 000 live births. Afghanistan is one country in this region where under-5 mortality is still very high, at 257 deaths per 1000 live births in 2006. Poor perinatal care is the leading reason for children under five dying, accounting for almost one third of all their deaths. Acute respiratory infections and diarrhoea are the other main killers. UNICEF (2004) identifies diarrhoea as a single proximate cause of child deaths to be at its worst in the South Asia region.

In another developing region, Middle East and North Africa, under-5 mortality rate in 1960 was 248 deaths per 1 000 live births. During the period 1990-2000 the under-5 mortality had declined to 55 deaths per 1000 live births, it then

[4] **DPT is** Immunization to protect against **Diphtheria**, **Pertussis** (whooping cough), and **Tetanus.**

further declined to 46 deaths per 1 000 live births in 2006. The 2006 figures show that Djibouti and Yemen still have high under-5 mortality of 130 deaths per 1 000 live births and 100 deaths per 1 000 live births respectively. UNICEF (2004) points out that most countries in this region have made substantial progress in providing services to their populations through:

- reducing the levels of malnutrition to below 10%;
- increasing the coverage of water and sanitation to above 80% ;
- increasing the immunization coverage to 90% of children with 3 doses of DPT and more than 80% of children vaccinated against measles, and;
- providing antenatal care during pregnancy and skilled attendants at delivery

Finally, among the developing regions, mortality in Sub-Saharan Africa has remained notoriously high. UNICEF (2004) approximates that 42% of children who die before they are five live in Sub-Saharan Africa. In 1960 the under-5 mortality was 277 deaths per 1 000 live births and a decade later it had declined to only 243 deaths per 1 000 live births. In the period 1970-1980 the under-5 mortality declined to 200 deaths per 1 000 live births. The pace of decline slowed down in the following decade when under-5 mortality rate declined to 187 deaths per 1 000 live births in 1990. During the period 1990-2000, the under-5 mortality declined further to 170 deaths per 1 000 live births. However, West and Central Africa showed a higher rate of 193 per 1 000 live births in the same period while Eastern and Southern Africa reported 145 deaths per 1 000 live births. The 2006 figure indicates that the under-5 mortality rate was 160 deaths per 1 000 live births for the region, however in West and Central Africa it was 186 deaths per 1 000 live births.

In the South African Development Community (SADC) countries, Angola and Democratic Republic of Congo reported the highest under-5 mortality in 2006, at 260 deaths per 1 000 live births and 205 deaths per 1 000 live births respectively. This was followed by Zambia and Swaziland which reported 182 deaths per

1 000 live births and 164 deaths per 1 000 live births respectively. With the exception of Mauritius, Seychelles and South Africa, all other remaining SADC countries reported under-5 mortality levels between 105 and 140 deaths per 1 000 live births in 2006. Small islands like The Seychelles and Mauritius have the lowest levels at 13 deaths per 1 000 live births and 14 deaths per 1 000 live births respectively. There was a decline in under-5 mortality in all these countries until 1990. However, UNICEF (2004) points out that in some countries including South Africa mortality increased or stagnated from 1990.

Lopez (2000) warned that although there has been good progress in delivering interventions to more and more children, failure to maintain service delivery and expand it to control new threats like HIV/AIDS, could well see these gains stagnate or unthinkably, decline. South Africa is in a similar situation to that described by Lopez.

1.2 Outlining the problem

By 1980 the under-5 mortality rate in South Africa was 91 deaths per 1 000 live births, this declined in the following decade to 60 deaths per 1 000 live births. During the period 1990-2000 the level of under-5 mortality took a turn in an upward direction, it increased slightly to 63 deaths per 1 000 live births. This trend continued and the 2006 figures indicate an increase to 69 deaths per 1 000 live births. Indeed this is of great concern because these levels are relatively high. Omar, et al. (2000) also argued that the rapid rate of decline observed earlier was not sustainable, given the slow rate of economic development, the impact of the AIDS epidemic, and the infusion of a very narrowly defined set of sophisticated technology-driven public health intervention.

Nannan, et al. (2000) believe that infant and child mortality stopped declining in South Africa in about 1992 and they believe this could be attributed to paediatric AIDS. Garenne and Gakusi (2005) also confirm in their reconstruction of mortality

trends using South African Demographic and Health Survey (SADHS)[5] of 1998 that under-five mortality in South Africa declined until 1992. However, mortality started to increase rapidly after 1993. They also claim that the increase was almost entirely due to HIV/AIDS. However, they also point out that after discounting for paediatric AIDS mortality, under-five death rates were stationary in South Africa, a finding that suggests that earlier progress in treating other early childhood causes of death were not sustained.

1.3 Mortality in young children and its measurements

The mortality risks faced by children vary with age. Deaths in certain age groups usually have practical programme and policy implications. Mortality among the young can be subdivided and categorized by their age at death. These can be measured using administrative/registration data or censuses and surveys. One of the major problems in use of registration data when estimating mortality is the completeness of registration. Surveys collect birth histories from women and estimate child mortality through direct techniques. Women are asked about each of the live births and whether the child is still alive or not. Child mortality is then directly measured.

Censuses usually use indirect methods where women are asked about the number of live births they have ever had and the number of children that are currently alive. These methods are based on the assumption that women's mortality is not correlated with their children's mortality; otherwise there will be a bias in the child mortality. This is because; if the mother dies then she will not be captured in the household survey to report on the child's death.

[5] The most recent SADHS conducted in 2003 has not been released. It would have shed more light into the most recent under-5 mortality rates in South Africa.

1.3.1 Neonatal mortality

Neonatal mortality includes deaths that occur during the first 28 days of life (UNICEF, et al., 2007:9). The neonatal period begins with birth and ends 28 complete days after birth. Neonatal deaths may be subdivided into early neonatal deaths, occurring during the first seven days of life (0-6 days) and late neonatal deaths, occurring after the seventh day but before the 28th day of life. The WHO (2006) shows that, neonatal deaths in developed countries are declining and this is as a result of changing patterns in reproductive health, socioeconomic progress and improved quality of obstetric and neonatal facilities. On the other hand no good historical data on neonatal mortality are available for developing countries.

Causes and determinants of neonatal deaths differ from those causing and contributing to post neonatal and child deaths. Furthermore, WHO (2006) suggests that neonatal deaths and stillbirths stem from poor maternal health, inadequate care during pregnancy, inappropriate management of complications during pregnancy and delivery, poor hygiene during delivery and the first critical hours after birth, and lack of newborn care. The report further points out that some babies die after birth because they are severely malformed, are born very prematurely, suffer from obstetric complications before or during birth, have difficulty adapting to extrauterine life, or because of harmful practices after birth that lead to infections.

1.3.2 Post-neonatal mortality

Post-neonatal mortality includes death that occurs at ages 1 to 11 months (UNICEF, et al., 2007:9). Post-neonatal mortality is most often caused by infectious diseases, such as pneumonia, tetanus, and malaria. An important factor in reducing post-neonatal mortality is adequate nutrition, particularly breast milk, which provides babies with both the nourishment and the antibodies to fight

infectious diseases. Breast milk can be supplemented or substituted by mixing formula; however, it is important that clean water is used.

The issue of HIV-infected mothers' breast-milk has become controversial. A number of countries have instituted policies that recommend that mothers with HIV (human immunodeficiency virus) should not breast-feed, based on some evidence of mother-to-child transmission of HIV through breast-feeding. In contrast there are policies that promote breast-feeding in areas with high HIV prevalence. Because breast-feeding protects against the infectious diseases that take the lives of millions of infants every year, there is a policy debate about the best course of action to take. Researchers do not know if the protection against infectious diseases afforded by breast-feeding outweighs the risks of HIV transmission to children, so it is not possible to make a definitive conclusion about the risks and benefits of breast-feeding by mothers with HIV. However, Brahmbhatt and Gray (2000) suggest that the breast-fed babies of mothers with HIV had six times the protection against diarrheal deaths in the first few months of life than babies who were not breast-fed. In the second half-year of life, protection against both diarrheal and acute respiratory infections was about double that for non-breast-fed babies.

1.3.3 Infant mortality and child mortality

Infant mortality is defined as the death of a live born infant between birth and exact age 1 (UNICEF, et al. 2007:9). Infant mortality rate is the probability of a child born in a specific year or period dying before reaching the age of one, if subjected to current age – specific mortality rates of that period.

Infant mortality is a potentially important indicator. This is because mortality tends to decline more slowly among infants than among children aged 1 to 4. Child mortality includes deaths that occur at ages 1 to 4 years.

1.3.4 Under-5 mortality

Under-5 mortality includes deaths that occur between birth and exact age 5 (UNICEF, et al. 2007:9). Generally all deaths in childhood occur before age 5, thus the probability of dying by age 5 can be regarded as a good index of overall level of child mortality.

1.4 Objective of the study

The objective of this study is to investigate the trends in relative contribution of each factor to the chance of a child's death over time. The study will investigate whether the association of a specific factor to under-5 mortality persist over time.

1.5 Assumptions

The following assumptions were made.

- The two surveys whose data was used, were conducted according to acceptable standards, that proper procedures were followed and interviewers were well trained in data collection.
- The South African government is interested in monitoring the progress toward achieving the millennium development goal number 4.
- Short recall period may have advantage of providing better data quality, thus the decision to study only births that occurred in the five years preceding the survey.
- If any child in a household went hungry in the last 12 months because there was no food then it is an indication of possible nutrient deficiency for both children and adults in that household.

1.6 Limitations

- The study did not isolate deaths due to HIV/AIDS because of lack of data. However, it was assumed that after controlling for all possible proximate variables the unexplained deaths might be due to HIV/AIDS.
- The study only considered under-5 mortality as a group and no further disaggregation was done because the sample size is small to disaggregate to lower levels.
- The information on child survival was obtained from mothers. This technique has a potential selection bias, because in order for a child to be reported the mother must be a member of the study population at the time of the survey. Thus, either death or emigration of the mother can affect the reporting coverage.
- Incorrect dating of the births can distort the data, particularly if the errors vary with the survival status of the child.

1.7 Rationale of the study

The government has invested a lot in providing water, sanitation, housing, electricity and education to the previously disadvantaged population. Since 1994, life circumstances of South Africans have been improving. For example the proportion of households living in formal dwellings increased from 65,8% in 1995 to 73,8% in 2002. Proportion of households with access to clean water increased from 78,5% to 84,4% while access to electricity for lighting increased from 63, 5% to 76, 3% and an improvement was observed in sanitation as well over the same period. In light of this, one would expect under-5 mortality to have declined.

The government would like to measure the impact of these improvements on under-5 mortality. However, this can only be done if the government understands the impact of each service with time. Some services could be having a better effect than the others or the influence of one service could have

shifted with time. With limited resources, not all services can be provided at the same time. There could be a need to evaluate existing policies and change them.

1.8 Review of chapters

Chapter 2 of this study presents the conceptual framework for the analysis which was used for this study. Subsequently, the chapter focuses on the review of the relevant literature especially linking it to the key determinants of under-5 mortality as described in the analytical frame work. Chapter 3 gives the background of the secondary data which was used for the analysis. It presents how the samples for the two surveys were drawn. It also provides the methods and procedures which were followed during data collection. The chapter also presents quality assurance initiatives which were put in place during the training of fieldworkers and also during data collection. Furthermore, the chapter points out data quality issues which were identified during analysis. It also discusses the analysis strategy and the rationale including the operational definitions of the variables used in the analysis. The chapter concludes by pointing out the omitted traditional explanatory variables which are not included in the study. Chapter 4 presents the results from the univariate, bivariate and multivariate analysis. Finally chapter 5 presents the key summary and subsequent discussions as well as the policy implications.

CHAPTER 2

2. CONCEPTUAL FRAMEWORK AND REVIEW OF LITERATURE

2.1 Introduction

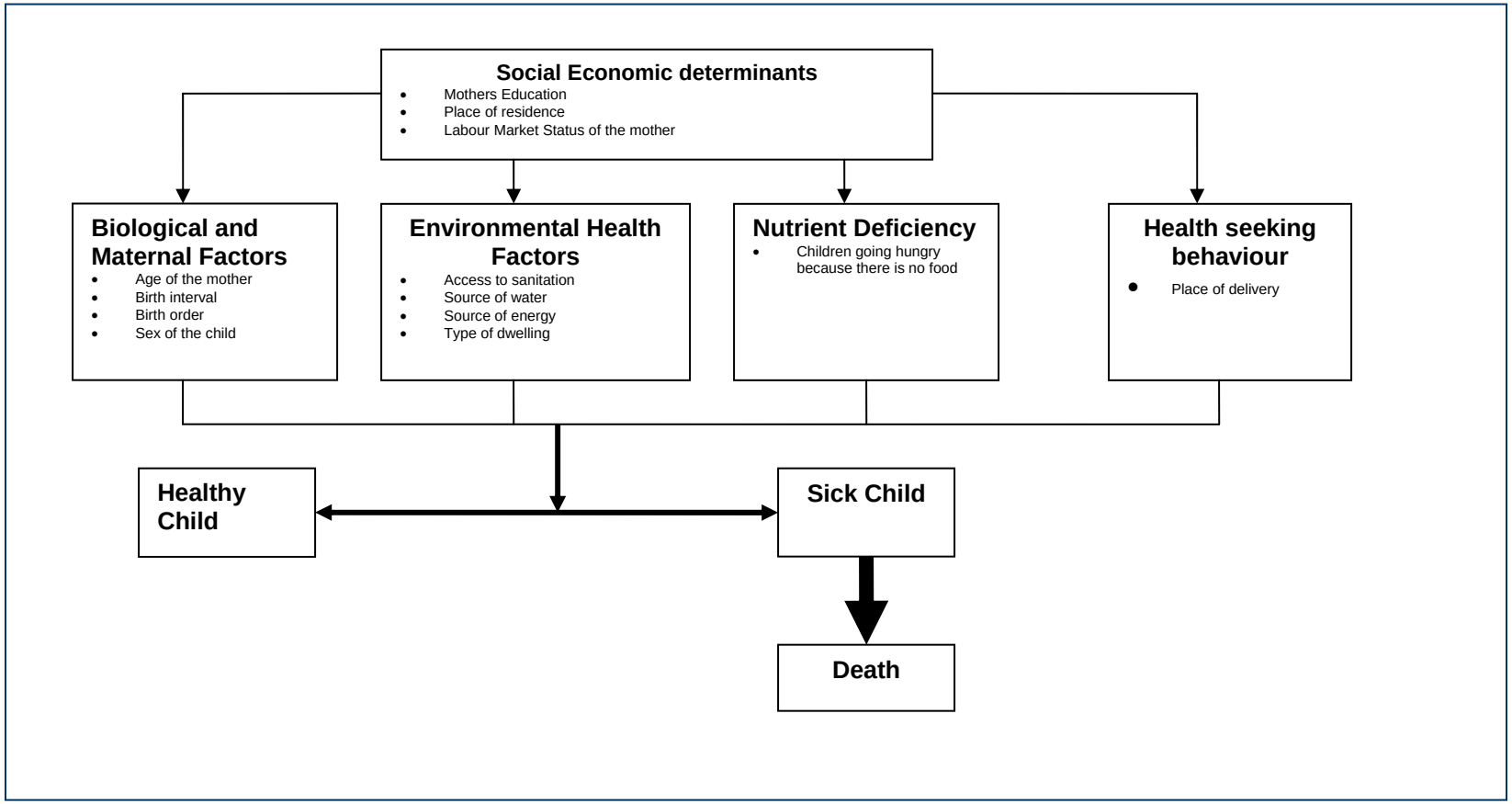
The purpose of this chapter is to present the conceptual framework, including the review of literature used to explain socioeconomic, environmental, biological and health determinants of under-5 mortality. This framework formed the basis of the analysis in this study.

2.2 Conceptual framework for the analysis of childhood mortality

According to Mosley and Chen (1984), all social and economic determinants of child mortality necessarily operate through a common set of biological mechanisms, or proximate determinants, to exert an impact on mortality. In this framework, a set of proximate determinants or intermediate variables that directly influence the risk of morbidity and mortality are identified. All social and economic determinants must operate through these variables to affect child survival. This study adopted the Mosley and Chen (1984) approach to the analysis of child mortality.

Figure 2.1 illustrates the path to a healthy child or a sick child and eventual death. The socioeconomic factors operate through maternal, biological environmental, nutritional and health seeking behaviour factors to leading to a healthy child or sick child. However, with modern medical intervention (through prevention or treatment), a child may remain healthy, the sick child could recover and become healthy or treatment may fail and the child dies. Each of the factors is discussed below.

Figure 2.1: Analytical Framework for child survival



Adapted from Mosley and Chen (1984)

2.3 Socioeconomic determinants of child survival

The relationship between socioeconomic factors and childhood mortality has been well established by several studies, namely: Cleland (1990), Hobcraft et al. (1984), Hobcraft (1993) and Machado and Hill (2005). The framework adopted from Mosley and Chen (1984) in this study uses mother's education, type/place of residence, and labour market status of the mother as socioeconomic factors which might influence child survival. These factors will be discussed in more detail below.

2.3.1 Mother's education

Mother's education level can affect child survival by influencing her choices and increasing/limiting her skills in health care practices related to contraception, nutrition, hygiene, preventative care and disease treatment. On the other hand the educational level of the father usually correlates strongly with occupation and therefore with household income. In many cases correlation between the health effect and the educational level of the father or other non-childbearing, economically productive adult members in a household largely occur because of operations on the proximate determinants through the income effect (Mosley and Chen 1984:34).

The relationship between mother's education and child survival has received a lot of attention and a number of studies have been conducted on this relationship. In Hobcraft, et al. (1984) the association of mother's education and child survival usually survived controls of other socioeconomic variables. Furthermore, Hobcraft, et al. (1984) suggested that there was no threshold level of maternal education that needed to be reached before advantages in child survival began to accrue; even a small amount of education was usually associated with improved chances of child survival. However, some studies have shown that the associations between mother's education and child survival were weaker in Sub-

Saharan Africa than in Asia or particularly Latin America, where socioeconomic differentials were generally higher. The reason for this kind of association is unknown; however Hobcraft (1993) has tried to explain this association. He suggests that perhaps health infrastructures are weaker in sub-Saharan Africa, thereby inhibiting the ability of more educated mothers to take advantage of their human capital in the health environment. Different researchers suggest pathways whereby mother's education might enhance child survival. Cleland (1990) concluded that education may have a modest effect on health knowledge and beliefs.

Madise, et al. (1999) in their study of several African countries found higher levels of education i.e. secondary schooling and beyond to be important for child health. However, Magadi (1997) suggests that father's not mother's education is significantly associated with child health in Kenyan communities where the status of women is low. Mosley and Chen (1984) also indicated that father's education may influence attitudes and thus preference in choice of consumption goods. They pointed out that this effect is likely to be most significant for child survival when a more educated father is married to a less educated mother. Mother's education can also be linked to other factors that shape and modify the economic choices and health-related practices of individuals according to cultural traditions and norms of society.

2.3.2 Place of residence

Place of residence of the mother affects the survival status and nutritional status of the living children in developing countries. This relationship is well established by several studies; Mahmood (2002), Sastry (2004), Nannan, et al. (2007). The urban areas usually have better infrastructure for health services compared to non-urban areas. They are usually more developed. Machado and Hill (2005) showed that having a mother who lives in the highest developed community reduced the odds of neonatal deaths. They concluded that community infrastructure may improve hygienic practices. Furthermore, interactions between

friends and neighbours in the communities may lead to changes in behaviour regarding infant care and in this case better off communities may benefit from the overall level of community education (Machado and Hill, 2005:207). Kanaiaupuni and Donato (1999) even suggested that paved roads and female labour force participation were also important.

In South Africa, there has been an increase in rural-urban migration of the black population since 1994. This was because the apartheid laws which restricted the movement of the black population were abolished. However, a substantially large number of people move to informal settlements next to big cities. The informal settlements do not enjoy similar infrastructure as other formal urban areas. A child living in an informal settlement has totally different living conditions compared to the one living in a formal area. Both could be classified as living in an urban area or in the same city, which will give biased results. Sastry (2004) concluded that in Sao Paulo, children from disadvantaged families were worse off in urban areas because the deleterious effects of being disadvantaged were much larger in urban areas than they were in rural areas.

Amouzou and Hill (2004) conclude that the weak effect of urbanization they observed could be due to the rapid increase of urban poverty in such a way that urban poor are losing their health advantages compared to rural residents. This is likely to be the case in South Africa. Thomas (2007), in his study of mortality differentials in South Africa by migration status suggests that native-born internal migrants had a steeper socioeconomic gradient in child mortality than native-born non-migrants.

2.3.3 Labour market status of the mother

Labour market or work status of the mother is likely to affect child survival in both directions. The need to work, especially outside the home, may affect survival chances directly, simply by preventing the mother from caring for the infant. This may have substantial effects through lack of proper feeding and particularly

breastfeeding early in life (Hobcraft, et al. 1984). However, a working mother can also be associated with high family income which can increase a child's survival. Ibrahim, et al. (1994) observed that non-farming mothers in a household with fewer children were more active than farming mothers in using oral rehydration therapy (ORT). They concluded that mothers who had more time to give to child care were more likely to use ORT**.**

Kishor and Parasuraman (1998) found that mother's employment had a negative effect on the child survival, if the mother works away from home for cash, lives in urban area, or lives in the South of India. In my view this could mean that it is the mother's absence rather than employment status which affects the child. If the mother works, but commutes from where the child resides, the outcome might be different. Short, et al. (2002) identified that both work compatibility and work intensity reduce women's involvement in child care in China. However, they also pointed out that, if women with intensive work demands provide less child care, this does not necessarily hinder children's physical and psychological development. This is because in China, relatives or other members of the household assist in child care. Child care is not exclusively left to the mother. Alternative child caregivers such as grandmothers can reduce a mother's burden greatly.

In India, Krishnaji (1995) showed that working mothers experience a greater child loss than non-working mothers in respect of both male and female children. Generally, a narrower gender differential in child mortality among working mothers was observed in most of the states, however in the north and the north-west, the work status of women had a greater impact on male children than on girls. To explain the case in the north and north west, Krishnaji argued that it is because in general there is a strong bias against girls in these states. The male children of non-working mothers are the best protected among all categories so that the withdrawal of this protection by working mothers - if what is observed can be described so - has a greater impact for boys.

He concluded that the narrower gender differential in child mortality among working mothers could be due to the exposure women get and thus changed attitudes towards girls.

2.4 Biological and Maternal determinants of child survival

Mosley and Chen (1984) identified birth order, birth interval and age of the mother as factors which influence child survival. Studies conducted by Hobcraft, et al. (1985), Rutstein (2000) and Davanzo, et al. (2004) show the association of these factors to child survival. In addition to the above mentioned factors, the sex of the child was also considered in this study. Each factor is discussed below.

2.4.1 Birth order

High mortality has been associated with being the first born and with high birth order. Hobcraft, et al. (1985), showed a clear excess of neonatal mortality for the first births and first born children continued to be at a disadvantage during the remainder of infancy. However, contrary to the general belief, there was no clear evidence of excess mortality for children of birth order four to six, nor even for those of order seven and higher, once the other factors in the regression model were controlled. This could suggest that mortality associated with births of high orders may be predominantly caused by other factors like birth intervals. However, it should be noted that the outcome of the first birth could be associated with the age of mother rather than the order. Hobcraft (1991) concludes that delaying the first birth until a woman is at least 18 years of age might reduce the risk of death for first born children by up to 20 percent on average and up to 30 percent in a few countries. Other researchers like Mohamed, et al. (1998) linked the death of the first born to low birth weight.

2.4.2 Birth interval

A number of studies have demonstrated increased mortality risks among children born after short birth intervals. Some of these studies have investigated possible pathways through which preceding birth intervals may affect childhood survival. Boerma and Bicego (1992) provided possible pathways through which the relationship between preceding birth intervals and child survival might be affected, identifying prenatal and postnatal mechanisms. As far as prenatal mechanisms are concerned, it is believed that women with a short interval between two pregnancies have insufficient time to restore their nutritional reserves, which might affect foetal growth. These researchers mentioned several studies which revealed increased risk of intrauterine growth retardation for shorter inter-pregnancy intervals. Both intrauterine growth retardation and prematurity lead to low birth weight, which is a strong determinant of infant mortality.

Postnatal mechanisms include poor nutrition of the mother, which may lead to impaired lactation and the inability to provide adequate care for the children. Sibling competition may also have an effect on the survival of the child. The results of Boerma and Bicego's (1992) study suggest that prenatal factors are more significant than postnatal factors. Hobcraft, et al. (1985) conclude that short child spacing could be the dominant source of most of the apparent increase in risks at high birth orders and higher ages of the mother. Children born at very short intervals after preceding births (1 to 17 months) are about twice as likely to die as those born after intervals of 24 to 47 months: those born after 18-23 months experience an excess risk of about one-third (Hobcraft,1991).

Davanzo, et al. (2004) summarize mechanisms that have been hypothesized to possibly contribute to the detrimental effect of a short birth interval on childhood survival as; (a) behavioural effect associated with competition among siblings, (b) the inability (or lack of desire) to give a child adequate attention if his or her birth

came sooner than desired; and, (c) disease transmission among closely spaced siblings. Hobcraft, et al. (1985) in their quest to answer whether child spacing effects are real or artifactual, discussed the complex web of potential associations between breastfeeding, mortality and subsequent pregnancy. They concluded that the most plausible mechanism for the deleterious effect of short previous interval is maternal depletion. This results in a small baby, perhaps with increased risk of prematurity. Low birth weight is associated with very poor survival chances.

Some studies showed that the effects of birth spacing disappear if women attend prenatal care. For example Mahmood (2002), showed that for mothers with shorter previous birth intervals who have used prenatal care, their babies are significantly more likely to have better survival chances during the neonatal period than those mothers with the same short birth interval who did not receive prenatal care for the index child. This was earlier suggested by Boerma and Bicego (1992).

2.4.3 Age of the mother

Some studies like those conducted by Hobcraft, et al. (1985), Rutstein (2000), and Machado and Hill (2005) have shown some association between the age of the mother at birth and child survival. Hobcraft, et al. (1985) showed that mortality was clearly higher among children of teenage mothers. However, in their study there was nothing to suggest increased risks for children born to mothers at older ages, even those with mothers who were aged 35 or above after controlling for birth spacing. Mahmood (2002) on the contrary, observed that children of older women (30-39 years) were exposed to significantly higher neonatal and post-neonatal mortality.

2.4.4 Sex of the child

A number of studies have shown mortality differential by sex. Male mortality usually exceeds female mortality in the neonatal period, but this differential is reversed in the post-neonatal period. Higher female than male mortality continued through childhood and this is supported in studies by Chen, et al. (1981), Bhuiya and Streatfield (1991) and Arokiasamy (2002).

Chen, et al. (1981) point out that the reversal of the sex differential of mortality, markedly so during childhood and persisting through adolescence, was postulated to be reflective of sex-biased health and nutrition-related behaviour favouring male children. Furthermore, they conclude that son preference in parental care, intra family food distribution, feeding practices, and utilization of health services are some of the behavioural mechanisms by which sex-biased attitudes may have led to the observed mortality pattern.

Son preference is most prevalent in East Asia, South Asia, Middle East and North Africa. Hesketh and Xing (2006) point out that son preference is manifest prenatally, through sex determination and sex selective abortion, and post-natally through neglect and abandonment of female children, which leads to higher female mortality.

One would expect mother's education to intervene in sex discrimination. However, Bhuiya and Streatfield (1991) showed that the positive effect of mother's education on child survival is not similar for boys and girls in Bangladesh. They showed that for boys a change in mother's education from no schooling to 1-5 years of schooling resulted in a reduction in the predicted risk of 45 percent, while for girls it was only 7 percent. Furthermore, a change from no schooling to 6 or more years reduced the risk of dying by 70 percent for boys and by only 32 percent for girls. However, Eswaran (2002) concluded that the empowerment of women, which increases the bargaining power of wives relative

to their husbands, results in a decline in fertility and in the mortality rate of children.

Although most studies show discrimination bias towards girls, Pande (2003) identified sex composition of siblings as a factor in selective discriminatory practices that affect the health of surviving children. He identified that in rural India all girls do not face the same level of discrimination; the first girl born after two or more boys may face less discrimination than a boy who has two or more older brothers. On the other hand, girls who were born into a family that already has two or more surviving daughters and no surviving sons are among the most likely to be severely stunted (38%) and are less likely to be immunized than are first daughters.

2.5 Environmental health determinants of child survival

Environmental conditions have long been considered to have a significant influence on mortality. These include access to sanitation, source of drinking water, source of energy and type of dwelling. Some of these factors are so interlinked that they will be discussed together rather than individually. For example Ezzati and Kammen (2002) argued that to understand the health effects of exposure to indoor smoke so that appropriate interventions and policies can be designed and implemented is a complex phenomenon. You have to isolate factors which determine human exposure, and their relative contributions of each factor to personal exposure. These factors include energy technology (stove-fuel combination), housing characteristics (e.g., the size of the house and the material it is built from, the number of windows, and the arrangement of rooms), and behavioural factors (e.g., the amount of time spent indoors or near the cooking area).

Studies conducted by Anderson, et al. (2002) and Wichmann and Voyi (2006) have shown a strong association with access to clean water, sanitation, clean source of energy and with infant and child mortality.

The South African Demographic and Health Survey (SADHS) report of 1998 showed childhood mortality differentials caused by socio-economic, demographic, environmental and high-risk fertility behaviour. For environmental factors, source of drinking water, sanitation, housing materials and source of energy were investigated. Child mortality rates, more than doubled where the source of drinking water was other than piped water. Where poor sanitation existed child mortality rates are higher. The report also showed that there was a relationship between material used for the dwelling and source of energy with child mortality. Child mortality increased more than three times where other materials other than block/bricks are used for housing and also other sources of energy other than electricity were being used.

2.5.1 Source of water and access to sanitation

Increased risk of potentially fatal diarrhoeal diseases is expected among households with no clean drinking water and/or with no safe sanitation. Some studies like Mahmood (2002) have shown a relationship between access to clean water and sanitation to under-5 mortality. Anderson, et al. (2002) in their study of black and coloured populations showed a hierarchy of needs in which without clean water, sanitation matters little. In their analysis they considered household social economic characteristic, access to and use of health care, environmental conditions and age of the mother.

However, the 1998 SADHS report showed that children born after a very short interval suffer a significantly higher mortality. The study by Anderson, et al. (2002) never took birth spacing into account when actually 5% of children born in the five years preceding the demographic and health survey fell in this category. This study included birth spacing as a control variable. Mahmood (2002) also

found that families living in households with piped water connected in their houses have a significantly lower post neonatal mortality than those families which depend on wells for drinking water. However, the results did not show evidence of improved child survival in households that had flush toilets compared to those that did not have.

2.5.2 Source of energy

Cooking and heating with solid fuels on open fires or traditional stoves in poorly ventilated indoor environments leads to health hazards. Wichmann and Voyi (2006) suggested that exposure to cooking and heating smoke from polluting fuels is significantly associated with 1-59 months mortality in South Africa, after controlling for mother's age at birth, water source, asset index and household overcrowding. As mentioned earlier the 1998 SADHS report showed that there was a relationship between sources of energy and child mortality.

Indoor pollution affects children more than it affects adults. Fitzgerald, et al. (1998) explain why children are more vulnerable than adults. They argue that infants and young children have much greater surface-area to volume ratios than adults, thereby increasing the potential exposure through the skin. Infants and young children engage in oral exploratory behaviour and often play on the ground, thereby increasing potential ingestion of contaminants in soil and dust. Exposure through respiration may be increased because infants and children inhale air closer to the ground than adults do, increasing the potential intake of contaminants from the soil and dust. In addition, children are also more exposed to dietary sources of pollution.

2.5.3 Type of dwelling

A relationship between type of dwelling and child mortality has been established in a number of studies, namely: Anderson et al. 2002; Jacobs et al. 2009; and Shehzad 2006. This is to be expected: brick houses are likely to be more hygienic than those built from informal material or scrap, as is often the case in informal settlements in South Africa. A house that is small and inadequately ventilated will have an adverse effect on a child's health. The situation becomes even worse where there is overcrowding: children become more prone to communicable diseases. Shehzad (2006) found that, in Pakistan, child illnesses such as diarrhoea, acute respiratory infections and fever are affected by family size, housing and parental education.

2.6 Nutrient deficiency as a determinant of child survival

This proximate determinant relates to intake of the three major classes of nutrients calories, protein and micronutrients. Mosley and Chen (1984) pointed out that the survival of children is influenced by nutrients available not only to the child but also to the mother. Nutrient availability to the infant or to the mother during pregnancy and lactation can be measured directly by the weighing of all foods before consumption, accompanied by the biochemical analysis of food samples. The three indicators of nutritional status are **stunting**, which indicates chronic under nutrition in children, **wasting** which indicates acute under-nutrition, and finally the proportion of children who are **under weight**. According to Bomela (1999) stunting or chronic malnutrition is the most prevalent form of malnutrition amongst the under-5 in South Africa. Malnutrition is one of the important risk factors for mortality due to acute respiratory infections.

2.7 Healthy seeking behaviour as a determinant of child survival

Unlike other determinants which affect the rate at which children move from health to sickness, this group influences this rate (through prevention) and rate of recovery (through treatment), (Hill, 2003:139). For preventive measures this variable is commonly assessed by reported use of such preventive services as immunization, malaria prophylaxis, or antenatal care. For curative measures the providers of care and types of therapy taken for specific conditions are assessed (Mosley and Chen, 1984:33).

Rutstein (2000), in his comparison of DHS data from 62 developing countries, showed that increases in the percentage of births that received medical care at delivery were associated with decreasing mortality during the first year of life. An increase in prenatal care was associated with decreases in mortality among those under-5 years as well. Boerma and Bicego (1992) even linked prenatal care and birth intervals, in that they hypothesised that unlike pregnant women with short birth interval, pregnant women with longer birth intervals are more likely to attend prenatal care services which ultimately results in a healthy child birth.

Rutstein (2000), pointed out that an increase in the percentage of children vaccinated against measles was associated with a decline in infant mortality and with mortality at ages > 1. He went further to show that increases in the percentage of children receiving medical attention for diarrhoea; acute respiratory illness and fever were associated with the declines in mortality.

2.8 Summary

This chapter proposed a conceptual framework for use in the analysis and reviewed various studies dealing with under-5 mortality rates. The conceptual framework considers socioeconomic factors, environmental, biological and maternal factors, nutrient deficiency factors and health-seeking behaviour factors. A review of the literature dealing with each of the proxy indicators for the above factors was conducted.

.

CHAPTER 3

3. METHODOLOGY

3.1 Introduction

This chapter will focus on the background of the data, the sample and the research instruments used in the study. Data quality issues are also discussed. The chapter also presents the strategy used in the analysis of the data, including the operational definitions of the independent and dependent variables.

3.2 Background into the data

Secondary data from two national household surveys below was used.

a) October Household Survey 1997 (OHS 1997)
b) General Household Survey 2002 (GHS, 2002)

While challenging to mount, well-designed and well-implemented household surveys produce high quality data on mortality levels and trends (UNICEF, et al., 2007:33). The strength of household surveys is that they collect birth histories and also data on socio-economic status, health and education. Thus the use of household based survey data for this study.

Both surveys were annual national surveys and were conducted by Statistics South Africa. The October Household Survey was conducted annually from 1994 to 1999. However, this study used the 1997 round because the study is focusing on trends in under-5 therefore it was important to select a cohort of under-5 children which was before the last cohort which could be obtained from the GHS 2002 i.e 1998-2002 cohort.

The General Household Survey replaced the October Household survey and it started in the year 2000. It is conducted annually and for this study the 2002 round was used. Birth histories were last collected in GHS 2002. That is why this dataset and not the later ones have been used.

3.3 The sample

Both surveys had a complex multi stage sample. The target population for both surveys was private households in South Africa. The data base of Enumeration Areas (EAs), as established during the demarcation phase of Census '96, constituted the sampling frame for both surveys. Special dwellings such as prisons, hospitals, boarding houses, hotels, guesthouses (whether catering or self-catering), schools and churches were excluded from the sample. The sample for each survey is described below.

3.3.1 October household survey 1997 sample

The sampling procedure involved explicit stratification by province and transitional metropolitan and district councils. The smaller provinces were given a disproportionately larger number of Enumeration Areas (EAs) than the bigger provinces. Altogether, 3 000 EAs were drawn by means of probability proportional to size principles in each stratum and a systematic sample of 10 households was selected in each EA. This means that 3 000 EAs were identified as primary sampling units, and approximately 30 000 households were visited as ultimate sampling units.

3.3.2 General household survey 2002 sample

During the 2002 GHS the sample was improved. Some small EAs were pooled together to form a primary sampling unit (PSU). A PSU is either one EA or several EAs depending on the number of dwellings in an EA. When the number of dwelling units in the base or originally selected EA was found to have less than

100 dwelling units, this EA was combined with an adjacent EA to form a PSU. Explicit stratification of the PSUs was done by province and area type (urban/rural). Within each explicit stratum, the PSUs were implicitly stratified by District Council, Magisterial District and, within the magisterial district, by average household income (for formal urban areas and hostels). Altogether 3 000 primary sampling units (PSUs) were included in the sample.

The allocated number of PSUs was systematically selected with "probability proportional to size" in each stratum. Once the PSUs included in the sample were known, their boundaries had to be identified on the ground. After boundary identification, the next stage was to accurately list all the dwelling units in the PSUs.

The second stage of the sample involved selecting a systematic sample of 10 dwellings from each PSU. As a result, approximately 30 000 households (units) were interviewed.

3.4 Questionnaires

Both questionnaires went through rigorous tests and consultations. The OHS 1997 questionnaire was an improved version of OHS 1996. There was a review panel consisting of different stakeholders under the leadership of Statistics South Africa (StatsSA) known at the time as Central Statistical Service (CSS). The questions were reviewed and some were dropped or improved on, some where retained and some new questions were introduced. The new questionnaire was tested through the behind the glass test[6]. This was to test if there were any questions which were not clear or which might offend the respondent. This also tested the flow of the interview and the length.

[6] During the behind the glass test, the interviewer interviews the respondent, while the questionnaire design experts are observing and listening through a one-way mirror.

After the behind the glass test the questionnaire was modified depending on what was observed. The second test was in the field. A mini pilot study was organised to specifically test the questionnaire. Trained field workers were deployed in the field to test the questionnaire and report back on any problems they encountered during the test interview. After the pilot the questionnaire was finalized.

During the development of the GHS 2002 questionnaire, a similar process was followed. However, during this process the lay out of the questionnaire changed to cater for changes in data processing.

The full GHS 2002 questionnaire is attached as Appendix 1. However, since the two questionnaires are almost similar only extracts of the OHS 1997 are included as Appendix 2.

3.5 Training, field work operations and procedures

Field work was conducted in October 1997 and June/July in 2002. The questionnaire was administered through face-to-face interviews. Both surveys were conducted using almost similar procedures in the field, except for a few which will be pointed out below.

Statistics South Africa had a national office, 9 provincial offices and a few regional offices. The national office is responsible for the planning and development of the survey instruments, while the provincial and regional offices are responsible for operations in the field.

The field staff comprised of about 600 interviewers and 150 supervisors for each survey. Each field supervisor was responsible for four interviewers. Training of field workers was conducted in a cascaded manner. Trainers were trained at the national level and these were Statistics South Africa national and provincial office

permanent staff members. The training included the questionnaire, concepts and definitions, procedures to follow in the field, role plays and administrative procedures.

After national training of trainers, the provincial training of fieldworkers was conducted in each province. In provinces where the sample was big and thus more fieldworkers, training was conducted in groups of not more than 30 trainees. Their training included all aspects of the national training and also a field trip. Fieldworkers and provincial permanent staff who speak the same language went through the questionnaire and agreed on the translations of key questions.

After the four days of training field workers were required to write a test and those who were identified as weak were retrained on some aspects. During the training process the fieldworkers were constantly evaluated and those who showed some leadership qualities and also passed the test well were appointed as supervisors and they were given further training on the administrative and supervisory tasks they were required to perform. These included identification of the EA or the PSU boundaries, identification of the selected dwelling unit and allocation of work to respective fieldworkers.

A vehicle was allocated to each supervisor and his/her team of four fieldworkers. Each team was allocated between 18 and 20 EAs/PSUs to be enumerated over a period of two weeks. The team would follow the description of the location of the PSU, in case of the 1997 OHS the descriptions were done during the census 1996 demarcation process, while in the GHS 2002 the census 1996 descriptions were confirmed and at times modified during the listing process as mentioned earlier under the sample.

After the PSU was identified and boundaries established, a full count of private dwellings was conducted and a systematic sample of 10 was selected. However,

this procedure was improved on during the 2002 GHS. Since there was prior listing of all dwellings in a PSU, the sample was drawn in a more controlled manner in the office and the fieldworkers did not have to do any sampling in the field. They were given addresses of the selected dwelling or a description of the house in cases where there was no address. Their role was to establish the number of households at the selected dwelling unit. All households at a selected dwelling were enumerated during the 2002 GHS. In the 1997 OHS multiple households were handled differently in that if more than one household was identified at a selected dwelling unit, only one was enumerated and was selected randomly using probability proportional to size. A household with more people was given a higher probability of being selected.

Each fieldworker was allocated a household to interview and face to face interview was conducted. If the occupants of a selected dwelling were not at home, a fieldworker was allowed to go back at least three times before he declares a dwelling a non-contact[7].

3.6 Data quality

A number of quality assurance procedures were implemented during the survey. Coupled with the rigorous training described earlier, fieldworkers were instructed to interview only adults in the household. When it came to birth histories which mostly form a bigger part of this study, fieldworkers were instructed to interview mothers because they usually have the correct information about their children.

Another quality measure which was performed was to take a sample of 5% of the selected dwelling which were revisited by the assistant survey managers. They conducted a control interview to confirm whether a fieldworker had visited that household.

[7] Non contact includes households which refuse to participate in the survey and households which are occupied but the occupants are not always at home during the interviewers visit.

Although much was put into limiting both sampling and non-sampling errors, the following inconsistencies were observed during the analysis.

- In the 1997 OHS, the file which contains birth histories contained 104 877 records; however 36 records were duplicates so they were deleted.
- About 121 records in the birth histories file could not be linked to the person file which contained the demographic information of the mother so they were deleted.
- In the 2002 GHS, 11 records in the birth histories' file could not be linked to the person file which contains the demographic information of the mother so they were deleted.

Deleting of records could cause a shift in birth orders and birth intervals. However, these were relatively few to cause a significant change in the results.

3.7 Analysis strategy

Since the purpose of the study was to assess trends in the factors associated with under-5 mortality, the approach adopted in this study was to first analyse trends of each variable which might influence under-5 mortality between the two points i.e 1997 and 2002. Univariate and bivariate analysis was conducted on the variables identified in the analytical framework.

3.7.1 Logistic regression

Logistic regression estimates the odds of a certain event occurring. In this study it was used to predict under-5 deaths. Logistic regression can be used to predict whether an event will occur or not using a set of independent predictor variables. Furthermore, it can be used to explain the percent of variance in the dependent variable which is explained by a specific predictor variable.

This is usually explained in terms of an odds ratio. The logistic equation may be written as follows;

$$\pi(x) = \frac{e^{\alpha+\beta_1 x_1+\beta_1 x_1+...+\beta_i x_i}}{1+e^{\alpha+\beta_1 x_1+\beta_1 x_1+...+\beta_i x_i}}$$

Where $\pi(x)$ is the probability that the response y=1
α is the equation constant and
β_i is the coefficient of the predictor x_i

The advantage of a logistic regression model is that the independent variables don't have to be normally distributed. Secondly, it does not assume a linear relationship between the independent and dependent variables. However, logistic regression is sensitive to high correlations among the predictor variables. This is referred to as multicollinearity. Pallant (2005) recommends that multicollinearity problems should be checked before logistic regression analysis. This was tested and the results are presented in Tables 3.1 and 3.2

Correlation results for both data sets indicate that, although there some significant relationships between some of the variables none of them is very high (i.e more than 0.7) to suggest multicollinearity. The highest registered correlation between independent variables was between place of residence and source of water for both 1997 and 2002 data points. The correlation coefficients between these two predictor variables for the two data points were 0.487 and 0.483 respectively.

Table 3.1: Correlation between independent variables in 1997 data

	Mother's education	Place of residence	Mother's labour market status	sex	Birth order	Birth Interval	Mother's age at birth	Source of water	Type of sanitation	Access to electricity	Type of dwelling	Nutrition	Place of delivery
Mother's education	1.000	.224**	.246**	-.010	.238**	.104**	.200**	.138**	.172**	.251**	.083**	.133**	.187**
Place of residence		1.000	.175**	.014	.127**	.065**	.067**	.487**	.189**	.442**	-.245**	.059**	.193**
Mother's labour market status			1.000	-.002	-.002	.064**	.012	.155**	.097**	.167**	.011	.080**	.103**
sex				1.000	.014	.008	.004	.014	-.032**	.013	-.013	-.002	-.004
Birth order					1.000	.320**	.418**	.097**	.075**	.119**	-.026**	.067**	.251**
Birth Interval						1.000	.248**	.034**	.046**	.069**	-.030**	.037**	.248**
Mother's age at birth							1.000	.018*	.020*	.037**	-.023**	.075**	.270**
Source of water								1.000	.246**	.414**	-.143**	.050**	.142**
Type of sanitation									1.000	.289**	.073**	.105**	.160**
Access to electricity										1.000	.078**	.125**	.191**
Type of dwelling											1.000	.075**	-.039**
Nutrition												1.000	.091**
Place of delivery													1.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 3.2: Correlation between independent variable in 2002 data

	Mother's education	Place of residence	Mother's labour market status	sex	Birth order	Birth Interval	Mother's age at birth	Source of water	Type of sanitation	Access to electricity	Type of dwelling	Nutrition	Place of delivery
Mother's education	1.000	.231**	.193**	-.023*	.168**	.038**	.151**	.145**	.193**	.223**	.095**	.175**	.133**
Place of residence		1.000	.121**	-.002	.094**	.043**	.052**	.483**	.263**	.339**	-.188**	.080**	.181**
Mother's labour market status			1.000	-.011	-.111**	-.001	-.040**	.105**	.088**	.108**	.021	.101**	.025*
sex				1.000	.003	-.023*	.019	-.022*	-.012	-.021	-.004	.000	-.007
Birth order					1.000	.232**	.273**	.092**	.076**	.095**	.020	.054**	.166**
Birth Interval						1.000	-.009	.060**	.050**	.046**	-.010	-.005	.069**
Mother's age at birth							1.000	.038**	.024*	.030**	-.021	.059**	.051**
Source of water								1.000	.321**	.387**	-.140**	.129**	.174**
Type of sanitation									1.000	.402**	.082**	.152**	.162**
Access to electricity										1.000	.112**	.190**	.211**
Type of dwelling											1.000	.088**	-.016
Nutrition												1.000	.106**
Place of delivery													1.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Furthermore, SPSS[8] package can perform collinearity diagnostics. This can pick up problems with multicollinearity that may not be evident in a correlation matrix (Pallant, 2005). Results of collinearity diagnostics for both data points are presented in the table below.

Table 3.3: Collinearity statistics for OHS 1997 and GHS 2002

Independent variables	OHS 1997		GHS 2002	
	Tolerance	VIF	Tolerance	VIF
Mother's education	.809	1.237	.838	1.193
Place of residence	.623	1.606	.685	1.460
Mother's labour market status	.902	1.109	.923	1.084
sex	.998	1.002	.998	1.002
Birth order	.750	1.333	.789	1.268
Birth Interval	.853	1.173	.935	1.070
Mother's age at birth	.773	1.294	.868	1.152
Source of water	.691	1.447	.678	1.476
Type of sanitation	.869	1.150	.789	1.267
Access to electricity	.671	1.490	.701	1.426
Type of dwelling	.867	1.153	.893	1.119
Nutrition	.959	1.042	.926	1.079
Place of delivery	.827	1.209	.911	1.098

Tolerance and variance inflation factor (VIF) are indicators of how much of variability of a specified independent variable is not explained by the other independent variables in the model. If the tolerance value is very small (less than 0.1), or the VIF (which is the inverse of tolerance) is above 10, it indicates that the multiple correlation with other variables is high (Pallant, 2005). Results from both tests do not suggest any major multicollinearity problems, so all variables were retained in the multivariate analysis.

First, a bivariate logistic analysis was conducted on each predictor variable without any extra control. This was done to explore the relationship between each predictor variable and the under-5 mortality.

[8] Statistical Package for Social Scientists

After the bivariate logistic analysis, a multivariate logistic analysis was done to assess the impact of a set of predictors on the dependent variable. This was done using a hierarchical approach. Socio-economic variables where entered in the model first as a block. These were followed by biological and maternal factors, environmental factors and nutrition. Finally, the health seeking factor was also entered. This allowed the assessment of each block of variables or a variable in terms of what they add or it adds to the prediction of the dependent variable after the previous variable or variables have been controlled for.

3.8 Operational definition of the dependent and independent variables

Both independent and dependent variables as identified in the framework were derived using SAS[9]. Each variable is discussed below. Some variables were recoded because some options had very few responses to get sensible analysis.

3.8.1 Dependent variable

a) Under-5 mortality-

The under-5 mortality was the dependent variable. Since this is a dichotomous variable it was treated as such. However, 1 was allocated for a death and 0 for the survival of child.

3.8.2 Independent variables

b) Socio-economic

Mother's education:

Two categories were created for this dummy variable. Mothers who had completed secondary school (matric) or tertiary education were coded 1 and those who did not complete secondary school were coded 0 and they were the reference group.

[9] Statistical Analysis Software

Place of residence:

This was a dichotomous variable where urban area is the reference and non-urban is the second category.

Labour market status of the mother:

The three labour market status categories, i.e. employed, unemployed and not economically active, were recoded into two categories: employed, which is the reference, and not employed which included both the unemployed and the not economically active.

c) Biological and maternal-independent variables

Sex:

Sex is dichotomous: a girl was the reference and thus coded 0 and a boy,1.

Birth order:

Birth order was classified as firstborn, second order, third order, or fourth or higher. The reference group was the first order child.

Birth interval:

This variable was treated as dichotomous by classifying firstborn and those with birth interval of 24 months or more in one category and those with a birth interval of fewer than 24 months in another category. The former category was the reference group

Mother's age at birth:

This is mother's age at the time of birth of the subject child. It was derived by using the current age of mother and the child's year of birth. Three categories

were created i.e. less than 18 years, 18 – 34 years, and 35 years or older. The reference was 18-34 years. These categories were created in this manner because below 18 and above 34 age categories are considered to be risky for child survival.

d) Environmental- independent variables

Source of water:

This is the source of water used by the household. The thirteen categories in the questionnaire (see Appendix) were recoded into two categories piped and other. Piped was the reference category.

Access to sanitation:

This is the type of sanitation the household used. There were fifteen categories in the questionnaire and these were recoded into three categories: toilet on-site, toilet off-site and bucket/no toilet. Toilet on-site was the reference category.

Source of energy:

Source of energy was treated as a dichotomous variable by assigning code 0 to households with access to electricity from the mains and code 1 to households without electricity.

Type of dwelling:

This was type of main dwelling used by the household. The eleven categories in the questionnaire were recoded into a dichotomous variable, with formal dwelling and informal dwelling. The formal dwelling category was the reference.

e) Nutrient deficiency-independent variable

No direct measurement of nutrients was done in both surveys. However, during the 2002 GHS 2002 household was asked if in the past 12 months, there had

been any child (17 years or younger) in the household who went hungry because there wasn't enough food. During the 1997 OHS each household was asked if in the past year, there was ever a time when the children in the household could not be fed. These questions were used as a proxy for nutrient deficiency. Households which reported that they could not feed a child were assigned a code 1 otherwise other households were assigned code 0. The reference category was households which could feed their children during the reference period.

f) Health seeking behaviour-independent variable

Place of delivery:

Mothers reported their place of delivery for each child they have ever given birth to. This was used as a proxy for health seeking behaviour of the mother. Children who were delivered in a hospital or clinic were assigned code 0 and those who were delivered somewhere else, were assigned code 1. The reference category was children who were delivered in a hospital or clinic.

3.9 Omitted Traditional Explanatory Variables

There are some variables which are known to have a strong influence on child survival but they were omitted from this analysis. This is because they were not collected in the surveys. These are:

a) Weight at birth
b) Pre-natal care
c) Breastfeeding
d) HIV/AIDS

However, weight at birth and breastfeeding are both correlated with nutrient deficiency and pre-natal care is likely to be correlated to the healthy seeking behaviour variables in the study**.**

3.9.1 Impact of AIDS on under-5 mortality

A number of studies have linked the increase in under-5 mortality to the AIDS pandemic. According to Walker (2003), vertical transmission of HIV occurs in 32 percent of births to HIV infected mothers in countries where breastfeeding is prevalent. Adetunji's study (2000) suggests that about 25-30% of children born to infected mothers become infected with HIV and almost all of them die before they are 5 years of age in most developing countries that have high HIV prevalence. One of the main findings in his study was that under-5 mortality rates increased in most countries with an adult HIV prevalence of =>5% while decreases were observed in lower prevalence countries. Dorrington and others (2004) using the ASSA2002[10] model estimated a prevalence of 11% for South Africa in 2004.

Besides the direct effects that operate through vertical or perinatal transmission, Adetunji (2000) cited indirect ways in which adult HIV/AIDS could affect the level of under-5 mortality. These included the death of or frequent illness of the care giver and unexplained trauma. Adetunji concludes that while it is customary to attribute almost all the reversals and stagnation in under-5 mortality rates, especially in Sub-saharan Africa to HIV/AIDS epidemic, this may not be as large as they have generally been thought to be. The assumption for this study is that after controlling for all possible proximate variables the unexplained deaths might be due to HIV/AIDS.

[10] Actuarial Society of South Africa AIDS model of 2002

3.10 Summary

This chapter justified the selection of the sources of data used in the study and provided the background to the data sources and their limitations. Two criteria were used to select variables for inclusion in the models. The first criterion was what other studies, as reviewed in chapter two, had revealed about their influence on under-5 mortality rates. The second criterion was availability of the variable in the two datasets used.

CHAPTER 4

4. DATA ANALYSIS

4.1 Introduction

This chapter will describe the two types of analysis that were performed. Firstly, the descriptive results are presented and discussed, followed by the results from the logistic regression analysis.

4.2 Descriptive analysis

4.2.1 Under-5 survival 1993-1997 and 1998-2002

Table 4.1 shows the unweighted and weighted figures from the two data sets, i.e. October Household Survey (OHS) 1997 and the General Household Survey (GHS) 2000. A cohort of children born in 1993 and after was considered from the OHS 1997, and a cohort of children born in 1998 and after from the GHS 2002.

Table 4.1: Survival of children under-5 for the cohorts 1993-1997 and 1998- 2002

	Unweighted		Weighted	
	1993-1997	**1998-2002**	**1993-1997**	**1998-2002**
Alive	13,162	8,555	3,894,000	4,420,000
Dead	993	244	240,000	106,000
Total	14,156	8,799	4,135,000	4,526,000
Under 5 mortality rate			58.0	23.4

The sample in the 1997 OHS yielded 14,156 children of which 993 had died by October 1997. This converts into 4,135 million births and 240 thousand deaths respectively after weighting the data. On the other hand, the 2002 GHS sample

yielded 8,799 children born in 1998 and after, of which 244 had died by July 2002. This converts into 4,526 million births and 106 thousand deaths respectively after weighting the data.

The 1997 OHS estimate under-5 mortality for the 5 year period preceding the survey to be 58 deaths per 1 000 live births. This is computed as the ratio of number of children who died before the age of 5 to the total children born during the same period multiplied by 1 000. This figure looks plausible if compared to what was estimated from the 1998 South African Demographic and Health Survey which was 59,4 deaths per 1 000 live births. However, the estimate from the 2002 GHS of 23,4 deaths per 1000 live births is very low compared to what was reported in the 2003 SADHS preliminary report, which is 58 deaths per 1 000 live births. This needs to be investigated because the figure of 23,4 deaths per 1 000 live births does not look plausible. This suggests under reporting of deaths in the 2002 GHS. However, the objective of the study was not to estimate levels of mortality but rather factors associated with under-5 mortality. The assumption was that the under reporting was random and there was no under reporting bias.

4.2.2 Births data from auxiliary source 1993-1997 and 1998-2002

The population register is another source of data which can be used to validate the survey results. The total number of births from the survey can be compared with total registered births from the population register.

Table 4.2: Birth occurrences (as at end of April 2008) 1993-2002 as recorded on the population register

1993-1997		1998-2002	
Year	**Number**	**Year**	**Number**
1993	934,148	**1998**	931,357
1994	952,509	**1999**	946,918
1995	930,818	**2000**	957,634
1996	959,463	**2001**	941,664
1997	947,076	**2002**	950,439
Total	4,724,014	**Total**	4,728,012

Source: Statistics South Africa 2008

Table 4.2 above shows that a total of approximately 4,724 million births occurred between 1993 and 1997 while OHS 1997 reported 4,135 million. A similar pattern is observed for the period 1998-2002 when the two sources are compared. The survey reported slightly lower figures than the population register.

The expectation is not to get similar results from these sources because both are subject to different source errors. On one hand, data from household based surveys like OHS and GHS is subjected to age miss-reporting, missing date of birth especially if the mother is not the one reporting. Secondly, the data is collected through birth history of the mother, if the mother is dead or for some reason is missed during the survey; then the child will not be reported. This can lead to under reporting of births. On the other hand, the administrative data from the population register is subject to late or complete lack of registration. Age mis-reporting can also happen in administrative data.

The survey reported lower figures than the register which could suggest either age mis-reporting or under-reporting. Another reason could be the reference period of the surveys. The OHS 1997 was conducted in October so the births reported do not cover November and December of 1997. GHS 2002 was conducted in June/July so the births reported do not cover the months of August to December of 2002.

4.2.3 Trends in environmental factors 1997-2002

After apartheid rule ended in 1994 there was a concerted effort by the new government to extend services like water, sanitation housing to the previously disadvantaged populations. With improved sanitation, water sources and housing the expectation would be some improvement in under-5 mortality.

Table 4.3: Trends in environmental factors 1997-2002

Services variables	OHS-1997 (%)	GHS-2002 (%)
Proportion of households with piped water	81.6	85.1
Proportion of households with a toilet On-site	79.8	84.4
Proportion of households with a toilet Off-site	6.1	2.6
Proportion of households with no toilet or a bucket	14.0	13.0
Proportion of households with access to electricity	61.9	77.5
Proportion of households with formal houses	88.2	86.3

Table 4.3 shows the proportions of households with access to environmental services which could have an impact on child survival. The figures indicate that there was an increasing trend in access to piped water, access to electricity and also access to toilets on-site. However, much as there was improvement in sanitation with the middle group (i.e. those who had access to toilets but off-site), there was virtually no improvement among the group which had no toilet or using a bucket. The proportion of households which did not have a toilet or using a bucket was 13.0% in 2002 compared to the 14.0% in 1997.

Access to formal houses showed some sign of stagnation during this period. The proportion of households living in formal dwellings declined from 88.2% in 1997 to 86.3% in 2002. This could be attributed to internal rural-urban migration.

As can be seen above, the table gives a mixed picture with regards to environmental factors. There was an improvement in some services while there was no improvement in others. The impact of this on under-5 mortality will be discussed later in this chapter and in chapter 5.

4.2.4 Trends in selected socio-economic indicators 1997-2002

Table 4.4 shows trends of selected social economic indicators by sex. The table suggests that the proportion of South Africans living in urban areas increased from 49.3 % in 1997 to 54.5 % in 2002. This is likely to have put pressure on housing. This supports the observation in Table 4.3 of the decline in access to formal dwellings. This period shows an increase of 5.6 percentage points in the proportion of women living in urban areas.

Table 4.4: Trends in socio-economic indicators 1997-2002

Socio-economic variables	1997 (%)	2002 (%)
Population in urban area	49.3	54.5
Among men proportion in urban area	50.3	54.8
Among women proportion in urban area	48.6	54.2
Population 15-49, proportion with matric or higher	32.3	37.8
Among men 15-49 proportion with matric or higher	40.9	44.0
Among women 15-49 proportion with matric or higher	25.2	32.1
Employment population ratio 15-64	32.6	38.7
Employment population ratio Men (15-64)	42.4	45.8
Employment population ratio Women (15-64)	24.7	32.4
Employment population ratio 15-49	32.3	37.8
Employment population ratio Men (15-49)	40.9	44.0
Employment population ratio Women (15-49)	25.2	32.1
Labour Participation rate (15-64)	41.8	55.5
Labour force participation rate for men (15-64)	51.3	62.7
Labour force participation rate for women (15-64)	34.0	49.1
Labour Participation rate (15-49)	42.5	56.7
Labour force participation rate for men (15-49)	50.5	62.5
Labour force participation rate for women (15-49)	35.8	51.4

The proportion of those with matric or higher increased among women in the child bearing age group (15-49) by 6.9 percentage points to 32.1% between 1997 and 2002. However, this is still low, compared to men in the same age category.

Better educated women are more likely to be better informed and this usually transforms into reduced under-5 mortality among their children. This was discussed in earlier chapters.

Another indicator of social economic status is employment: women who are employed are more likely to be financially independent to be able to look after their children. Employment population ratio is the proportion of those who are employed to the population of the working age. It is also known as labour absorption rate. In other words it gives the probability of getting a job. The employment population ratio among women of the working age group (15-64) and among women of child bearing age (15-49) increased by 7.7 percentage points and 6.9 percentage points respectively between 1997 and 2002.

Labour force participation is the ratio of the employed plus the unemployed to the working age population. The table above shows that among the working age population, the participation rate increased from 41.8% to 55.5%. The female participation rate was still lower than the national figure in 2002. However, there was an increase in the female participation rate by a massive 15.1 percentage points to 49.1 between 1997 and 2002. Almost a similar increase was observed among women of child-bearing age during the same period. This could indicate improvement in women empowerment.

Improvements among women were observed in almost all socio-economic indicators discussed above during the period 1997 to 2008. Improvements in socio-economic status of women are expected to bear fruit in terms of under-5 mortality.

4.2.5 Trends in biological and maternal factors (1997-2002)

Trends in biological and maternal factors are presented in Table 4.5. The table shows that 4.9% of children born between 1993 and 1997 belonged to mothers who were less than 18 years old at the time of delivery. This increased to 7.1%

in the 1998-2002 birth cohort. This suggests an increase in the number of young mothers.

Table 4.5: Trends in biological and maternal factor for birth cohorts 1993-1997 and 1998-2002

Variables	Birth cohort 1993-1997 (%)	Birth cohort 1998-2002 (%)
Proportion born by mothers age at the time of delivery		
< 18	4.9	7.1
18-34	67.0	76.9
35+	28.1	16.0
	100.0	**100.0**
Proportion with birth interval of less than 24 months	15.8	7.6
Proportion born by birth order		
1	27.9	40.1
2	21.3	25.2
3	15.9	14.6
4+	34.8	20.1
	100.0	**100.0**
Proportions by sex		
Girls	49.4	49.2
Boys	50.6	50.8
	100.0	**100.0**

There was a decrease in the proportion of children born to older mothers, i.e. those aged 35 and above at the time of delivery. This suggests a decline in children born by the high-risk aged mothers by 12.1 percentage points.

A decline in children with a high risk birth interval is also observed in Table 4.5 above. Among the 1993-1997 birth cohort, 15.8% had a birth interval of less than 24 months compared to the 7.6% among the 1998-2002 birth cohort who had the same birth interval.

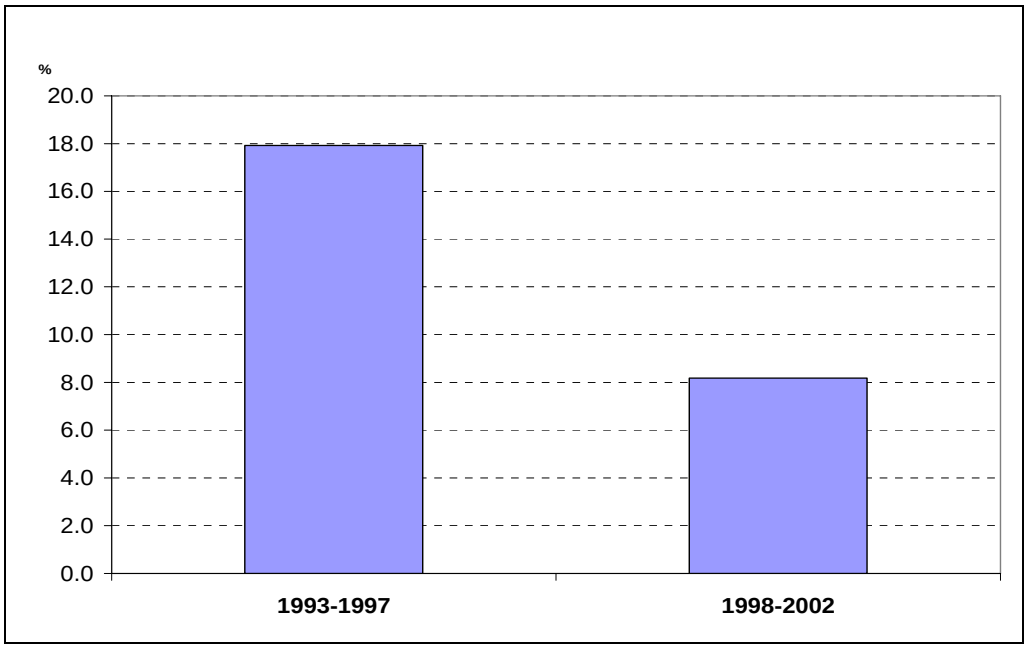
Birth order shows a very interesting pattern. Among the 1993-1997 birth cohort 27.9% were first order children while among the 1998-2002 birth cohort the first order children represented 40.1%. This could suggest a decrease in fertility.

There is no observed change in sex composition of the two birth cohorts in the table above.

4.2.6 Trends in health seeking behaviour 1997-2002

Figure 4.1 shows a declining trend in the proportion of children who were not delivered at a hospital or clinic. For children in the 1993-1997 birth cohort approximately 18% were not delivered in a hospital or clinic. This proportion declined by approximately 10 percentage points to 8% in the 1998-2002 birth cohort as expected.

Figure 4.1: Proportion of children not delivered in hospital or clinic: birth cohorts 1993-1997 and 1998-2002

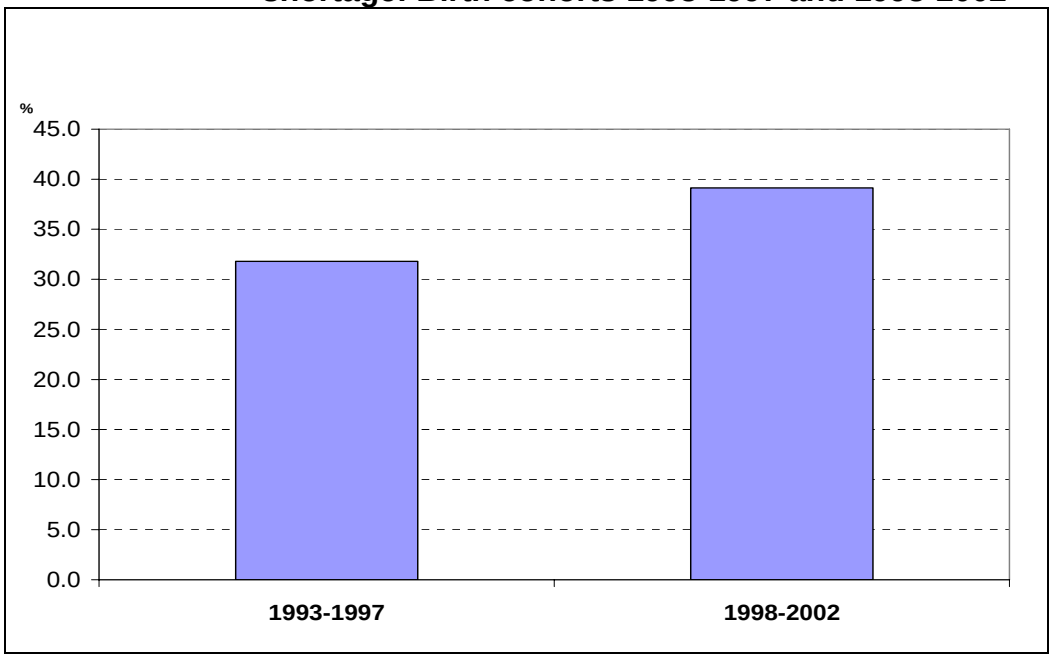


This suggests fewer children were delivered without the help of medical professional among the 1998-2002 birth cohort. This could suggest improvements in health seeking behaviours among mothers.

4.2.7 Trends in nutrient deficiency factor 1997-2002

Figure 4.2 suggests a higher proportion of children among the 1998-2002 birth cohorts who were from households which experienced food shortage compared to the 1993-1997 birth cohort. However, these results should be interpreted with caution because the question in GHS 2002 questionnaire was different from the one in the OHS 1997. The change could also be due to the way the question was phrased.

Figure 4.2: Proportion of children in households which experienced food shortage: Birth cohorts 1993-1997 and 1998-2002



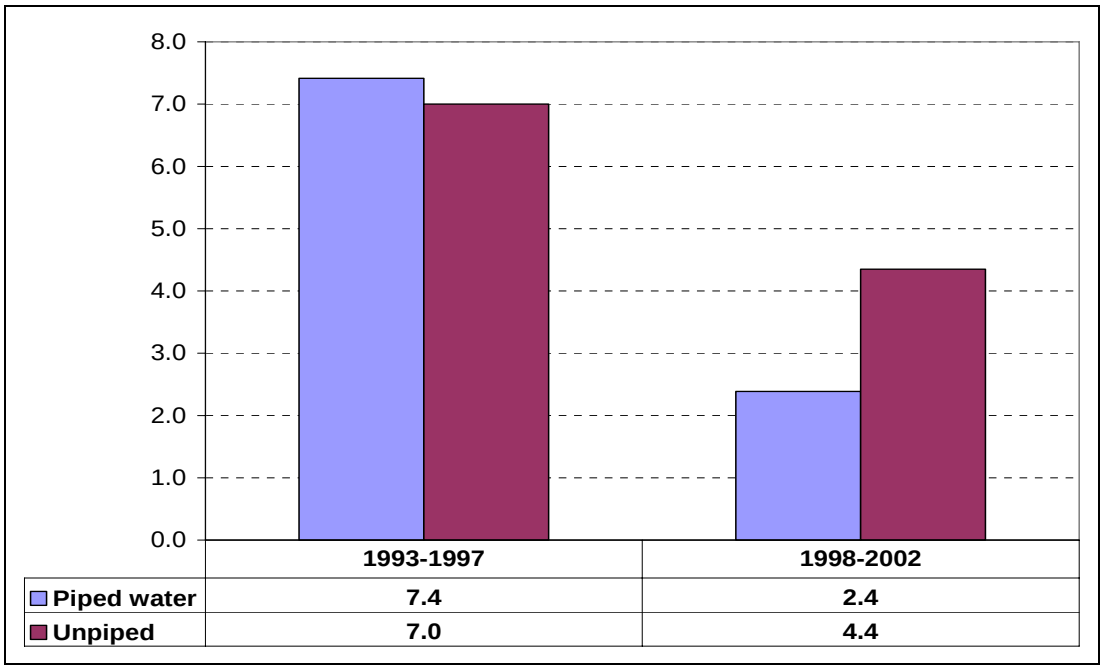
4.3 Trends in proportion of under-5 deaths and associated factors

The dependent variable (under-5 mortality) was analysed by each independent variable to establish the relationship between the dependent variable and each of the independent variables for the two periods under review.

4.3.1 Proportion of children who died under-5 by environmental factors

Figures 4.3 - 4.6 above show the proportion of children who died before reaching their 5th birthday by environmental factors.

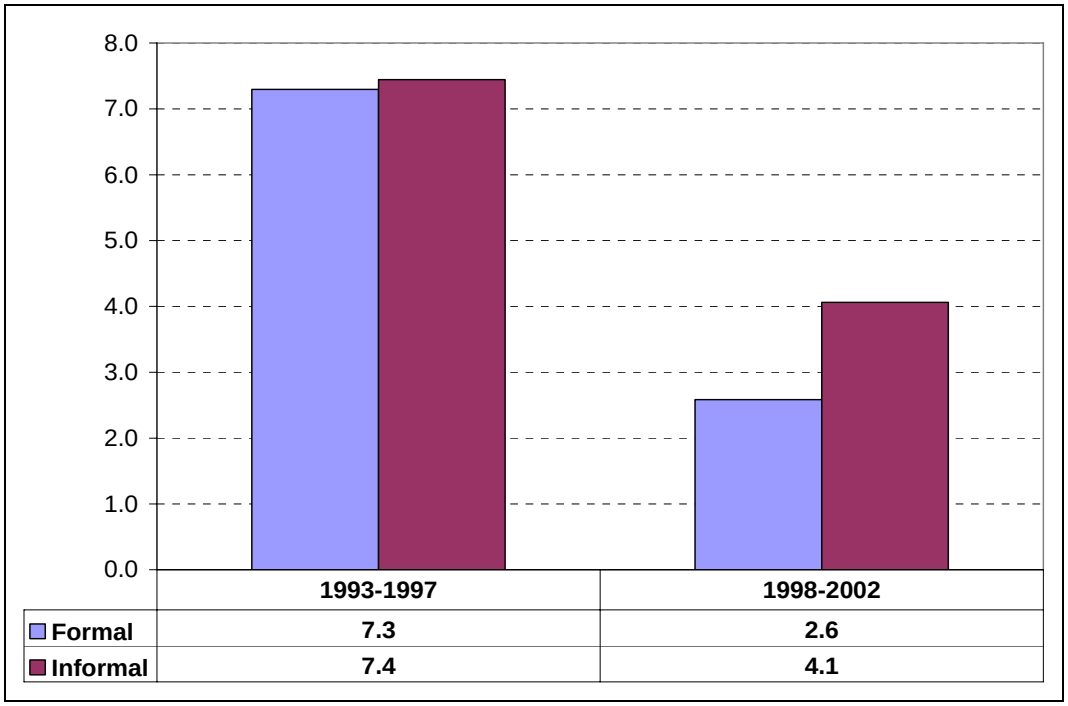
Figure 4.3: Proportions of under-5 deaths by access to piped water: birth cohorts 1993-1997 and 1998-2002



	1993-1997	1998-2002
Piped water	7.4	2.4
Unpiped	7.0	4.4

Surprisingly among the 1993-1997 birth cohort, the proportion of under-5 deaths is slightly higher among children in households with access to piped water compared to those without. The pattern changes among the 1998-2002 birth cohort, the proportion of under-5 deaths by access to piped water decreased and the proportion of under-5 deaths is lower among children in households with access to piped water compared to those without.

Figure 4.4: Proportions of under-5 deaths by type of dwelling: birth cohorts 1993-1997 and 1998-2002

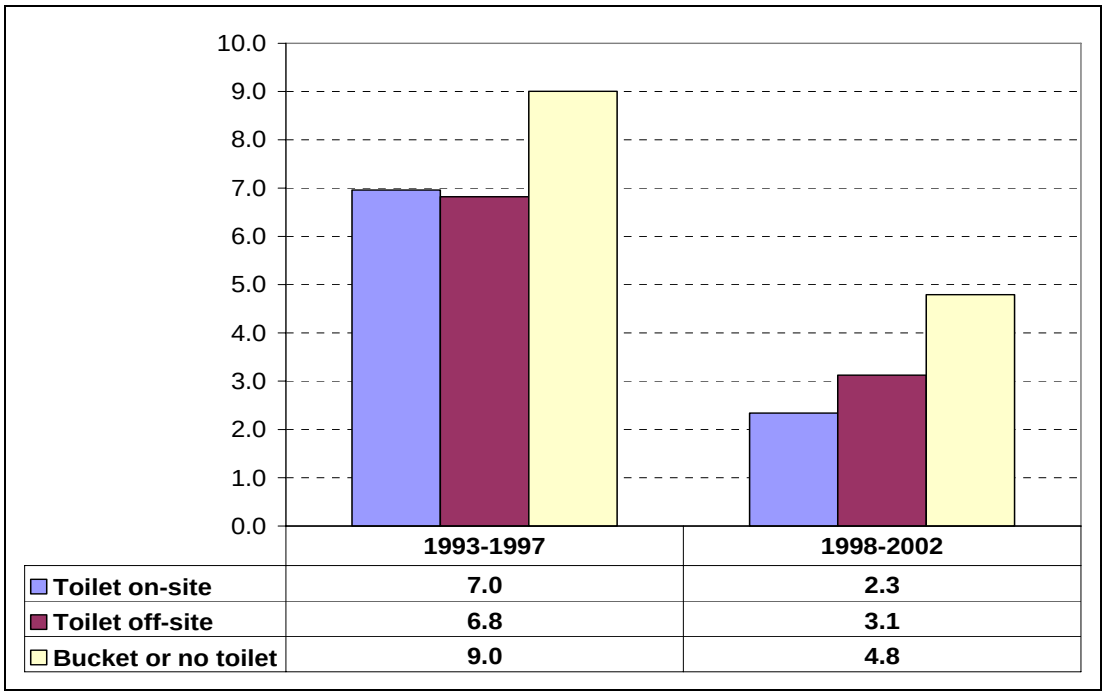


	1993-1997	1998-2002
Formal	7.3	2.6
Informal	7.4	4.1

Figure 4.4 suggests that the proportion of under-5 deaths is slightly higher among children living in informal dwellings compared to those living in formal dwellings in the 1993-1997 birth cohort. However, the 1998-2002 cohort shows a huge difference in the proportion of under-5 deaths between children who live in formal and informal dwellings.

The proportion of under-5 deaths is higher in households without a toilet or using a bucket toilet as can be seen in Figure 4.5. This is an indication of a relationship between child survival and sanitation. A similar pattern is observed in both birth cohorts under review, although the 1998-2002 cohort shows lower proportions compared to the 1993-1997 birth cohort

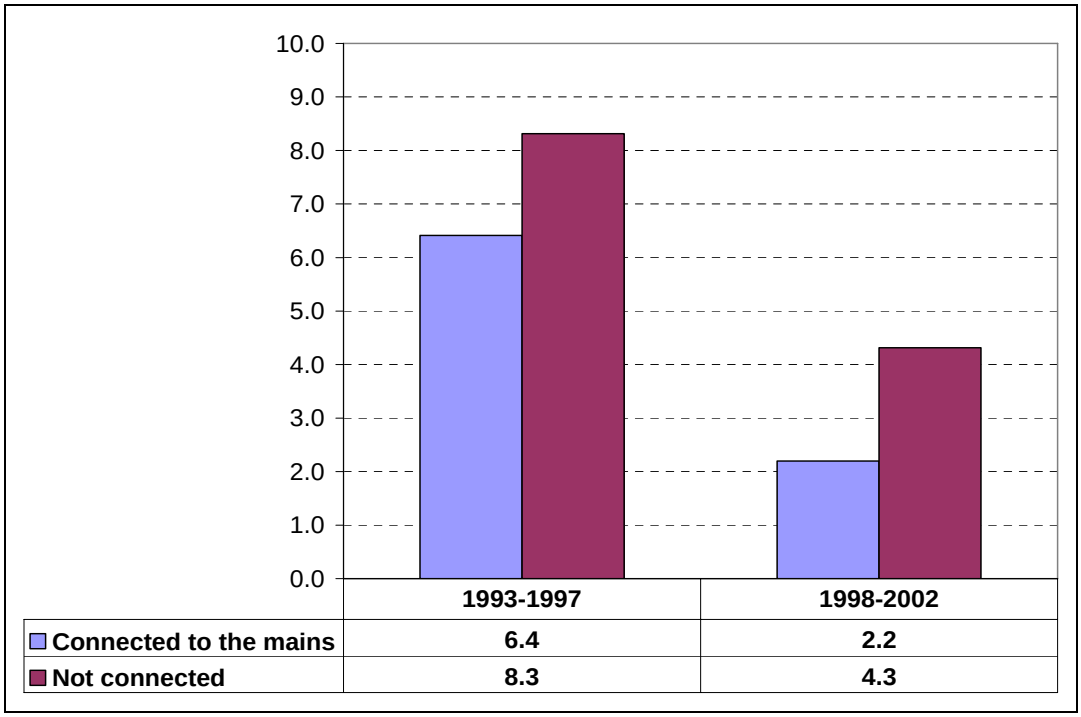
Figure 4.5: Proportions of under-5 deaths by type of sanitation facilities: birth cohorts 1993-1997 and 1998-2002



	1993-1997	1998-2002
Toilet on-site	7.0	2.3
Toilet off-site	6.8	3.1
Bucket or no toilet	9.0	4.8

.

Figure 4.6: Proportions of under-5 deaths by access to electricity: birth cohorts 1993-1997 and 1998-2002



	1993-1997	1998-2002
Connected to the mains	6.4	2.2
Not connected	8.3	4.3

There also seems to be a relationship between access to clean energy, i.e. electricity and child survival. Figure 4.6 above, show that 6.4 percent of children from households which had access to electricity died before the age of 5 as compared to 8.3 percent of those from households without electricity among the 1993-1997 birth cohort and 2.2 percent and 4.3 percent respectively among the 1998-2002 birth cohort.

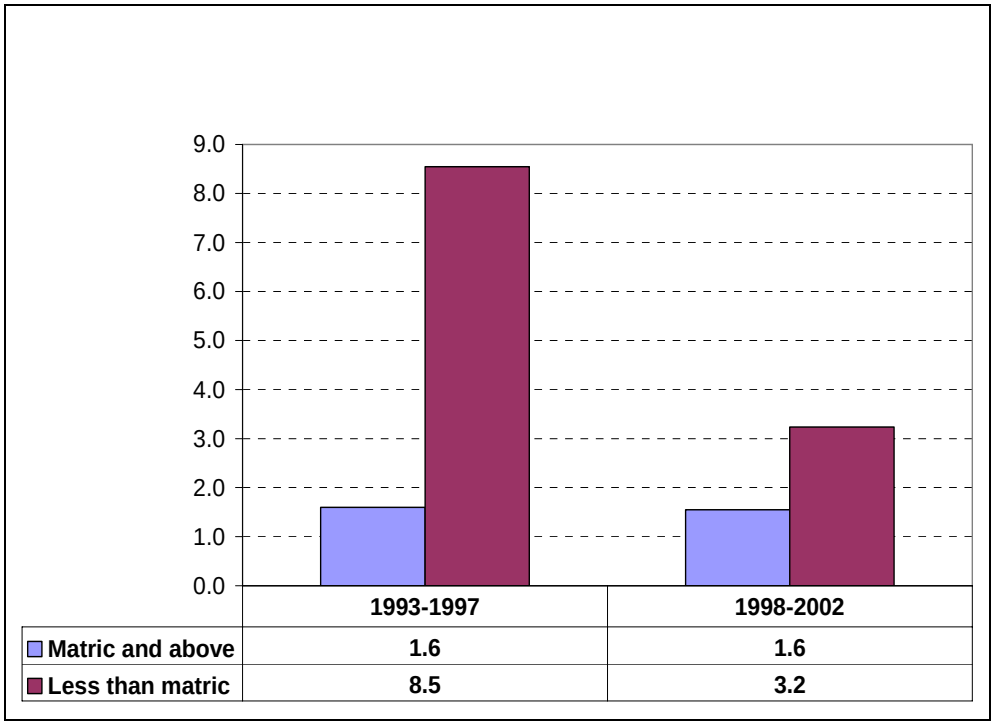
All cases show very drastic declines between the two birth cohorts. For example, the proportion of under-5 deaths among children in households with no piped water declined from 7.0% to 4.4% between the two birth-cohorts. Among children who came from households with a bucket toilet, the proportion of under-5 deaths declined from 9.0% for the 1993-1997 birth-cohort to 4.8% among the 1998-2002 birth-cohort.

4.3.2 Proportion of children who died under-5 by socio-economic factors

Figures 4.7 to 4.9 show the proportions of children who died before reaching the age of 5 by socio-economic factors.

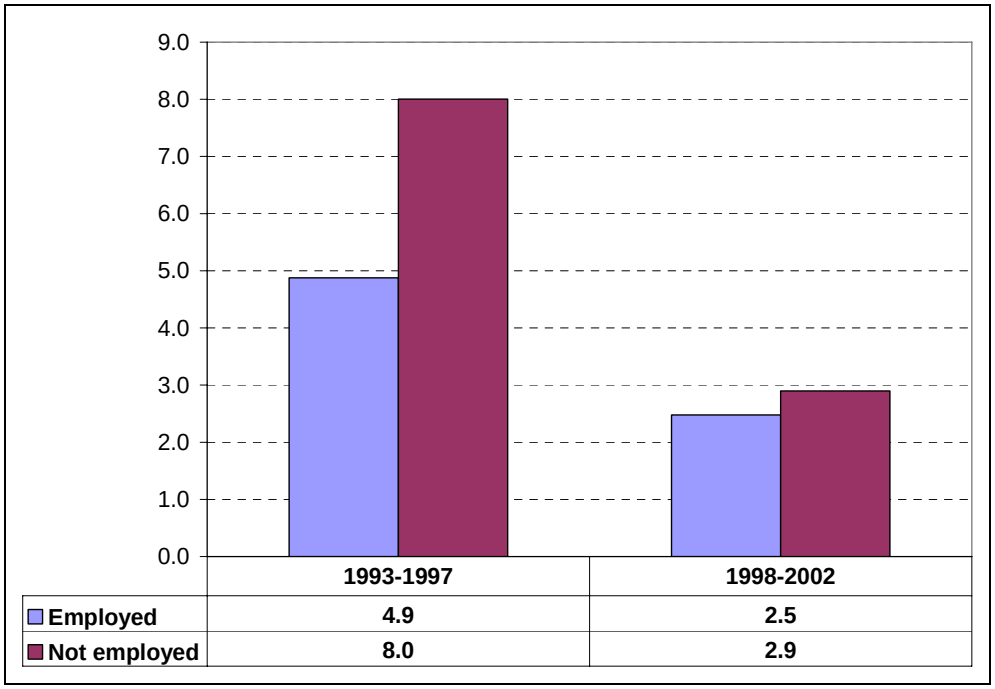
Figure 4.7 above suggests that the proportion of under-5 deaths is higher among children born to mothers with less than matric compared to those with mothers who completed matric or higher. This is true for both birth cohorts under review. Unlike children born to mothers with less than matric, the proportion of deaths among children born to women with matric or higher remained unchanged during the two periods under review

Figure 4.7: Proportion of under-5 deaths by mother's level of education: birth cohorts 1993-1997 and 1998-2002



	1993-1997	1998-2002
Matric and above	1.6	1.6
Less than matric	8.5	3.2

Figure 4.8: Proportions of under-5 deaths by mother's employment status: birth cohorts 1993-1997 and 1998-2002

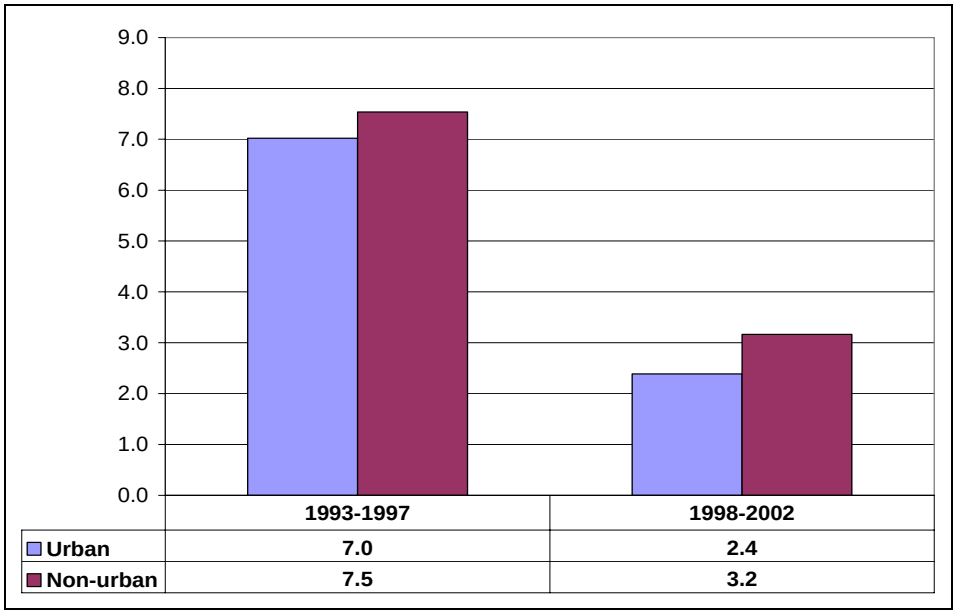


	1993-1997	1998-2002
Employed	4.9	2.5
Not employed	8.0	2.9

Figure 4.8 shows, that there seems to be a relationship between the employment status of the mother and child survival. The proportion of under-5 deaths is lower among children born to mothers who are employed as compared to those born to non working mothers. Proportions of under-5 deaths declined for both working and non-working mothers. A drastic decline was observed among under-5 deaths of children whose mothers were not employed.

The proportion of under-5 deaths is higher among children born to mothers who live in non-urban areas (7.5 and 3.2 percent) as compared to those, whose mothers live in urban areas (7.0 and 2.4 percent). However, the difference between urban and non-urban is minimal. Secondly the proportion of under-5 deaths declined for both urban and non-urban between the two birth-cohorts.

Figure 4.9: Proportions of under-5 deaths by mother's residence: birth cohorts 1993-1997 and 1998-2002

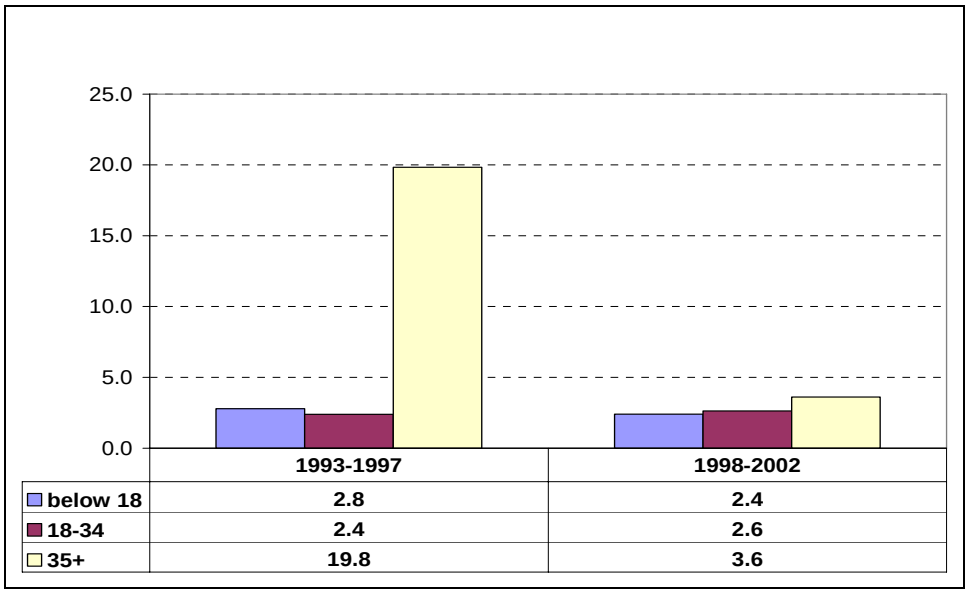


	1993-1997	1998-2002
Urban	7.0	2.4
Non-urban	7.5	3.2

4.3.3 Proportion of children who died under-5 by biological and maternal factors

The four biological and maternal factors are presented in the Figures 4.10 to 4.13. There was a huge variation among the 1993-1997 birth cohort in respect of mother's age at birth as compared to the 1998-2002 birth cohort. For example, in the 1993-1997 birth cohort, 19.8 percent of the children born to mothers who were aged 35 or above, died before their fifth birthday as compared to 2.4 percent among children born to mothers between the age of 18 and 34.

Figure 4.10: Proportion of under-5 deaths by Mother's age at birth: birth cohorts 1993-1997 and 1998-2002



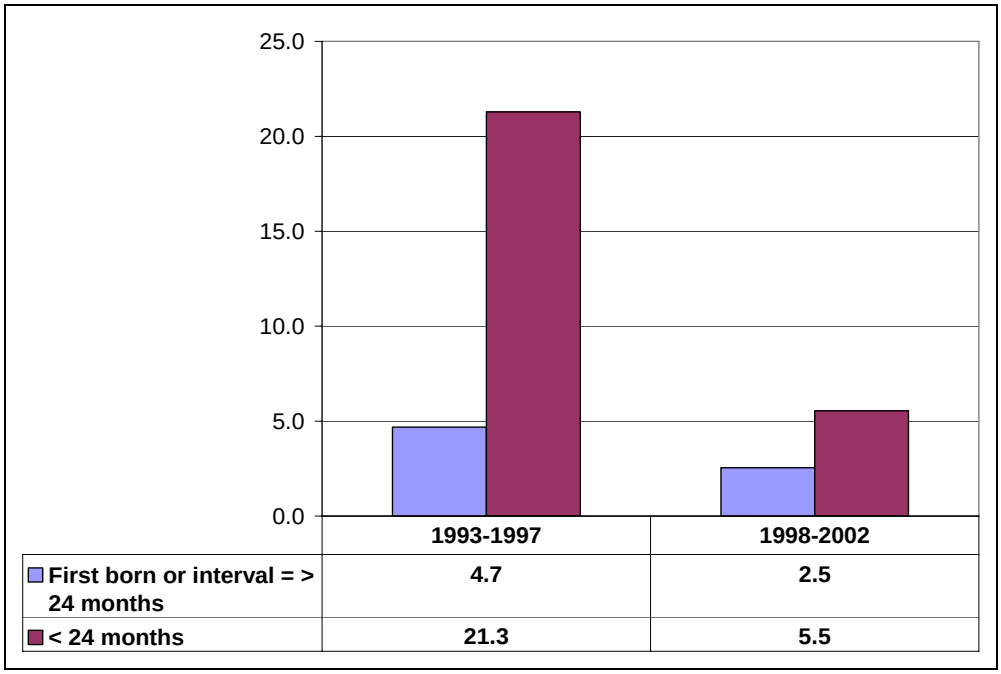
	1993-1997	1998-2002
below 18	2.8	2.4
18-34	2.4	2.6
35+	19.8	3.6

However, the huge disparity observed between other age groups and those aged 35 years and over at birth in the 1993-1997 birth cohort declined sharply among the 1998-2002 birth cohort. In the 1998-2002 birth cohort 3.6 percent of children born to mothers aged 35 years and over died before the age of 5.

Children born after a long birth interval i.e. 24 months or more appear to have better survival chances. Figure 4.11 shows that in the 1993-1997 birth cohort 21.3 percent of the children born after a short interval died before they turned 5 years as compared to 4.7 percent among children born after a long birth interval.

The levels in the 1998-2002 cohort reduced drastically in that only 5.5 percent of children born after a short interval died before their fifth birthday. The gap between the survival rate of those born after a short interval and those born after 24 months is not as huge as in the 1993-1997 cohort.

Figure 4.11: Proportion of under-5 deaths by birth interval: Birth cohorts 1993-1997 and 1998-2002

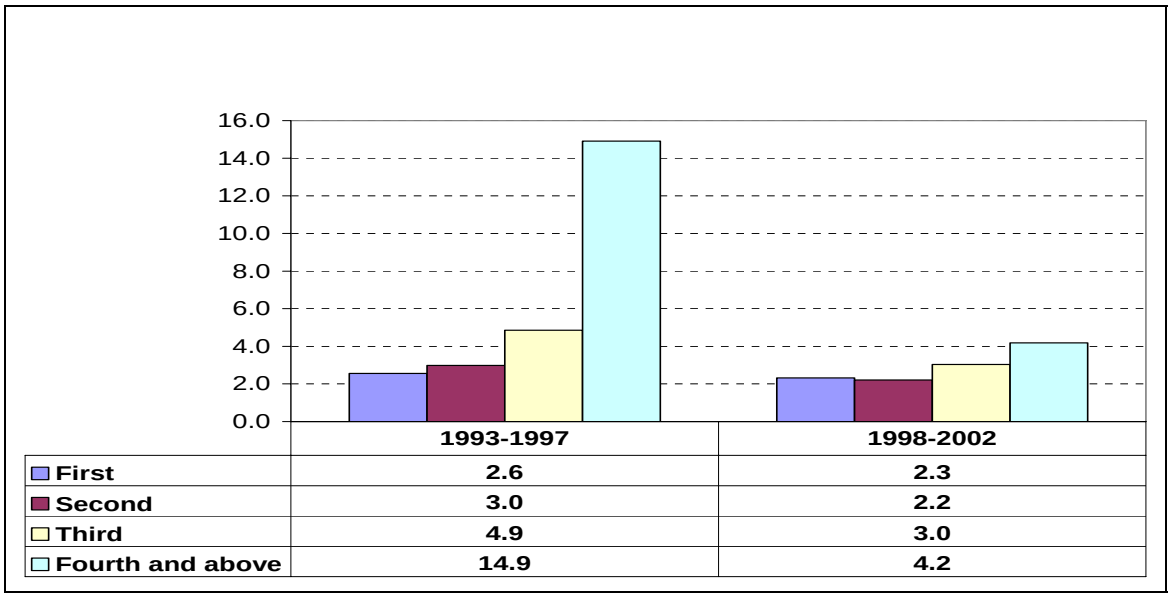


	1993-1997	1998-2002
First born or interval = > 24 months	4.7	2.5
< 24 months	21.3	5.5

Figure 4.12 suggests that the proportion of children who died before the age of 5 is higher among the fourth or higher birth order children in both birth cohorts under review. There is a decline in proportions of children who died before the age of 5 in all birth orders in the 1998-2002 birth cohort, however, the most noticeable change was in the fourth and higher birth order. Children of the fourth or higher birth order were more vulnerable, in that 14.9 percent died before the age of 5 in the 1993-1997 birth cohort. This proportion declined to 4.2 percent among the 1998-2002 birth cohort.

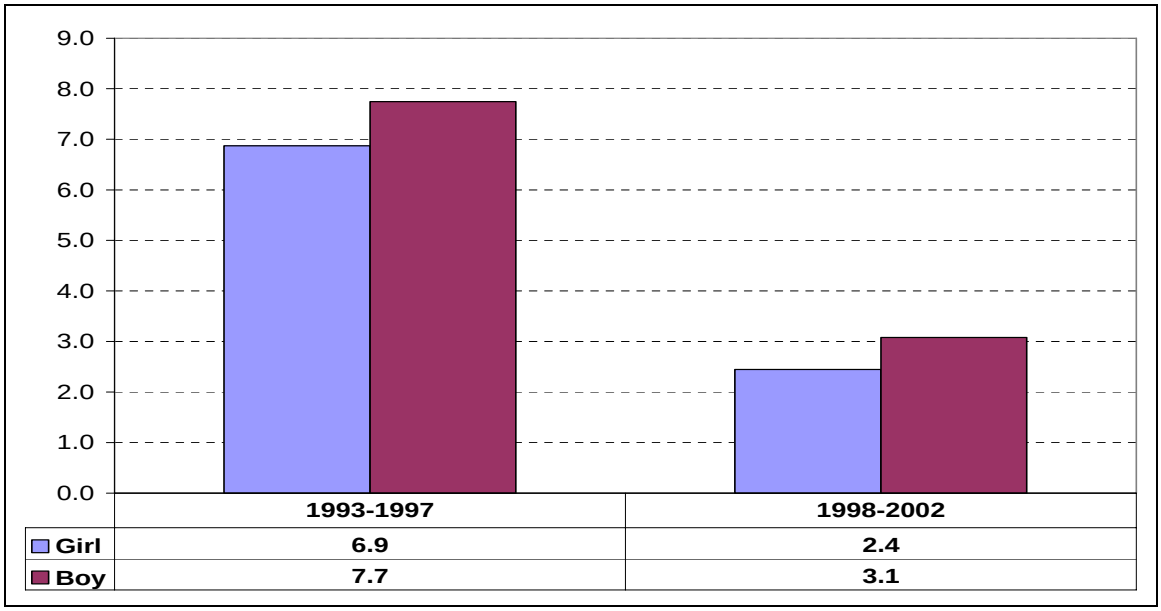
With regard to sex, the proportion of children who died before the age 5 is higher among the boys in both birth cohorts under review, although the levels are lower in the 1998-2002 birth cohort.

Figure 4.12: Proportions of under-5 deaths by birth order: Birth cohorts 1993-1997 and 1998-2002



	1993-1997	1998-2002
First	2.6	2.3
Second	3.0	2.2
Third	4.9	3.0
Fourth and above	14.9	4.2

Figure 4.13: Proportions of under-5 deaths by sex: birth cohorts 1993-1997 and 1998-2002

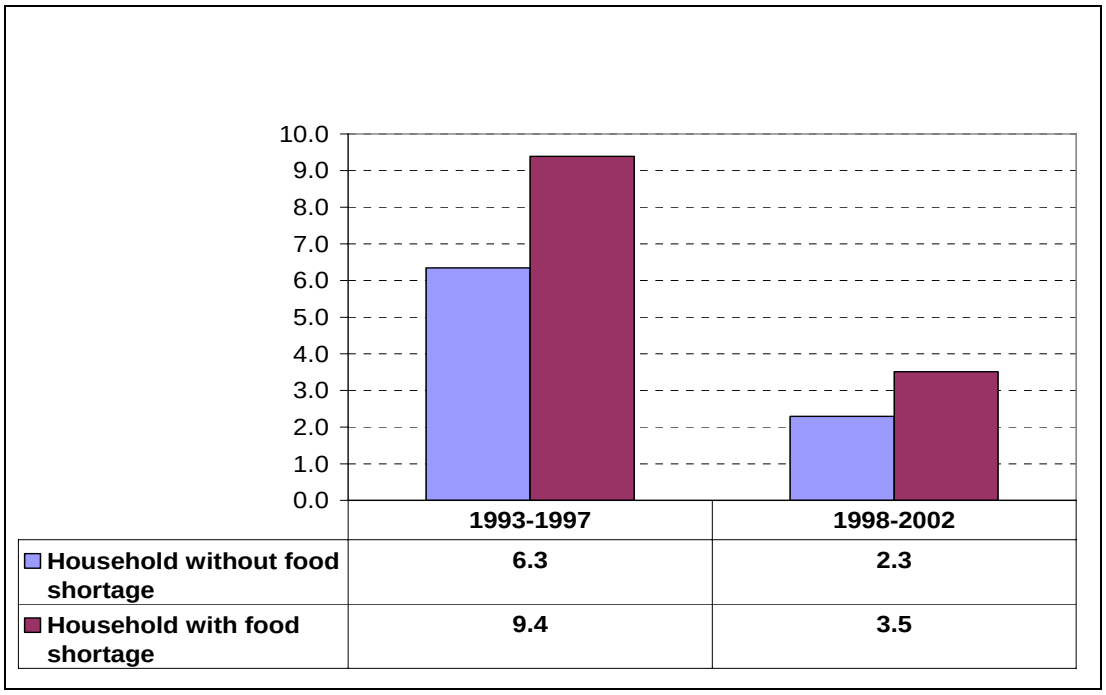


	1993-1997	1998-2002
Girl	6.9	2.4
Boy	7.7	3.1

4.3.4 Proportion of children who died under-5 by nutrient deficiency factors

As expected, nutrition seems to play a role in the child's survival. In the 1997 OHS, households were asked if in the past year, there was ever a time when children could not be fed because the household could not afford to buy enough food. In GHS 2002 the question was slightly different; the households were asked if in the past 12 months, any child in the household went hungry because there wasn't enough food.

Figure 4.14: Proportions of under-5 deaths by nutritional status: birth cohorts 1993-1997 and 1998-2002



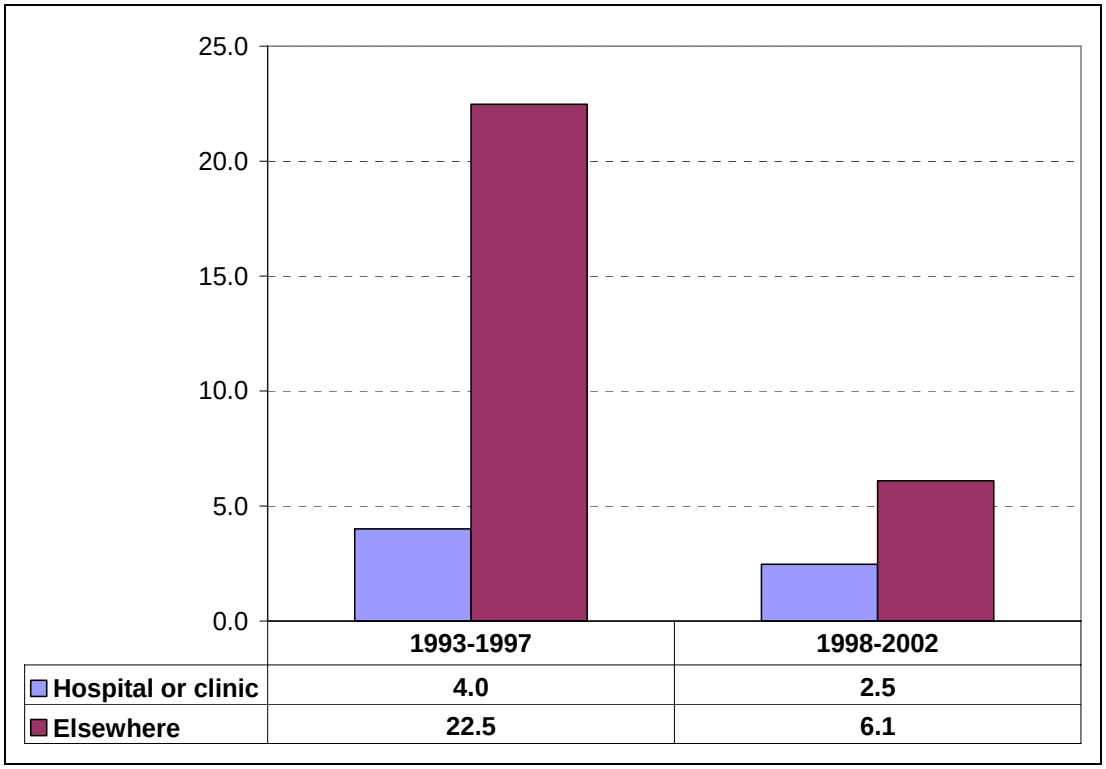
	1993-1997	1998-2002
Household without food shortage	6.3	2.3
Household with food shortage	9.4	3.5

These questions were used as a proxy to determine the nutritional level of the children. The proportion of under-5 deaths is higher among children from households which had at least a child who went hungry because there was no food (9,4 and 3,5 percent) as compared to household from which no child went hungry (6,3 and 2,3 percent).

4.3.5 Proportion of children who died under-5 by health seeking behaviours

The figure below suggests that, the proportion of under-5 deaths is higher among the children born elsewhere other than in a hospital or clinic. Place of birth is used as a proxy to determine health seeking behaviours of the mother. For the 1993-1997 birth cohort a very high proportion (22.5%) of children who were born elsewhere other than hospitals died before the age of 5. This proportion declined to 6.1 percent among the 1998-2002 birth cohort.

Figure 4.15: Proportions of under-5 deaths by place of delivery: birth cohorts 1993-1997 and 1998-2002



	1993-1997	1998-2002
Hospital or clinic	4.0	2.5
Elsewhere	22.5	6.1

4.4 Logistic regression model with one independent variable

Logistic regression was conducted for each independent variable for the two birth cohorts. This was done to assess the impact of each predictor variable to the dependent variable in this case the under-5 mortality. The probability that a death will occur was regressed i.e. child dead=1 and child alive=0. Results of each variable are presented in Table 4.6.

The results suggest that mother's education has an impact on under-5 mortality. The odds ratio show that children belonging to mothers who have not completed matric are 5.8 times likely to die before their 5th birthday than those belonging to mothers who have completed matric among the 1993-1997 birth cohort without controlling for any other variable. This effect reduces to 2.1 times among the 1998-2002 birth cohort.

The results also suggest that place of residence influence under-5 mortality. While the results were not statistically significant among the 1993-1997 birth cohort, they were statistically significant among the 1998-2002 birth cohort. Children whose mothers reside in non-urban areas are 1.3 times likely to die before age 5 in the 1998-2002 birth cohort compared to children whose mothers live in urban areas without controlling for any other factor.

Mother's labour market status also has an impact on under-5 mortality for both birth cohorts. However, the results are only statistically significant among the 1993-1997 birth cohort. The odds ratio show that children belonging to mothers who are not working are approximately 1.7 times likely to die before turning 5 years compared to those born to employed mothers without controlling for any other variable.

Sex of the child showed some relationship with under-5 mortality but in both birth cohorts it was not significant.

Table 4.6: The odds of under-5 death for the birth cohorts 1993-1997 and 1998-2002: model with one independent variable

	1993-1997 birth cohort				1998-2002 birth cohort			
	B	S.E.	Sig.	Exp(B)	B	S.E.	Sig.	Exp(B)
Mother's education (Ref: Matric and above)								
Below matric	1.755	.169	.000	5.782	.754	.178	.000	2.127
Mother's place of residence (Ref: Urban)								
Non-urban	.083	.068	.218	1.087	.291	.131	.026	1.338
Employment status of the mother (Ref: Employed)								
Not employed	.503	.092	.000	1.654	.162	.146	.268	1.176
Sex of the child (Ref:Girl)								
Boy	.127	.067	.058	1.136	.236	.131	.071	1.267
Birthorder (Ref: First born)								
Second	.162	.151	.286	1.176	-.050	.183	.782	.951
Third	.656	.145	.000	1.926	.275	.197	.163	1.317
Fourth or above	1.888	.112	.000	6.604	.607	.163	.000	1.836
Birth Interval (Ref: First born or interval of more than 24 months)								
Less than 24 months	1.704	.070	.000	5.496	.813	.183	.000	2.254
Mother's age at birth (Ref:18-34)								
<18	.154	.249	.536	1.167	-.094	.272	.731	.911
>34	2.315	.081	.000	10.129	.328	.162	.042	1.389
Water (Ref: Piped)								
Unpiped	-.042	.078	.589	.959	.622	.141	.000	1.862
Sanitation (Ref: Toilet on the site)			.					
Toilet off-site	-.027	.137	.842	.973	.298	.368	.418	1.347
Bucket or no toilet	.293	.082	.000	1.340	.743	.146	.000	2.102
Electricity (Ref: Connected to mains)								
Not connected	.293	.067	.000	1.340	.696	.132	.000	2.006
Type of dwelling (Ref: Formal)								
Informal	.019	.104	.853	1.019	.467	.168	.006	1.595
Nutrition Ref: Household with no child who went hungry								
Household with at least a child went hungry because no food was available	.417	.068	.000	1.517	.438	.130	.001	1.550
Place of delivery (Ref: Hospital or clinic)								
Else where	1.930	.069	.000	6.892	.941	.171	.000	2.562

Birth order shows a mixed picture for the second birth. However, none of the results were statistically significant. There is some consistency with the third birth, and the fourth and higher, although the results are also not statistically significant in both cohorts. The fourth and the subsequent births stand out in the 1993-1997 birth cohort. The fourth or later children are 6.6 likely to die before the age of 5 compared to the first born child in the 1993-1997 birth cohort without controlling for any other variable. This effect is reduced to 1.8 times among the 1998-2002 birth cohort.

Among the biological and maternal factors, birth interval shows the expected results on its impact on under-5 mortality. Children whose birth interval is less than 24 months are approximately 5.5 times likely to die before age 5 as compared to the first born baby or those with birth interval of more than 24 months in the 1993-1997 birth cohort without controlling for any other factor. This is reduced to approximately 2.3 times in the 1998-2002 birth cohort.

Among the 1993-1997 birth cohort, the children born to mothers aged above 34 years of age are 10 times more likely to die before the age of 5 compared to those born to mothers between 18-34 years without controlling for any other factor. This strong effect is reduced substantially to approximately 1.4 in the 1998-2002 birth cohort.

The impact of age on under-5 mortality shows conflicting results for children born to young mothers (below 18 years of age). However, results for both periods under review are not statistically significant.

Among the environmental factors source of water also gives conflicting results for the two periods under review. Among the 1993-1997 birth cohort, the results suggest that water has no impact on under-5 mortality while among the 1998-2002 it shows children in households with no access to piped water are 1.8 times likely to die before the age of 5 compared to those in household with piped water without controlling for any other factor. The unexpected results in the 1993-1997 birth cohort are not statistically significant.

The results suggest that sanitation has an impact on under-5 mortality. However, for the children from households with a toilet facility which is off-site, a mixed message for the two birth cohorts under review is noted. However none of the results are statistically significant.

Table 4.6 shows the expected results on the effect of source of energy, nutrition, type of dwelling and place of delivery on under-5 mortality. However, the results for the type of dwelling among the 1993-1997 birth cohort are not statistically significant.

4.5 Logistic regression with multiple independent variables

Tables 4.7 and 4.8 show the results of the 5 models generated from the hierarchical logistic regression analysis for both the 1993-1997 and 1998-2002 birth cohorts respectively. In each case model 1 evaluates the effect of socio-economic variables to under-5 mortality without controlling for any other factor. After that biological and maternal factors were entered into the model and the results are presented in model 2. Model 2 evaluates the impact of biological and maternal factors while controlling the socio-economic factors. Environmental factors were entered in the third model (model 3), then nutrition in model 4 and finally in model 5 place of delivery or health seeking factors.

Model 1 shows that mother's education has an impact on under-5 mortality. After controlling for place of residence and labour market status of the mother, children born to mothers who have not completed matric among the 1993-1997 birth cohort are 5.5 times more likely to die before turning 5 years as compared to those born to mothers who have completed matric. Although the impact of education is reduced among the 1998-2002 birth cohort a similar pattern is observed. For example, children born to mothers without matric are 2.0 times likely to die before 5 years as compared to those born to mothers who completed matric among the 1998-2002 birth cohort, after controlling for place of residence and labour market.

Type of residence gives a mixed message in that, among the 1993-1997 birth cohort, it shows that living in a non-urban area decreases the risk of under-5 deaths while among the 1998-2002 birth cohort children born to mothers in a non-urban area where 1.2 times more likely to die compared to those in urban areas without controlling for any other variable. However, these results are not significant in both cases.

In the 1993-1997 birth cohort employment children born to mothers who are not employed are 1.3 times more likely to die compared to those born to employed mothers after controlling for mothers education and place of residence. This pattern is maintained in the 1998-2002 birth cohort but the results are not significant.

Model 2 shows the impact of adding the biological and maternal factors to the model. In the 1993-1997 birth cohort, the influence of mother's education to under-5 mortality decreased after controlling for biological and maternal factors. For example, children born to mothers who did not complete secondary school (matric) are now 2.4 times likely to die before turning 5 years as compared to those born to mothers who completed matric. This is also true in the 1998-2002 birth cohort. In essence controlling for biological factors reduces the effect of education on under-5 mortality.

Type of residence continued to give a mixed message between the two birth cohorts. However, the results were statistically significant in 1993-1997 after controlling for biological and maternal factors and socio-economic variables.

The impact of the labour market status of the mother increased slightly after controlling for biological and maternal factors. While the impact of labour market status is significant in the 1993-1997 birth cohort, it is not significant in the 1998-2002 birth cohort.

After controlling for socio-economic factors, birth interval and mothers age show a significant influence on under-5 mortality in the 1993-1997 birth cohort. In the 1998-2002 only sex and birth interval show a significant impact on under-5 mortality.

Among the 1993-1997 birth cohort, the children with birth interval of less than 24 months are approximately 2.8 times likely to die before turning 5 years as compared to those with higher birth interval. In the 1998-2002 this figure reduces to 2.0. In both birth cohorts these effects are significant.

Children born to mothers aged 35 and above were approximately 6.0 times more likely to die before the age of 5 years compared to children born to mothers between 18-34 years of age after controlling for socio-economic variable. Surprisingly this effect disappears in the 1998-2002 birth cohort. It is not even statistically significant among this group.

The results also show that sex of the child has an impact on under-5 mortality. The results were not statistically significant in the 1993-1997 birth cohort, however, they were statistically significant in the 1998-2002 birth cohort. During the 1998-2002 period a boy child was 1.3 times more likely to die before age 5 compared to a girl child after controlling for socio-economic variables and other maternal and biological factors.

The impact of birth order for both birth cohorts was not statistically significant after controlling for socio-economic factors, mothers age, sex and birth interval.

Table 4.7: The odds of under-5 death for the birth cohorts 1993-1997: model with multiple independent variable

		Model 1			Model 2			Model 3			Model 4			Model 5		
		B	Exp(B)	Sig.	B	Exp(B)	Sig.	B	Exp(B)	Sig.	B	Exp(B)	Sig.	B	Exp(B)	Sig.
a	**Mother's education** (Ref: Matric and above)															
	Below matric	1.709	5.523	.000	.877	2.404	.000	.832	2.299	.000	.812	2.253	.000	.663	1.941	.000
	Mother's place of residence (Ref: Urban)															
	Non-urban	-.132	.877	.058	-.247	.781	.001	-.252	.777	.006	-.257	.773	.005	-.393	.675	.000
	Employment status of the mother (Ref: Employed)															
	Not employed	.311	1.365	.001	.333	1.394	.001	.333	1.396	.001	.330	1.391	.001	.166	1.180	.111
b	**Sex of the child** (Ref:Girl)															
	Boy				.134	1.143	.066	.138	1.147	.059	.139	1.149	.056	.168	1.183	.024
	Birthorder (Ref: First born)															
	Second				-.299	.741	.069	-.295	.744	.073	-.296	.744	.073	-.287	.751	.085
	Third				-.169	.844	.299	-.169	.845	.301	-.170	.844	.297	-.143	.866	.383
	Fourth or above				.271	1.311	.058	.276	1.317	.053	.267	1.307	.061	.299	1.349	.035
	Birth Interval (Ref: First born or interval of more than 24 months)															
	Less than 24 months				1.029	2.798	.000	1.013	2.754	.000	1.013	2.753	.000	.770	2.159	.000
	Mother's age at birth (Ref:18-34)															
	<18				.124	1.132	.636	.131	1.140	.618	.113	1.120	.667	.205	1.228	.437
	>34				1.784	5.952	.000	1.786	5.963	.000	1.779	5.924	.000	1.523	4.586	.000

a) Social economic factors
b) Biological and maternal factors
c) Environmental factors
d) Nutrient deficiency
e) Health seeking behaviour

Table 4.7 (cont.) The odds of under-5 death for the birth cohorts 1993-1997: model with multiple independent variable

		Model 1			Model 2			Model 3			Model 4			Model 5		
		B	Exp(B)	Sig.	B	Exp(B)	Sig.	B	Exp(B)	Sig.	B	Exp(B)	Sig.	B	Exp(B)	Sig.
c	**Water** (Ref: Piped)															
	Unpiped							-.198	.821	.046	-.193	.825	.051	-.186	.830	.065
	Sanitation (Ref: Toilet on-site)															
	Toilet offsite							-.037	.964	.803	-.036	.965	.808	-.126	.882	.409
	Bucket or no toilet							.077	1.080	.404	.059	1.060	.528	-.095	.909	.321
	Electricity (Ref: Connected to mains)															
	Not connected							.191	1.211	.025	.181	1.198	.035	.102	1.108	.245
	Type of dwelling (Ref: Formal)															
	Informal							-.026	.974	.831	-.050	.951	.680	.018	1.018	.887
d	**Nutrition** Ref: Household with no child who went hungry															
	Household with at least a child went hungry because no food was available										.190	1.209	.012	.161	1.175	.036
e	**Place of delivery** (Ref: Hospital or clinic)															
	Else where													1.211	3.356	.000
	constant	-4.262	.014	.000	-4.783	.008	.000	-4.800	.008	.000	-4.826	.008	.000	-4.636	.010	.000
	Degree of freedom	3			10			15			16			17		
	x^2	196.280			1351.237			1359.605			1365.903			1582.992		
	x^2 change from model n-1				1154.957			8.368			6.298			217.089		
	Hosmer and Lemeshow Test	.119			.043			.017			.126			.000		

Table 4.8: The odds of under-5 death for the birth cohorts 1998-2002: model with multiple independent variable

		Model 1			Model 2			Model 3			Model 4			Model 5		
		B	Exp(B)	Sig.	B	Exp(B)	Sig.	B	Exp(B)	Sig.	B	Exp(B)	Sig.	B	Exp(B)	Sig.
a	**Mother's education** (Ref: Matric and above)															
	Below matric	.705	2.024	.000	.633	1.882	.001	.484	1.623	.011	.460	1.584	.017	.441	1.555	.022
	Mother's place of residence (Ref: Urban)															
	Non-urban	.165	1.180	.217	.107	1.113	.430	-.125	.883	.462	-.118	.889	.486	-.150	.861	.380
	Employment status of the mother (Ref: Employed)															
	Not employed	.029	1.030	.845	.083	1.087	.581	.031	1.032	.837	.023	1.023	.880	.023	1.023	.882
b	**Sex of the child** (Ref:Girl)															
	Boy				.260	1.296	.048	.274	1.315	.038	.269	1.309	.041	.270	1.310	.041
	Birth order (Ref: First born)															
	Second				-.169	.845	.383	-.160	.852	.409	-.159	.853	.412	-.185	.831	.340
	Third				.103	1.109	.625	.084	1.088	.692	.088	1.092	.678	.050	1.051	.816
	Fourth or above				.280	1.324	.177	.181	1.198	.388	.167	1.182	.426	.091	1.095	.667
	Birth Interval (Ref: First born or interval of more than 24 months)															
	Less than 24 months				.710	2.035	.000	.676	1.966	.001	.686	1.986	.000	.665	1.945	.001
	Mother's age at birth (Ref:18-34)															
	<18				-.156	.856	.591	-.132	.876	.649	-.141	.868	.626	-.144	.866	.620
	>34				.062	1.064	.743	.114	1.121	.548	.113	1.120	.553	.122	1.129	.524

Table 4.8 (cont.) The odds of under-5 death for the birth cohorts 1998-2002: model with multiple independent variable

		Model 1			Model 2			Model 3			Model 4			Model 5		
		B	Exp(B)	Sig.	B	Exp(B)	Sig.	B	Exp(B)	Sig.	B	Exp(B)	Sig.	B	Exp(B)	Sig.
c	**Water** (Ref: Piped)															
	Unpiped							.389	1.475	.035	.373	1.453	.043	.346	1.413	.062
	Sanitation (Ref: Toilet on-site)															
	Toilet offsite							-.053	.948	.888	-.039	.962	.918	-.021	.979	.955
	Bucket or no toilet							.323	1.381	.053	.304	1.356	.069	.275	1.317	.102
	Electricity (Ref: Connected to mains)															
	Not connected							.317	1.373	.048	.293	1.340	.069	.243	1.275	.134
	Type of dwelling (Ref: Formal)															
	Informal							.427	1.532	.023	.411	1.509	.028	.430	1.538	.022
d	**Nutrition** Ref: Household with no child who went hungry															
	Household with at least a child went hungry because no food was available										.199	1.220	.142	.181	1.199	.184
e	**Place of delivery** (Ref: Hospital or clinic)															
	Else where													.553	1.739	.003
	constant	-4.221	.015	.000	-4.436	.012	.000	-4.487	.011	.000	-4.531	.011	.000	-4.501	.011	.000
	Degree of freedom	3			10			15			16			17		
	x^2	22.57			48.93			77.32			79.47			87.61		
	x^2 change from model n-1															
	Hosmer and Lemeshow Test	.039			.848			.006			.176			.518		

Model 3 assesses the impact of environmental factors after controlling for socio-economic variables, biological and maternal variables. During the 1993-1997 period, it is only the source of water and source of energy which has a significant impact on the under-5 mortality. However, during the 1998-2002 period the impact of type of dwelling is also statistically significant. Children in households without piped water were 1.5 times more likely to die before the age of 5 compared to those children from households with access to piped water after controlling for socio-economic variables, biological, maternal and other environmental variables.

Children from households without access to electricity were approximately 1.4 times more likely to die before their fifth birthday as compared to those from households with access to electricity after controlling for socio-economic variables, biological, maternal and other environmental variable. This influence was lower among the 1993-1997 birth cohorts.

The influence of mother's education decreased as more factors were controlled. In the 1998-2002 birth cohort the risk of the child dying before age 5 increased by 62% for a mother without matric compared to the one with matric in model 3. However, in model 2 where only socio-economic variables, biological and maternal factors were controlled this increase was 88%.

The impact of type of dwelling on under-5 mortality shows conflicting results for the two periods under review. However, during the 1998-2002 period the risk of under-5 death increased by 53% for children living in informal dwelling as compared to those living in formal dwelling after controlling for socio-economic, biological, maternal and other environmental variables.

Model 4 assesses the impact of nutrition after controlling for socio-economic, biological, maternal and environmental variables. Children from households which reported hunger are 1.2 times more likely to die before their fifth birth day compared to those from households without hunger reporting after controlling for socio-economic, biological, maternal and environmental variables. The influence is maintained in the 1998-2002 birth cohort but not significant. The impact of both source of water and type of dwelling decreased slightly after nutrition was controlled. The impact of source of energy decreased and even became insignificant during 1998-2002 period after controlling for nutrition.

Finally **model 5** assesses each variable while others are controlled. The logistic regression results in model 5 for both cohorts show the changing pattern in the factors associated with under-5 mortality during 1993-1997 and 1998-2002 reporting periods. For example mother's education, Mother's age at the time of delivery of the subject child, place of delivery, nutrition, birth order and birth interval were among the factors which had a significant impact on under-5 deaths during 1993-1997 reporting period. However, the pattern changed for some factors during 1998-2002 reporting period. For the example, the odds of a child dying before the age of 5 were 1.9 times higher for the mothers who did not complete matric as compared to the mother who completed matric or higher for the 1993-1997 cohort. However, for the 1998-2002 birth cohort this effect had reduced to approximately 1.6 times and the statistical significance had reduced.

Mother's age at the time of delivery of the subject child was the most important factor for the 1993-1997 birth cohort. The odds of a child dying before the age of 5 were approximately 4.6 times higher for mothers who were 35 years of age and older at the time of delivery compared to those mothers who were between the ages 18-34. However, mother's age at birth as a factor in explaining the under-5 death had almost disappeared for the 1998-2002 cohort.

Place of delivery was the second most important factor in explaining the under-5 deaths for the 1993-1997 cohort. The odds of a child dying were 3.4 times higher for the children who were born elsewhere as compared to those who were born in a hospital or clinic. However, for the 1998-2002 the odds of a child dying were approximately 1.7 times higher for the same group.

Mother's place of residence, access to clean water and sanitation gave unexpected results for the 1993-1997 cohort. This pattern changed for the 1998-2002 cohort for both water and sanitation. The odds of a child dying before the 5^{th} birthday were 1.4 times higher in households with no access to piped water compared to those with access to piped water. Children living in households with bucket toilet or no toilet at all were 1.3 times likely to die before the age of 5 compared to those in households with a toilet on site although the results are not statistically significant.

Access to electricity as a predictor of under-5 death recorded an odds ratio 1.1 and approximately 1.3 for the 1993-1997 and 1998-2002 birth cohorts respectively after controlling for other variables. The impact of access to electricity to under-5 mortality declined when nutrition factor was controlled, it even declined further to insignificant levels when health seeking behaviour factor was controlled. This could mean that providing electricity without improved health systems and health seeking behaviour will not help reduce under-5 mortality.

Type of dwelling was not very prominent in explaining under-5 mortality among the 1993-1997 cohort, however this changed among the 1998-2002 cohort, where children living in informal dwellings were almost 1.5 times more likely to die before the age 5 as compared to those living in formal houses.

In both periods children living in a household where a child had gone hungry because there was no food were approximately 1.2 times more likely to die

before age 5 as compare to those children living in households where no child went hungry although not significant during 1998-2002 period

Fourth or higher birth order children were 1.4 times likely to die before the age of 5 as compared to first born for the 1993-1997 birth cohort. However for the 1998-2002 birth cohort the fourth or higher birth order children were approximately 1.1 times more likely to die as compared to first born. Noticeably the third order children were 1.1 times likely to die before turning 5 as compared to the first born, which was not the case for the 1993-1997 birth cohort.

As expected children with a short birth interval, i.e. less than 24 months were approximately 2.2 and 1.9 times likely to die before age 5 as compared to those children who were either the first born or with birth interval of more than 24 months for both birth cohorts under review respectively after controlling for all other variables.

Sex of the child recorded an odds ratio of approximately 1.2 and 1.3 for the two birth cohorts respectively. A boy child was 1.3 times likely to die as compared to a girl child for the 1998-2002 birth cohort. Among the 1993-1997 birth cohort the influence of sex only became significant after controlling for place of delivery.

4.6 Evaluation of the Models

The two tests, (omnibus test and Hosmer-Lemeshow test) which were used to evaluate logistic regression model send a mixed message for model 5 of the 1997 data. However, the tests suggest a good fit for the equivalent 2002 model 5 which included all the predictor variables. In the 1997 model 5 the omnibus test suggests a good fit. It shows a high significant figure of 0.000. However, the Hosmer and Lemeshow test does not support the omnibus test results. Hosmer-Lemeshow results are interpreted differently from the Omnibus test. For the Hosmer-Lemeshow Goodness of Fit Test the poor fit is indicated by a

significance value less than 0.05 (Pallant, 2005). In case of 1997 model 5 Hosmer-Lemeshow test show a significance value of 0.000 which suggests a poor fit.

For the 2002 model 5 both tests suggest a good fit. The Omnibus test show a high significant figure of 0.000 and this is supported by the Hosmer-Lemeshow figure of 0.518. Interpretation of the 1997 model should be done with caution.

4.7 Summary

This chapter presented the results of the analyses of the data. The results from the descriptive analysis and from the hierarchical logistic regression analysis for both 1993-1997 and 1998-2002 birth cohorts were provided and discussed. These results support those from studies conducted elsewhere. Mother's education showed a significant relationship with under-5 mortality. The effect of mother's education on child survival usually survived controls of other socio-economic variables. Some results are implausible, particularly the under-5 mortality rate generated from the 2002 General Household survey.

CHAPTER 5

5. DISCUSSIONS AND CONCLUSION

5.1 Introduction

This chapter revisits the results presented in the previous chapter and highlights the key findings from the study. Secondly, reference to the analytical framework and literature used chapter 2 will be made in analysing the results in the previous chapter. Finally, the policy implications of this study are identified and possible future research is proposed.

5.2 Summary of findings

The results suggest changing patterns in factors associated with under-5 mortality between the two birth cohorts: 1993-1997 and the 1998-2002 birth cohorts. In the order of importance, the factors which were predominant in the 1993-1997 birth cohort were, mother's age at birth, place of delivery and birth interval and mothers education, while in the 1998-2007 factors which were predominant were, birth interval, place of delivery, mother's education, type of dwelling and access to piped water.

The secondary analysis of 1993-1997 and 1998-2002 data was an attempt to fill the gap in explanation of child mortality in South Africa. Hopefully this will help in designing relevant programmes in order to achieve the Millennium Development Goal number 4 (MDG4).

The 1997 OHS reported the under-5 mortality rate of 58 deaths per 1 000 live births which looks plausible compared to other sources like 59 deaths per 1 000 live births reported by UNICEF, et al. (2007) and 59,4 deaths per 1 000 live births from the 1998 SADHS. However the rate of 24,3 deaths per 1 000 live births reported in the 2002 GHS does not look plausible because it is not in line with

other sources. UNICEF, et al. (2007) reported 63 deaths per 1 000 live births for the year 2000 and 68 deaths per 1 000 live births for 2005. The 2003 SADHS reported 58 deaths per 1 000 live births. This suggests a serious under reporting of deaths in the 2002 GHS so the study cannot answer the question of whether levels of under-5 mortality changed between the two reporting periods under review. However, the study showed the trends in the factors associated with under-5 mortality.

In summary under-5 mortality was significantly associated with eight factors during 1993-1997 period namely; mother's education, mother's place of residence, sex, birth order, birth interval, mother's age at the time of delivery of the subject child, nutrient deficiency and place of delivery. However, during the 1998-2002 period only five factors were significantly associated with under-5 mortality. These were mother's education, sex, birth interval, type of dwelling and place of delivery.

5.3 Discussions and conclusion

The discussion focuses on the conceptual framework in the study and attention was paid to role played by socio-economic factors, biological and maternal factors, environmental factors, nutrient deficiency factors and health seeking behaviour factors.

5.3.1 Socio-economic factors and environmental factors

The unexpected results of current residence of the mother, access to water and sanitation for the 1993-1997 birth cohort could have been caused by migration of mothers from non-urban areas to peri-urban areas. During this period there was mass migration of especially the black population to big towns where, in some cases water and sanitation was better. Secondly, the study uses current residence of the mother not residence during the birth of the subject child. It is common in South Africa for mothers to leave their children in rural areas and

move to big cities in search of jobs. The survey did not collect information on whether the child was staying with the mother at the time of death.

However, it could also be true that children in urban areas of South Africa are more susceptible to diseases and subsequent death than those in non-urban areas. Some studies have shown similar results. Sastry (2004) concluded that in Sao Paulo children from disadvantaged backgrounds were worse off in urban areas. Amouzou and Hill (2004) concluded that the weak effect of urbanization could be due to the rapid increase of urban poverty. This is a more plausible explanation in the case of South Africa in light of the massive non-urban to urban migration of the black population after the apartheid laws were abolished in 1990.

Although mother's place of residence continued to give unexpected results for the 1998-2002 birth cohort, access to piped water and good sanitation were among the factors which were associated with the under-5 deaths. Similar results were observed by Anderson, et al. (2002) and Mahmood (2002). This could further strengthen the earlier argument of migration but this time mothers could have moved to informal settlements which are classified as urban with relatively poor access to piped water and sanitation. This is supported by the increased influence of type of dwelling in explaining the under-5 mortality among the 1998-2002 birth cohort. Similar results of a relationship between type of dwelling and child mortality were observed by Anderson, et al. (2002) and Jacobs, et al. (2009).

5.3.2 Socio-economic factors and health seeking behaviour

An assumption could be made that the employment of women or their participation in the labour force would empower them and this would have an impact on their children's survival. This does not seem to be case, especially for the 1998-2002 birth cohort. Among the 1993-1997 birth cohort the children belonging to women who are not employed are 1.4 times likely to die before the

age of 5 after controlling for socio-economic and biological and maternal factors. The odds did not change much after extra control of the environmental and nutrient deficiency variables. However, the effect of employment status became statistically insignificant after controlling for place of delivery (see 1997 model 5). This could imply that, the employment of women in low paying jobs without improvement in access to health facilities does not help in reducing under-5 mortality, especially in high HIV/AIDS prevalence population.

5.3.3 Biological and maternal factors

Mother's age at the time of delivery of the subject child as a predictor of under-5 mortality was very important among the 1993-1997 birth cohort, especially mother's who were 35 years of age and above at time of birth. This is similar to what Mahmood (2002) observed but contrary to what Hobcraft, et al. (1985) reported. Although this age group is known to be a risk age for child bearing for both, the mother and the child, the increase in the risk of a child's death in the 1993-1997 birth cohort by approximately 4.6 times compared to a child belonging to a mother between the ages of 18 and 34 after controlling for all other variables needs to be investigated further. This effect almost disappeared in the 1998-2002 birth-cohort to agree with Hobcraft, et al. (1985). Although mother's age especially 35 and older at time of birth shows some minor increased risk of under-5 mortality, the results are not statistically significant. The question is what policy could have been responsible for this change? In fact, it seems there was another factor rather than age which was playing a role. Further research should be conducted in order to explain this phenomenon.

The impact of birth interval persisted in both birth cohorts even after controlling for all other factors. This is in line with other studies conducted by Hobcraft, et al. (1985), Hobcraft (1991) and Boerma and Bicego (1992). Models 4 and 5 of 1997 seem to suggest what Boerma and Bicego (1992) and Mahmood (2002) concluded, that babies born to mothers with shorter previous birth intervals who

received prenatal care are significantly more likely have better survival chances during neonatal period than babies born to mothers with the same short interval who did not receive prenatal care for the index child.

5.3.4 Health seeking behaviour and HIV/AIDS

Place of delivery also featured prominently in explaining under-5 mortality. This is in line with what Rutstein (2000) observed in his comparison of DHS data. This could be due to the known reasons that children born elsewhere are more susceptible to infections, but it could also be that in countries with high prevalence of HIV like South Africa, women who deliver in hospitals or clinics are more likely to be tested for HIV and take precautionary measures to reduce mother to child transmission.

5.4 Contribution of the study

The study has brought to light key policy implications which government needs to focus on. The empowerment of women through education should be encouraged because mother's education continues to influence under-5 mortality. Completing high school (matric) for the mother reduced the risk of under-5 mortality by almost 55%. Education of the mother cannot be ignored, some studies by Hobcraft, et al. (1984), Cleland (1990) and Hobcraft (1993) have shown the impact of mother's education on child mortality.

The increasing number of people moving to urban areas in search of good life has a devastating impact on children, especially when people move to informal settlements. A human settlement strategy has to be developed and integrated with services delivery especially in light of rural-urban migration. This should also be integrated with programmes to alleviate urban poverty.

.

Health services should be brought nearer to the communities so that mothers have access to them both during pregnancy and after. The impact of delivering a child with the help of a medical professional is enormous. However, this will be useless if mothers do not get access to medicines, especially in high HIV/AIDS prevalence population. Administration of ARVs to pregnant mothers to prevent mother to child transmission should be enhanced and continually improved.

All policies developed should be integrated with women empowerment programmes especially through education. Women with low status usually do not fully utilize the facilities provided to them. This could hamper progress even if government improves the health care system.

Finally, the study shows changing patterns in factors associated with under-5 mortality for the period 1993-2002. Therefore, government should monitor and evaluate existing programmes regularly in order to revise or re-design programmes which are more relevant to the factors which are predominant in determining child survival.

References

Adetunji, J., 2000. '**Trends in under-5 mortality rates and the HIV/AIDS epidemic'** *Bulletin of the World Health Organisation, 2000, 78(10).*

Amouzou, A. & Hill, K., 2004. '**Child mortality and socioeconomic status in sub-Saharan Africa**'. *African Population Studies/Etude de la Population Africaine. 2004;19(1):1-11.*

Anderson, B.A., Romani, J.H., Phillips, H.E. & Van Zyl, J.A., 2002. '**Environment, Access to health care and Other factors affecting infant and child survival among the African and Coloured populations of South Africa, 1989-1994**'. *Population and Environment vol. 23 No. 4.*

Arokiasamy, P., 2002. '**Regional Patterns of Sex Bias and Excess Female Child Mortality in India'** *Population (English Edition, 2002-), Vol. 59, No. 6 (Nov. - Dec., 2004), pp. 833-863*

Bhuiya, A. & Streatfield, K., 1991. **'Mothers' Education and Survival of Female Children in a Rural Area of Bangladesh'**. *Population Studies, Vol. 45, No. 2 (Jul., 1991), pp. 253-264.*

Boerma, J.T. & Bicego, G.T., 1992. '**Preceding Birth Intervals and Child Survival: searching for pathways of influence**' *Studies in Family Planning: 23, 4:243-256.*

Bomela, N. J., 1999. '**Child Nutritional Status and Household Patterns in South Africa'** *Mini-dissertation University of Pretoria.*

Brahmbhatt, H. & Gray, R., 2000. '**Breastfeeding and the prevention of infant mortality'**. *The Lancet, Volume 355, Issue 9212, Pages 1370 – 1370.*

Chen, LC., Huq, E. & D'Souza, S., 1981. '**Sex Bias in the Family Allocation of Food and Health Care in Rural**' *Population and Development Review, Vol. 7, No. 1.*

Cleland, J., 1990. '**Maternal education and child survival: Further evidence and explanations'**. *In J.C Caldwell et al (eds). What we know about Health Transition: The Cultural, Social and Behavioural Determinants of Health. Vol. Health Transition Centre, The Australian National University.*

Davanzo, J., Razzaque, A., Rahman, M., Hale, L., Ahmed, K., Ali Khan, M., Mustafa, G. & Gausia K., 2004. **'The effects of birth spacing on infant and child mortality, Pregnancy outcomes, and maternal mortality in Matlab, Bangladesh'.** *Working paper RAND labour and population 2004.*

Department of Health, '**South Africa Demographic and health survey – 1998'** *http://www.doh.gov.za/facts/sadhs-f.html.*

Dorrington, R., Bradshaw, D., Johnson, L. & Budlender D., 2004. '**The Demographic Impact of HIV/AIDS in South Africa: National Indicators for 2004'**.*Joint publication by the Centre for Actuarial Research, the Burden of Disease Research Unit (Medical Research Council) and the Actuarial Society of South Africa.*

Eswaran, M., 2002. '**The Empowerment of Women, Fertility, and Child Mortality: Towards a Theoretical Analysis'**. *Journal of Population Economics, Vol. 15, No. 3 (Aug., 2002), pp. 433-454.*

Ezzati, M. & Kammen, D.M., 2002. **'The Health Impacts of Exposure to Indoor Air Pollution from Solid Fuels in Developing Countries: Knowledge, Gaps, and Data Needs'**. *Environmental Health Perspectives, Vol. 110, No. 11 (Nov., 2002), pp. 1057-1068.*

Fitzgerald, E.F., Schell, L.M., Marshall, E.G., Carpenter, D.O., Suk, W.A., Jan E. & Zejda, J.E., 1998. 'Environmental Pollution and Child Health in Central and Eastern Europe'. Environmental Health Perspectives, Vol. 106, No. 6 (Jun., 1998), pp. 307-311.

Garenne, M. & Gakusi, E., *2005.* **'Under-five Mortality Trends in Africa: Reconstruction from Demographic Sample Survey'.** *Demographic and Health Research 2005 No. 26.*

Hesketh, T. & Xing, Z.W., 2006. '**Abnormal Sex Ratios in Human Populations: Causes and Consequences'** *Proceedings of the National Academy of Sciences of the United States of America,Vol. 103, No. 36 (Sep. 5, 2006), pp. 13271-13275.*

Hill, K., *2003.* **'Frameworks for studying the determinants of child survival'**. *Bulletin of World Health Organization 81(2).*

Hobcraft, J.N., McDonald, J.W. & Rutstein S.O., 1984. '**Socio-economic Factors in Infant and Child Mortality: A Cross-national Comparison**' *Population studies, 38 (2), 193-223.*

Hobcraft, J.N., McDonald, J.W. & Rutstein S.O., 1985. '**Demographic Determinants of Infant and Early Child Mortality: A Comparative Analysis**'. *Population studies, 39 (1985), 363-385.*

Hobcraft, J., 1991. "**Child spacing and child mortality".** *Paper prepared for presentation at Demographic and Health surveys World Conference, 1991 Washington D C.*

Hobcraft, J., 1993. '**Women's education, child welfare and child survival: a review of evidence'.** *In Health transition Review Vol 3 No. 2 1993.*

Ibrahim, M.M., Aden, A.S., Omar, H.M., Wall, S. & Persson, A., 1994. '**Diarrhoea among children in rural Somalia. Maternal perceptions, management and mortality**'. *Annals of Tropical Paediatrics, 14, 215-222.*

Jacobs, D.E,. Wilson, J., Dixon,S.L., Smith,J. & Evens, A., 2009. *'* **The Relationship of Housing and Population Health: A 30-Year Retrospective Analysis'***. Environmental Health Perspectives, Vol. 117, No. 4 (Apr., 2009), pp. 597-604.*

Kanaiaupuni, S.M. & Donato, K.M., 1999. '**Migradollars and mortality: the effects of migration on infants survival in Mexico'.** *Demography 36(3).*

Kishor, S. & Parasuraman, S., 1998. '**Mother's Employment and Infant and Child Mortality in India**'. *National Health Survey Subject Report No.8. International Institute for Population Sciences, Mumbai India*.

Krishnaji, N., 1995. '**Working Mothers and Child Survival in Rural India: Insights from Spatial Patterns'**. *Economic and Political Weekly, Vol. 30, No. 44 (Nov. 4, 1995), pp. 2803-2805+2807-2808.*

Lopez, A.D., 2000. **'Reducing child mortality'.** Bulletin of the World Health Organization, 2000, 78 (10).

Machado, C.J. & Hill, K., 2005**. 'Maternal, Neonatal and Community Factors Influencing Neonatal Mortality in Brazil'.** *J. Biosoc. Sci. 37, 193-208*.

Madise, N.J., Matthews. Z. & Margetts, B., 1999. '**Heterogeneity of Child Nutritional status between households: A comparison of six sub-saharan Africa'** *Population Studies, 53(3).*

Magadi, M.A., 1997. '**Status of Women and infant/child health in Kenya with particular reference to high mortality zone in Nyaza Province'.** *UAPS Study Report.*

Mahmood, M.A., 2002. **'Determinants of Neonatal and Post-neonatal Mortality in Pakistan'**. *The Pakistan Development Review 41:4 part II (Winter 2002) pp. 723-744.*

Mohamed, W.N., Diamond, I., Smith, P.W.F., 1998. '**The Determinants of Infant Mortality in Malaysia: A Graphical Chain Modelling Approach'**. *Journal of the Royal Statistical Society. Series A (Statistics in Society), Vol. 161, No. 3(1998), pp. 349-366.*

Mosley, W.H. & Chen, L.C., 1984. '**An analytical framework for the study of child survival in developing countries'.** *In: Child survival: strategies for research, edited by W.H. Mosley and Lincoln C. Chen. New York, New York, Population Council, 1984. : 25-45. (Population and Development Review 10, Supplement, 1984).*

Murray, J.L., Laakso, A., B., Shibuya, K., Hill, K. & Lopez, A.D., 2007. '**Can we achieve Millennium Development Goal 4? New analysis of country trends and forecasts of under-5 mortality to 2015'.** *Lancet 2007; Vol (370) 1040-54.*

Nannan, N., Bradshaw, D., Timaeus, I.M. & Dorrington R., 2000. '**The impact of HIV/AIDS on infant and child mortality in South Africa'** *International Conference on AIDS.*

Omar, B.A., Lopez, A.D. & Inoue, M., 2000. "**The Decline in Child Mortality: A Reappraisal".** *Bulletin of the World Health Organization 78(10): 1,175–1,191*.

Pallant, J., 2005. '**SPSS survival manual guide' 2nd edition**. *Open University Press.*

Pande, R.P., 2003. **'Selective Gender Differences in Childhood Nutrition and Immunization in Rural India: The Role of Siblings'**. *Demography, Vol. 40, No. 3 (Aug., 2003), pp. 395-418.*

Rutstein, S.O**.,** 2000. **Factors associated with trends in infant and child mortality in developing countries during the 1990s.** *Bulletin of World Health Organization, 2000, 78(10).*

Sastry, N., 2004. **'Urbanization, development, and under-five mortality differentials by place of residence in Sao Paulo, Brazil, 1970-1991'**. *Demographic Research-Special Collection 2: Article 14. Determinant s of Diverging Trends in Mortality.*

Shehzad, S., 2006. **'The Determinants of Child Health in Pakistan: An Economic Analysis'**. *Social Indicators Research, Vol. 78, No. 3 (Sep., 2006), pp. 531-556.*

Short, S.E., Chen F., Entwisle, B. & Fengying, Z., 2002. **'Maternal Work and Child Care in China: A Multi-Method Analysis'**. *Population and Development Review, Vol. 28, No. 1 (Mar., 2002), pp. 31-57.*

Statistics South Africa., 2008. '**Mortality and Causes of Deaths in South Africa, 2006: Findings From Deaths Notification'.**

Thomas. K.J.A., 2007. ' **Child Mortality and Socioeconomic Status: An Examination of Differentials by Migration Status in South Africa**' *International Migration Review 41 (1), 40-74.*

UNICEF, WHO, The World Bank & United Nations Population Division., 2007. **'Levels and trends of child mortality in 2006'** *Estimates developed by the inter-agency Group for Child Mortality Estimation.*

UNICEF., 2004**. Progress For Children, A Child Survival Report Card: Number 1, 2004 http://www.unicef.org/progressforchildren/2004v1/industrialized.php**

United Nations., 1992. **'Child Mortality since the 1960s: A database for developing countries'**. Department of Economics and Social Development, United Nation.

Walker, N. & Ghys, P., 2003. **'Proportion of child mortality attributable to HIV'** *presented at Meeting on empirical Evidence for the Demographic and Socio-Economic Impact of AIDS. Durban, South Africa, March 26-28.*

Wichmann, J. & Voyi, K. V. V., 2006. '**Influence of cooking and heating fuel use on 1-59 Month old Mortality in South Africa'.** *Maternal Child Health J (2006) 10 :553-561.*

World Health Organisation., 2006. '**Neonatal and Perinatal Mortality' Country, Regional and Global Estimates** 2006.

APPENDIX 1

GHS 2002 QUESTIONNAIRE

Statistics South Africa

General Household Survey 2002

Particulars of the household

PSU number

Dwelling unit number

Physical identification of the dwelling unit/household

Telephone number of enumerated household (if any)

Questionnaire no. for this household (for persons no. 01 - 10 = 1, etc.)

Households at the selected dwelling

Household number for this household

Total number of households at the selected dwelling

Field staff

Interviewer ..... Number ..... Interview date .....

Supervisor ..... Number ..... Date checked .....

RSM / QA ..... Number ..... Date checked .....

For office use

Response details

Visit no	Date (actual)	Result code	Next visit (planned)
1			
2			
3			
4			

FINAL RESULT

Comments and full details of all non-response/unusual circumstances

RESULT CODES (for response details)

1	Completed
2	Non-contact
3	Refused
4	Partly complete
5	No usable information
6	Vacant dwelling
7	Listing error
8	Other

Comment and give full details above of all non-response

Questionnaire ID

FLAP This section covers particulars of each person in the household

The following information must be obtained in respect of every person who normally resides in this household at least four nights a week.
Do not forget babies. *If there are more than 10 persons in the household, use a second questionnaire.*

		Person (respondent) number									
	Ask who the head (or the acting head) of the household is	01 Head/ Acting head	02	03	04	05	06	07	08	09	10
A	**First name and surname** *Write down first name and surname of each member of the household, starting with the head or acting head.* **First name:**										
	If more than one head or acting head, take the oldest. *Write sideways if necessary.* **Surname:**										
B	**Has ...... stayed here** (in this household) **for at least four nights on average per week during the last four weeks?** 1 = YES 2 = NO → ***End of questions for this person***	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
C	**Is ...... a male or a female?** 1 = MALE 2 = FEMALE	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
D	**How old is ......?** *(In completed years - In whole numbers)* *Less than 1 year = 00.*										
E	**What population group does .... belong to?** 1 = AFRICAN/BLACK 2 = COLOURED 3 = INDIAN/ASIAN 4 = WHITE 5 = OTHER, *specify*	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
F	**Is there any other person residing in this household, than those already mentioned, who is not presently here?**	☐ YES ☐ NO	→ ***If "YES", Go back to A***								

Questionnaire ID

SECTION 1 This section covers particulars of each person in the household

Start from the left (person number 01) and complete section 1 for each person in the household separately.

		01	02	03	04	05	06	07	08	09	10
1.1	***What is ……'s relationship to the head of the household?*** (I.e. to the person in column 1) 1 = *Mark the head/acting head* 2 = Husband/wife/partner 3 = Son/daughter/stepchild/adopted child 4 = Brother/sister 5 = Father/mother 6 = Grandparent/great grandparent 7 = Grandchild/great grandchild 8 = Other relative (e.g. in-laws or aunt/uncle) 9 = Non-related persons	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9
1.2.a	**What is ……'s present marital status?** 1 = Married or living together as husband and wife 2 = Widow/Widower 3 = Divorced or Separated } → ***Go to Q 1.3.a*** 4 = Never married	☐1 ☐2 ☐3 ☐4	☐1 ☐2 ☐3 ☐4	☐1 ☐2 ☐3 ☐4	☐1 ☐2 ☐3 ☐4	☐1 ☐2 ☐3 ☐4	☐1 ☐2 ☐3 ☐4	☐1 ☐2 ☐3 ☐4	☐1 ☐2 ☐3 ☐4	☐1 ☐2 ☐3 ☐4	☐1 ☐2 ☐3 ☐4
1.2.b	**Does ……'s spouse/partner live in this household?** 1 = Yes 2 = No → ***Go to Q 1.3.a***	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
1.2.c	**Which person is the spouse/partner of ……?** *Give person number*										
1.3.a	**Is …… 's father still alive?** 1 = Yes 2 = No } → ***Go to Q 1.4.a*** 3 = Don't know	☐1 ☐2 ☐3	☐1 ☐2 ☐3	☐1 ☐2 ☐3	☐1 ☐2 ☐3	☐1 ☐2 ☐3	☐1 ☐2 ☐3	☐1 ☐2 ☐3	☐1 ☐2 ☐3	☐1 ☐2 ☐3	☐1 ☐2 ☐3

		01	02	03	04	05	06	07	08	09	10
1.3.b	**Is ……'s father part of the household?** 1 = YES 2 = NO → ***Go to Q 1.4.a***	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
1.3.c	**Which person is ……'s father?** *Give person number*										
1.4.a	**Is …… 's mother still alive?** 1 = YES 2 = NO 3 = Don't know → ***Go to Q 1.5.a***	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
1.4.b	**Is ……'s mother part of the household?** 1 = YES 2 = NO → ***Go to Q 1.5.a***	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
1.4.c	**Which person is ……'s mother?** *Give person number*										
1.5.a	**Can …… read in at least one language?** 1 = YES 2 = NO	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
1.5.b	**Can …… write in at least one language?** 1 = YES 2 = NO	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
1.6.a	**In the last seven days, did …… spend at least one hour fetching water for home use (not for sale)?** 1 = YES 2 = NO → ***Go to Q 1.7.a***	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
1.6.b	**How many hours did …… spend on fetching water in the last seven days?**										

Questionnaire ID

		01	02	03	04	05	06	07	08	09	10
1.7.a	**In the last seven days, did …… spend at least one hour fetching wood/dung for home use (not for sale)?** 1 = YES 2 = NO → ***Go to Q 1.8***	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
1.7.b	**How many hours did …… spend on fetching wood/dung in the last seven days?**										

1.8	**Do you know if there is a welfare office in your area?** 1 = YES 2 = NO 3 = DON'T KNOW	☐ 1 ☐ 2 ☐ 3
1.9	**Who is the person who usually brings in the most money into the household?** *Give person number and mark a box below*	
	*1 = If there is one person who brings in the highest amount, give the person number of **this person** and mark box 1*	☐ 1
	*2 = If two persons or more bring in the same highest amount, give person number of **the oldest of them** and mark box 2*	☐ 2
	*3 = If the respondent does not know, give person number of **the oldest person who brings in money** and mark box 3*	☐ 3
	*4 = If no-one brings in money, give person number of **the oldest person in the household** and mark box 4*	☐ 4

Education

		01	02	03	04	05	06	07	08	09	10
1.10	**What is the highest level of education that …… has completed?**										
	00 = No schooling	☐ 00	☐ 00	☐ 00	☐ 00	☐ 00	☐ 00	☐ 00	☐ 00	☐ 00	☐ 00
	01 = Grade R/0	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01
	02 = Sub A/Grade 1	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02
	03 = Sub B/Grade 2	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03
	04 = Grade 3/Standard 1	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04
	05 = Grade 4/Standard 2	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05
	06 = Grade 5/Standard 3	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06
	07 = Grade 6/Standard 4	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07
	08 = Grade 7/Standard 5	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08
	09 = Grade 8/Standard 6/Form 1	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09
	10 = Grade 9/Standard 7/Form 2	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10
	11 = Grade 10/Standard 8/Form 3	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11
	12 = Grade 11/Standard 9/Form 4	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12
	13 = Grade 12/Standard 10/Form 5/Matric	☐ 13	☐ 13	☐ 13	☐ 13	☐ 13	☐ 13	☐ 13	☐ 13	☐ 13	☐ 13
	14 = NTC I	☐ 14	☐ 14	☐ 14	☐ 14	☐ 14	☐ 14	☐ 14	☐ 14	☐ 14	☐ 14
	15 = NTC II	☐ 15	☐ 15	☐ 15	☐ 15	☐ 15	☐ 15	☐ 15	☐ 15	☐ 15	☐ 15
	16 = NTC III	☐ 16	☐ 16	☐ 16	☐ 16	☐ 16	☐ 16	☐ 16	☐ 16	☐ 16	☐ 16
	17 = Diploma/certificate with less than Grade 12/Std 10	☐ 17	☐ 17	☐ 17	☐ 17	☐ 17	☐ 17	☐ 17	☐ 17	☐ 17	☐ 17
	18 = Diploma/certificate with Grade 12/Std 10	☐ 18	☐ 18	☐ 18	☐ 18	☐ 18	☐ 18	☐ 18	☐ 18	☐ 18	☐ 18
	19 = Degree	☐ 19	☐ 19	☐ 19	☐ 19	☐ 19	☐ 19	☐ 19	☐ 19	☐ 19	☐ 19
	20 = Postgraduate degree or diploma	☐ 20	☐ 20	☐ 20	☐ 20	☐ 20	☐ 20	☐ 20	☐ 20	☐ 20	☐ 20
	21 = Other (*specify in column)*	☐ 21	☐ 21	☐ 21	☐ 21	☐ 21	☐ 21	☐ 21	☐ 21	☐ 21	☐ 21
	22 = Don't know	☐ 22	☐ 22	☐ 22	☐ 22	☐ 22	☐ 22	☐ 22	☐ 22	☐ 22	☐ 22
1.11	**Is …… currently attending school or any other educational institution?**										
	1 = Yes → ***Go to Q 1.13***	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
	2 = No	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2

		01	02	03	04	05	06	07	08	09	10
1.12	**What is the main reason why …… is currently not attending school or any other education institution?**										
	01 = Too old/young	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01
	02 = Has completed school/education	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02
	03 = School/education institution is too far away	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03
	04 = No money for fees	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04
	05 = He/she is working (at home or job)	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05
	06 = Education is useless or uninteresting	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06
	07 = Illness	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07
	08 = Pregnancy	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08
	09 = Failed exams	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09
	10 = Got married	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10
	11 = Family commitment (child minding, etc.)	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11
	12 = Other, *specify in column underneath*	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12
	→ ***Go to Q 1.19***										
1.13	**Which of the following educational institutions does …… attend?** *Include distance and correspondence education*										
	1 = Pre-school (including day care, crèche, pre-primary)	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
	2 = School	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
	3 = University	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
	4 = Technikon	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4
	5 = College	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5
	6 = Adult basic education and training/literacy classes	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6
	7 = Other adult educational classes	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7
	8 = Other than any of the above	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8
1.14	**Is it a correspondence/distance educational institution?**										
	1 = Yes → ***Go to Q 1.16***	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
	2 = No	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2

Questionnaire ID

		01	02	03	04	05	06	07	08	09	10
1.15	**How long does it take …… to get to the school/educational institution where he/she attends?** 1 = Less than 15 minutes 2 = 15 - 30 minutes 3 = More than 30 minutes 4 = Don't know	☐ 1 ☐ 2 ☐ 3 ☐ 4	☐ 1 ☐ 2 ☐ 3 ☐ 4	☐ 1 ☐ 2 ☐ 3 ☐ 4	☐ 1 ☐ 2 ☐ 3 ☐ 4	☐ 1 ☐ 2 ☐ 3 ☐ 4	☐ 1 ☐ 2 ☐ 3 ☐ 4	☐ 1 ☐ 2 ☐ 3 ☐ 4	☐ 1 ☐ 2 ☐ 3 ☐ 4	☐ 1 ☐ 2 ☐ 3 ☐ 4	☐ 1 ☐ 2 ☐ 3 ☐ 4

Ask for all who are attending school any educational institution

1.16	**What is the total amount of tuition fees paid for ….. in a year?** Do not include the cost of uniforms, books and other learning materials. 01 = R1 – R100 02 = R101 – R200 03 = R201 – R300 04 = R301 – R500 05 = R501 – R1000 06 = R1001 – R2000 07 = R2001 – R3000 08 = R3001 – R4000 09 = R4001 – R8000 10 = R8001 – R12000 11 = More than R12000 12 = None 13 = Don't know	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12 ☐ 13	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12 ☐ 13	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12 ☐ 13	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12 ☐ 13	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12 ☐ 13	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12 ☐ 13	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12 ☐ 13	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12 ☐ 13	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12 ☐ 13	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12 ☐ 13
1.17	**This academic year, has …… benefited from any exemptions and/or bursaries?** 1 = Yes 2 = No 3 = Don't know	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3

Questionnaire ID

		01	02	03	04	05	06	07	08	09	10
1.18	**During the past 12 months, what problems, if any, did …… experience at the school**(or other educational institution)**?**	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
	1 = Lack of books	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	2 = Poor teaching	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	3 = Lack of teachers	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	4 = Facilities in bad condition	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	5 = Fees too high	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	6 = Classes too large	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	7 = Other, *specify in column*	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2

HEALTH

Ask for everyone

1.19	**Is …… covered by a medical aid or medical benefit scheme or other private health insurance?**										
	1 = YES	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01
	2 = NO	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02
	3 = DON'T KNOW	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03
1.20	**During the past month, did …… suffer from any illnesses or injuries?**										
	1 = YES	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01
	2 = NO → ***Go to Q 1.29***	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02

		01	02	03	04	05	06	07	08	09	10
1.21	**What sort of illnesses or injuries did …… suffer from? Was it ….**										
	01 = Flu or acute respiratory tract infection	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
	02 = Diarrhoea	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
	03 = Severe trauma *(e.g. due to violence, motor vehicle accident, gunshot, assault, beating)*	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
	04 = TB or severe cough with blood	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
	05 = Abuse of alcohol or drugs	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
	06 = Depression or mental illness	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
	07 = Diabetes	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
	08 = High or low blood pressure	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
	09 = HIV/AIDS	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
	10 = Other sexually transmitted disease	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
	11 = Other illness or injury	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
1.22	**During the past month, did …… consult a health worker such as a nurse, doctor or traditional healer as a result of illness or injury?**										
	1 = YES	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01
	2 = NO → ***Go to Q 1.28***	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02
1.23	**What kind of health worker was it?** *If more than one consultation, take the most recent.*										
	1 = NURSE	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
	2 = DOCTOR	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
	3 = MEDICAL SPECIALIST	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
	4 = PHARMACIST/CHEMIST	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4
	5 = DENTIST	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5
	6 = SPIRITUAL HEALER (CHURCH RELATED)	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6
	7 = TRADITIONAL HEALER	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7
	8 = ANY OTHER HEALTH CARE PROVIDER *Including psychologist, physiotherapist, chiropractor, homeopath, optometrist*	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8
	9 = DON'T KNOW	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9

		01	02	03	04	05	06	07	08	09	10
1.24	**Where did the consultation take place?** If more than one consultation, ask about the most recent one. **Public sector** (*i.e. government, provincial or community institution)* 01 = HOSPITAL 02 = CLINIC 03 = OTHER IN PUBLIC SECTOR, *specify* **Private sector** (*including private clinics, surgery, private hospitals and sangomas*) 04 = HOSPITAL 05 = CLINIC 06 = PRIVATE DOCTOR/SPECIALIST 07 = TRADITIONAL HEALER 08 = PHARMACY/CHEMIST 09 = HEALTH FACILITY PROVIDED BY EMPLOYER 10 = ALTERNATIVE MEDICINE, E.G. HOMEOPATHIST 11 = OTHER IN PRIVATE SECTOR, *specify* 12 = DON'T KNOW	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12
1.25	**What problems, if any, were experienced by …… during this particular visit to a health worker?**	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
	1 = Facilities not clean	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	2 = Long waiting time	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	3 = Opening times not convenient	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	4 = Too expensive	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	5 = Drugs that were needed, not available	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	6 = Staff rude or uncaring or turned patient away	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	7 = Incorrect diagnosis	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	8 = Other, *specify in column*	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2

Questionnaire ID

		01	02	03	04	05	06	07	08	09	10
1.26	**How satisfied was …… with the service he/she received?** 1 = Very satisfied 2 = Somewhat satisfied 3 = Neither satisfied nor dissatisfied 4 = Somewhat dissatisfied 5 = Very dissatisfied 6 = DON'T KNOW	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6
1.27	**Did …… have to pay for this service?** 1 = YES 2 = NO 3 = DON'T KNOW → ***Go to Q 1.29***	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3

Ask only if "NO" to Q 1.22

1.28	**Why did …… not consult any health worker during the past month?** 1 = TOO EXPENSIVE 2 = TOO FAR 3 = NOT NECESSARY 4 = DON'T KNOW 5 = OTHER, *specify in column underneath*	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Questionnaire ID

Ask for everyone in the household

Read out: **I am now going to ask about disabilities experienced by any persons within the household.**

		01	02	03	04	05	06	07	08	09	10
1.29	**Is …… limited in his/her daily activities, at home, at work or at school, because of a long-term physical, sensory, hearing, intellectual, or psychological condition, lasting six months or more?** 1 = YES 2 = NO → ***Go to Q1.31***	☐ 01 ☐ 02	☐ 01 ☐ 02	☐ 01 ☐ 02	☐ 01 ☐ 02	☐ 01 ☐ 02	☐ 01 ☐ 02	☐ 01 ☐ 02	☐ 01 ☐ 02	☐ 01 ☐ 02	☐ 01 ☐ 02
1.30	**What difficulty or difficulties does …… have? Is it …..**	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
	1 = Sight *(blind/severe visual limitation)*	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	2 = Hearing *(deaf, profoundly hard of hearing)*	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	3 = Communicating *(speech impairment)*	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	4 = Physical *(e.g. needs wheel chair, crutches or prosthesis; limb or hand usage limitation)*	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	5 = Intellectual *(serious difficulties in learning, mental retardation)*	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	6 = Emotional *(behavioural, psychological problems)*	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	7 = Other**,** *specify in column*	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
1.31	**During the past 12 months, did …… make use of a welfare office or services?** 1 = YES 2 = NO } → ***Go to section 2*** 3 = DON'T KNOW }	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3

		01	02	03	04	05	06	07	08	09	10
1.32	**Which of the following services/assistance was …… in need of?**										
	a. Social worker										
	1 = YES	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
	2 = NO	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
	3 = DON'T KNOW	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
	b. Social grant										
	1 = YES	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
	2 = NO	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
	3 = DON'T KNOW	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
	c. Poverty relief/Job creation project										
	1 = YES	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
	2 = NO	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
	3 = DON'T KNOW	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
1.33	***Ask only if there is a "YES" in any part of Q 1.32*** **How satisfied was …… with the service/assistance rendered at the welfare office?**										
	1 = Very satisfied	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
	2 = Somewhat satisfied	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
	3 = Neither satisfied nor dissatisfied	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
	4 = Somewhat dissatisfied	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4
	5 = Very dissatisfied	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5
	6 = DON'T KNOW	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6

SECTION 2 This section covers activities of household members aged 15 and above in the last seven days, unemployment and non-economic activities.
Ask for all household members aged 15 and above. ***It is very important that you try to ask these questions of each person themselves if at all possible.***
Read out: **Now I am going to ask some questions about activities in the last seven days for each household member aged 15 and above**

		01	02	03	04	05	06	07	08	09	10
2.0	*Interviewer to answer* ***Is the person him/herself responding to questions?*** 1 = YES 2 = NO	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
2.1	**In the last seven days, did …… do any of the following activities, even for only one hour?** *Show prompt card 2.*	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
	a) Run or do any kind of business, big or small, for himself/herself or with one or more partners? *Examples: Selling things, making things for sale, repairing things, guarding cars, brewing beer, hairdressing, crèche businesses, taxi or other transport business, having a legal or medical practice, etc.*	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
	b) Do any work for a wage, salary, commission or any payment in kind (excl. domestic work)? *Examples: a regular job, contract, casual or piece work for pay, work in exchange for food or housing.*	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
	c) Do any work as a domestic worker for a wage, salary, or any payment in kind?	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
	d) Help unpaid in a family business of any kind? Examples: Help to sell things, make things for sale or exchange, doing the accounts, cleaning up for the business, etc. Don't count normal housework.	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
	e) Do any work on his/her own or the family's plot, farm, food garden, cattle post or kraal or help in growing farm produce or in looking after animals for the household? *Examples: ploughing, harvesting, looking after livestock*.	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
	f) Do any construction or major repair work on his/her own home, plot, cattle post or business or those of the family?	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
	g) Catch any fish, prawns, shells, wild animals or other food for sale or family food?	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2
	h) Beg for money or food in public?	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2	☐1 ☐2

If "YES" for a person to any part of Question 2.1→ Go to Q 2.3 for that person. ***If all "NO" for a person, continue with next question.***

		01	02	03	04	05	06	07	08	09	10
2.2	*If* "NO" *to all parts of Question 2.1* **Even though …… did not do any of these activities in the last seven days, does he/she have a job, business, or other economic or farming activity that he/she will definitely return to?** *For agricultural activities, the off season in agriculture is not a temporary absence.* 1 = YES 2 = NO **→*Go to Q 2.10***	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
2.3	*Read out*: **You said …… was doing these activities during the last seven days** (or was temporarily absent). *Refer to Q 2.1 or Q 2.2* **What kind of work did …… do in his/her <u>main</u> job during the last seven days** (or usually does, even if he/she was absent in the last seven days)**? Give occupation or job title.** *Work includes all the activities mentioned earlier* *Record at least two words: Car sales person, Office cleaner, Vegetable farmer, Primary school teacher, etc.* *For agricultural work on own/family farm/plot, state whether for <u>own</u> use or for <u>sale</u> mostly.*										
2.4	**What were ……'s <u>main</u> tasks or duties in this job?** *Examples: Selling fruit, repairing watches, keeping accounts, feeding and watering cattle.*										
	CODE BOX FOR OFFICE USE										

		01	02	03	04	05	06	07	08	09	10
2.5	**What is the name of ……'s place of work?** *For government or large organisations, give the name of the establishment and branch or division: e.g. Education Dept – Rapele Primary School; ABC Gold Mining, Maintenance Div.* *Write 'Own house' or 'No fixed location', if relevant.*										
2.6	**What are the main goods and services produced at ……'s place of work? What are its main functions?** *Examples: Repairing cars, Selling commercial real estate, Sell food wholesale to restaurants, Retail clothing shop, Manufacture electrical appliances, Bar/ restaurant, Primary Education, Delivering newspapers to homes.*										
	CODE BOX FOR OFFICE USE										

		01	02	03	04	05	06	07	08	09	10
2.7	**What is ……'s total salary/pay at his/her <u>main</u> job?** *Including overtime, allowances and bonus, before any tax or deductions.* *Give amount in whole figures, without any text or decimals* ***If "**NONE**", "**REFUSE**" or "**DON'T KNOW**"→ Go to Q 2.9***										
2.8	***Only if amount given in Q 2.7*** **Is this** 1 = Per week 2 = Per month 3 = Annually	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3

2.9 ***Only if "**NONE**", "**REFUSE**" or "**DON'T KNOW**" in Q 2.7***

*Show the categories. Make sure the respondent points at the **correct income column** (weekly, monthly, annually) on **prompt card 3** and mark the applicable code.*

		Weekly	Monthly	Annually								
	01	NONE	NONE	NONE	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01
	02	R1 - R46	R1 - R200	R1 - R2 400	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02
	03	R47 - R115	R201 - R500	R2 401 - R6 000	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03
	04	R116 - R231	R501 – R1 000	R6 001 - R12 000	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04
	05	R232 - R346	R1 001 - R1 500	R12 001 - R18 000	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05
	06	R347 = R577	R1 501 = R2 500	R18 001 - R30 000	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06
	07	R578 - R808	R2 501 - R3 500	R30 001 - R42 000	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07
	08	R809 - R1 039	R3 501 - R4 500	R42 001 - R54 000	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08
	09	R1 040 - R1 386	R4 501 - R6 000	R54 001 - R72 000	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09
	10	R1 387 - R1 848	R6 001 - R8 000	R72 001 - R96 000	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10
	11	R1 849 - R2 540	R8 001 - R11 000	R96 001 - R132 000	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11
	12	R2 541 - R3 695	R11 001 - R16 000	R132 001 - R192 000	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12
	13	R3 696 - R6 928	*R16 001 - R30 000*	R192 001 - R360 000	☐ 13	☐ 13	☐ 13	☐ 13	☐ 13	☐ 13	☐ 13	☐ 13	☐ 13	☐ 13
	14	R6 929 OR MORE	R30 001 OR MORE	R360 001 OR MORE	☐ 14	☐ 14	☐ 14	☐ 14	☐ 14	☐ 14	☐ 14	☐ 14	☐ 14	☐ 14
	15	DON'T KNOW	DON'T KNOW	DON'T KNOW	☐ 15	☐ 15	☐ 15	☐ 15	☐ 15	☐ 15	☐ 15	☐ 15	☐ 15	☐ 15
	16	REFUSE	REFUSE	REFUSE	☐ 16	☐ 16	☐ 16	☐ 16	☐ 16	☐ 16	☐ 16	☐ 16	☐ 16	☐ 16

→ ***Go to Section 3***

The following questions cover unemployment and non-economic activities

Ask for all household members aged 15 and above who did not work and were not absent from work (i.e. for those whose answer on Q 2.2 = 2).

Read out: **Now I am going to ask some questions about whether you (……) wanted and were (was) available for any of the types of work mentioned earlier**

		01	02	03	04	05	06	07	08	09	10
2.10	**Why did …… not work during the past seven days?**										
	01 = HAS FOUND A JOB, BUT IS ONLY STARTING AT A DEFINITE DATE IN THE FUTURE → ***Go to Q 2.14***	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01	☐ 01
	02 = LACK OF SKILLS OR QUALIFICATIONS FOR AVAILABLE JOBS	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02	☐ 02
	03 = SCHOLAR OR STUDENT AND PREFERS NOT TO WORK	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03	☐ 03
	04 = HOUSEWIFE/HOMEMAKER AND PREFERS NOT TO WORK	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04	☐ 04
	05 = RETIRED AND PREFERS NOT TO SEEK FORMAL WORK	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05	☐ 05
	06 = ILLNESS, INVALID, DISABLED OR UNABLE TO WORK (HANDICAPPED)	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06	☐ 06
	07 = TOO YOUNG OR TOO OLD TO WORK	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07	☐ 07
	08 = SEASONAL WORKER, E.G. FRUIT PICKER, WOOL-SHEARER	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08	☐ 08
	09 = CANNOT FIND SUITABLE WORK (SALARY, LOCATION OF WORK OR CONDITIONS NOT SATISFACTORY)	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09	☐ 09
	10 = CONTRACT WORKER, E.G. MINE WORKER RESTING ACCORDING TO CONTRACT	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10
	11 = RECENTLY RETRENCHED	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11
	12 = OTHER REASON	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12
2.11	**If a suitable job is offered, will …… accept it?**										
	1 = YES	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
	2 = NO	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
	3 = DON'T KNOW → ***Go to Q 2.14***	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
2.12	**How soon can …… start work?**										
	1 = WITHIN A WEEK	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
	2 = WITHIN TWO WEEKS	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
	3 = WITHIN FOUR WEEKS	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
	4 = LATER THAN FOUR WEEKS FROM NOW	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4
	5 = DON'T KNOW	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5

Questionnaire ID

		01	02	03	04	05	06	07	08	09	10
2.13	**During the past four weeks, has …… taken any action** 1 = to look for any kind of work 2 = to start any kind of business	YES NO ☐ 1 ☐ 2 ☐ 1 ☐ 2	YES NO ☐ 1 ☐ 2 ☐ 1 ☐ 2	YES NO ☐ 1 ☐ 2 ☐ 1 ☐ 2	YES NO ☐ 1 ☐ 2 ☐ 1 ☐ 2	YES NO ☐ 1 ☐ 2 ☐ 1 ☐ 2	YES NO ☐ 1 ☐ 2 ☐ 1 ☐ 2	YES NO ☐ 1 ☐ 2 ☐ 1 ☐ 2	YES NO ☐ 1 ☐ 2 ☐ 1 ☐ 2	YES NO ☐ 1 ☐ 2 ☐ 1 ☐ 2	YES NO ☐ 1 ☐ 2 ☐ 1 ☐ 2

Ask for everyone who has come to Question 2.10 (all persons unemployed or not economically active)

2.14	**Has …… ever worked before?** 1 = YES 2 = NO → ***Go to Q 2.16***	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
2.15	**How long ago was it since …… last worked?** 01 = 1 WEEK - LESS THAN 1 MONTH 02 = 1 MONTH - LESS THAN 2 MONTHS 03 = 2 MONTHS - LESS THAN 3 MONTHS 04 = 3 MONTHS - LESS THAN 4 MONTHS 05 = 4 MONTHS - LESS THAN 5 MONTHS 06 = 5 MONTHS - LESS THAN 6 MONTHS 07 = 6 MONTHS - LESS THAN 1 YEAR 08 = 1 YEAR - LESS THAN 2 YEARS 09 = 2 YEARS - LESS THAN 3 YEARS 10 = 3 YEARS OR MORE 11 = DON'T KNOW	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11

		01	02	03	04	05	06	07	08	09	10
2.16	**How does …… support him/herself?**	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
	1 = Did odd jobs during the past seven days	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	2 = Supported by persons in the household	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	3 = Supported by persons not in the household	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	4 = Supported by charity, church, welfare, etc.	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	5 = Unemployment Insurance Fund (UIF)	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	6 = Savings or money previously earned	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	7 = Old age or disability pension	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	8 = Other sources, e.g. bursary, study loan, *specify in column*	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
	If "YES" to response category 1 → *Go back to Q 2.1 for that person*										

Questionnaire ID

SECTION 3 This section covers information regarding children ever born

The following information must be obtained in respect of every woman aged between 12 and 50 years. For each woman record the total number of children ever born alive. Include all children born alive,(i.e all those who are still living, whether or not they live in the household, and those who are dead). Do not include stillbirths and children adopted by the mother. Start with the last born and strictly follow the birth order. ***Do not forget babies.***

If there is no woman in the household, go to section 4.

Read out: **I am now going to ask regarding mothers in this household**

3.0.1	**Is there any woman in this household aged between 12 and 50 years, who has ever given birth?** 1 = Yes 2 = No ***End of this section. Go to Section 4***	☐ 1 ☐ 2
3.0.2	**How many women in this household aged between 12 and 50 years have ever given birth?**	
3.0.3	**What are the names of the women who have ever given birth?**	**Person number**
	1.Name of the first woman……..……*Give person number*	
	2.Name of the second woman……..…*Give person number*	
	3.Name of the third woman……*Give person number*	
	4.Name of the fourth woman……*Give person number*	
	5.Name of the fifth woman……..……***Give person number***	

<u>Remember</u>: If there are more than 3 women aged between 12 and 50 years in the household, who have ever given birth, you will need another questionnaire.

Questionnaire ID ☐☐☐☐ ☐☐☐☐

Read out: **I am now going to ask each woman questions regarding all the children she has ever had.**

Record the name of the woman and her personal number, as indicated on the flap. Record births by each woman on a separate form.

First name of woman……Person number ☐☐

		Male	Female	Total
3.1.1	**How many children (live births) have you ever given birth to?**			
3.1.2	**How many of your children are still alive?**			
3.1.3	**How many children (live births) have you had in the past 12 months**			

Read out: **Now, I am going to ask you questions regarding each of the live births you have ever had, starting with the most recent**

		Child number									
	If there are more than 10 children born to one woman, continue on the next form and change the child numbers (ie, 01=11 and so on) Record twins on separate columns	**01** Start with the last born	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**
3.1.4	**First name and surname** *(Write down the first name of each child born alive, starting with the last born. Strictly follow the birth order)* **First name:**										
3.1.5	**Is …… still alive ?** 1 = YES 2 = NO ***Go to 3.1.10***	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
3.1.6	*If alive*, **Is ..... a male or a female?** 1 = MALE 2 = FEMALE	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
3.1.7	**How old is .....?** *(In completed years - In whole numbers) Less than 1 year = 00.*										

Questionnaire ID

		01	02	03	04	05	06	07	08	09	10
3.1.8	**What was …… 's date of birth?** *(Write down the year, month and day of birth in the space provided for each child. The year must be a 4 digit number).* *YYYY* *MM* *DD*										
3.1.9	**Is …… currently a member of this household?** 1 = YES 2 = NO ***Go to 3.1.13***	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
3.1.10	*If dead*, **Was ..... a male or a female?** 1 = MALE 2 = FEMALE	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
3.1.11	**How old was ..... when he/she died?** *(In completed years - In whole numbers)* *Less than 1 year = 00.*										
3.1.12	**When did …… 's death occur?** *(Write down the date of death as indicated)* *YYYY* *MM* *DD*										

Ask for all children ever born to the woman

3.1.13	**Where was …… born?** 1 = IN A HOSPITAL 2 = AT A CLINIC 3 = ELSEWHERE	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
3.1.14	**Was the birth of …… registered?** 1 = YES ***End of section 3 for this child*** 2 = NO	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
3.1.15	**Why was the birth of …… not registered?** 1 = FAR DISTANCE 2 = LACK OF KNOWLEDGE 3 = DOES NOT SEEM IMPORTANT	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3

Questionnaire ID ☐☐☐☐ ☐☐☐☐

Read out: **I am now going to ask each woman questions regarding all the children she has ever had.**

Record the name of the woman and her personal number, as indicated on the flap. Record births by each woman on a separate form.

First name of woman……Person number ☐☐

		Male	Female	Total
3.2.1	**How many children (live births) have you ever given birth to?**			
3.2.2	**How many of your children are still alive?**			
3.2.3	**How many children (live births) have you had in the past 12 months**			

Read out: **Now, I am going to ask you questions regarding each of the live births you have ever had, starting with the most recent**

		Child number									
	If there are more than 10 children born to one woman, continue on the next form and change the child numbers (ie, 01=11 and so on) Record twins on separate columns	**01** Start with the last born	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**
3.2.4	**First name and surname** *(Write down the first name of each child born alive, starting with the last born. Strictly follow the birth order)* **First name:**										
3.2.5	**Is …… still alive ?** 1 = YES 2 = NO ***Go to 3.2.10***	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
3.2.6	*If alive*, **Is ..... a male or a female?** 1 = MALE 2 = FEMALE	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
3.2.7	**How old is .....?** *(In completed years - In whole numbers) Less than 1 year = 00.*										

Questionnaire ID

		01	02	03	04	05	06	07	08	09	10
3.2.8	**What was …… 's date of birth?** *(Write down the year, month and day of birth in the space provided for each child. The year must be a 4 digit number).*	*YYYY* *MM* *DD*									
3.2.9	**Is …… currently a member of this household?** 1 = YES 2 = NO ***Go to 3.2.13***	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
3.2.10	*If dead*, **Was ..... a male or a female?** 1 = MALE 2 = FEMALE	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
3.2.11	**How old was ..... when he/she died?** *(In completed years - In whole numbers)* *Less than 1 year = 00.*										
3.2.12	**When did …… 's death occur?** *(Write down the date of death as indicated)*	*YYYY* *MM* *DD*									

Ask for all children ever born to the woman

3.2.13	**Where was …… born?** 1 = IN A HOSPITAL 2 = AT A CLINIC 3 = ELSEWHERE	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
3.2.14	**Was the birth of …… registered?** 1 = YES ***End of section 3 for this child*** 2 = NO	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
3.2.15	**Why was the birth of …… not registered?** 1 = FAR DISTANCE 2 = LACK OF KNOWLEDGE 3 = DOES NOT SEEM IMPORTANT	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3

Questionnaire ID ☐☐☐☐ ☐☐☐☐

Read out: **I am now going to ask each woman questions regarding all the children she has ever had.**

Record the name of the woman and her personal number, as indicated on the flap. Record births by each woman on a separate form.

First name of woman……Person number ☐☐

		Male	Female	Total
3.3.1	**How many children (live births) have you ever given birth to?**			
3.3.2	**How many of your children are still alive?**			
3.3.3	**How many children (live births) have you had in the past 12 months**			

Read out: **Now, I am going to ask you questions regarding each of the live births you have ever had, starting with the most recent**

		Child number									
	If there are more than 10 children born to one woman, continue on the next form and change the child numbers (ie, 01=11 and so on) Record twins on separate columns	**01** Start with the last born	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**
3.3.4	**First name and surname** *(Write down the first name of each child born alive, starting with the last born. Strictly follow the birth order)* **First name:**										
3.3.5	**Is …… still alive ?** 1 = YES 2 = NO ***Go to 3.3.10***	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
3.3.6	*If alive*, **Is ..... a male or a female?** 1 = MALE 2 = FEMALE	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
3.3.7	**How old is .....?** *(In completed years - In whole numbers) Less than 1 year = 00.*										

Questionnaire ID

		01	02	03	04	05	06	07	08	09	10
3.3.8	**What was …… 's date of birth?** *(Write down the year, month and day of birth in the space provided for each child. The year must be a 4 digit number).* *YYYY* *MM* *DD*										
3.3.9	**Is …… currently a member of this household?** 1 = YES 2 = NO ***Go to 3.3.13***	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
3.3.10	*If dead*, **Was ..... a male or a female?** 1 = MALE 2 = FEMALE	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
3.3.11	**How old was ..... when he/she died?** *(In completed years - In whole numbers)* *Less than 1 year = 00.*										
3.3.12	**When did …… 's death occur?** *(Write down the date of death as indicated)* *YYYY* *MM* *DD*										

Ask for all children ever born to the woman

3.3.13	**Where was …… born?** 1 = IN A HOSPITAL 2 = AT A CLINIC 3 = ELSEWHERE	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
3.3.14	**Was the birth of …… registered?** 1 = YES ***End of section 3 for this child*** 2 = NO	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2	☐ 1 ☐ 2
3.3.15	**Why was the birth of …… not registered?** 1 = FAR DISTANCE 2 = LACK OF KNOWLEDGE 3 = DOES NOT SEEM IMPORTANT	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3

Questionnaire ID

SECTION 4 This section covers information regarding the household.

Ask a responsible adult in the household

4.1	Indicate the type of main dwelling and other dwelling that the household occupies?	Main dwelling	Other dwelling
	01 = DWELLING/HOUSE OR BRICK STRUCTURE ON A SEPARATE STAND OR YARD OR ON FARM	☐ 01	☐ 01
	02 = TRADITIONAL DWELLING/HUT/STRUCTURE MADE OF TRADITIONAL MATERIALS	☐ 02	☐ 02
	03 = FLAT OR APARTMENT IN A BLOCK OF FLATS	☐ 03	☐ 03
	04 = TOWN/CLUSTER/SEMI-DETACHED HOUSE (*Simplex, Duplex or Triplex*)	☐ 04	☐ 04
	05 = UNIT IN RETIREMENT VILLAGE	☐ 05	☐ 05
	06 = DWELLING/HOUSE/FLAT/ROOM IN BACKYARD	☐ 06	☐ 06
	07 = INFORMAL DWELLING/SHACK IN BACKYARD	☐ 07	☐ 07
	08 = INFORMAL DWELLING/SHACK NOT IN BACKYARD, E.G. IN AN INFORMAL/SQUATTER SETTLEMENT OR ON FARM	☐ 08	☐ 08
	09 = ROOM/FLATLET	☐ 09	☐ 09
	10 = CARAVAN/TENT	☐ 10	☐ 10
	11 = OTHER, *specify*	☐ 11	☐ 11

4.2	Thinking back five years ago, what type of dwelling/dwellings did this household occupy?	Main dwelling	Other dwelling
	01 = DWELLING/HOUSE OR BRICK STRUCTURE ON A SEPARATE STAND OR YARD OR ON FARM	☐ 01	☐ 01
	02 = TRADITIONAL DWELLING/HUT/STRUCTURE MADE OF TRADITIONAL MATERIALS	☐ 02	☐ 02
	03 = FLAT OR APARTMENT IN A BLOCK OF FLATS	☐ 03	☐ 03
	04 = TOWN/CLUSTER/SEMI-DETACHED HOUSE (*Simplex, Duplex or Triplex*)	☐ 04	☐ 04
	05 = UNIT IN RETIREMENT VILLAGE	☐ 05	☐ 05
	06 = DWELLING/HOUSE/FLAT/ROOM IN BACKYARD	☐ 06	☐ 06
	07 = INFORMAL DWELLING/SHACK IN BACKYARD	☐ 07	☐ 07
	08 = INFORMAL DWELLING/SHACK NOT IN BACKYARD, E.G. IN AN INFORMAL/SQUATTER SETTLEMENT OR ON FARM	☐ 08	☐ 08
	09 = ROOM/FLATLET	☐ 09	☐ 09
	10 = CARAVAN/TENT	☐ 10	☐ 10
	11 = OTHER, *specify*	☐ 11	☐ 11
	12 = HOUSEHOLD DID NOT EXIST	☐ 12	☐ 12

4.3	**What is the main material used for the roof and the walls of the main dwelling?** *Mark one code in each column.* 01 = BRICKS 02 = CEMENT BLOCK/CONCRETE 03 = CORRUGATED IRON/ZINC 04 = WOOD 05 = PLASTIC 06 = CARDBOARD 07 = MIXTURE OF MUD AND CEMENT 08 = WATTLE AND DAUB 09 = TILE 10 = MUD 11 = THATCHING 12 = ASBESTOS 13 = OTHER, *specify* 14 = NOT APPLICABLE	**Roof** ☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14	**Walls** ☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14
4.4	**In what condition are the roof and the walls of the main dwelling?** 1 = Very weak 2 = Weak 3 = Needs minor repairs 4 = Good 5 = Very good	**Roof** ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	**Walls** ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

4.5	**Is the dwelling ….** 1 = Owned and fully paid off 2 = Owned, but not yet fully paid off (e.g. with a mortgage) 3 = Rented 4 = Occupied rent-free as part of employment contract of family member 5 = Occupied rent-free not as part of employment contract of family member 6 = Other, *specify*	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6
4.6	**What is the total number of rooms in the dwelling(s) that the household occupies?** *Give the total number of rooms, including living rooms, bedrooms and kitchens, but excluding bathrooms and toilets.*	
4.7	***Did any member of this household receive a government housing subsidy, such as RDP housing subsidy, to obtain this dwelling or any other dwelling?*** Do not include housing subsidies for government employees. 1 = YES 2 = NO 3 = DON'T KNOW	☐ 1 ☐ 2 ☐ 3

4.8	**What is the household's main source of water?** *Mark one code only* 01 = PIPED (TAP) WATER IN DWELLING 02 = PIPED (TAP) WATER ON SITE OR IN YARD 03 = NEIGHBOUR'S TAP → ***Go to Q 4.10*** 04 = BOREHOLE ON SITE 05 = RAIN-WATER TANK ON SITE 06 = PUBLIC TAP 07 = WATER-CARRIER/TANKER 08 = BOREHOLE OFF SITE/COMMUNAL 09 = FLOWING WATER/STREAM/RIVER 10 = DAM/POOL/STAGNANT WATER 11 = WELL 12 = SPRING 13 = OTHER, *specify*	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12 ☐ 13

Ask if water is <u>not</u> in dwelling, yard or site, otherwise go to Q 4.10.

4.9	**How long does it take members of this household to get to the water source?** 1 = 0 - 14 MIN 2 = 15 - 29 MIN 3 = 30 - 44 MIN 4 = 45 - 59 MIN 5 = 60 MIN OR MORE	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
4.10	**The water from the main source** 1 = Is it safe to drink? 2 = Is it clear? 3 = Does it taste good? 4 = Is it free from odours?	**YES NO** ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2

Ask only if Q 4.8 = 01, 02, 03 or 06 (e.g. tap/piped water), otherwise go to Q 4.14

4.11	**How often do you get interruptions in your piped water supply?** 1 = DAILY 2 = WEEKLY 3 = MONTHLY 4 = 6 MONTHLY 5 = YEARLY 6 = ALMOST NEVER → ***Go to Q 4.14***	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6
4.12	**What normally causes the interruption?** 1 = BURST PIPES 2 = PUMP NOT WORKING 3 = GENERAL MAINTENANCE 4 = NOT ENOUGH WATER IN THE SYSTEM (DEMAND TOO HIGH) 5 = WATER ONLY DELIVERED AT FIXED TIMES 6 = NON-PAYMENT FOR SERVICES (CUT OFF) → ***Go to Q 4.14*** 7 = VANDALISM 8 = OTHER, *specify* 9 = DON'T KNOW	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9
4.13	**The last time it happened, when was the problem rectified?** 1 = THE SAME DAY 2 = DURING THE SAME WEEK 3 = DURING THE SAME MONTH 4 = LONGER THAN MONTH, *specify*	☐ 1 ☐ 2 ☐ 3 ☐ 4

Questionnaire ID

4.14	Does this household have a connection to the MAINS electricity supply?	
	1 = YES	☐ 1
	2 = NO	☐ 2

4.15	What is the main source of energy/fuel for this household?	Cooking	Heating	Lighting
	01 = ELECTRICITY FROM MAINS	☐ 01	☐ 01	☐ 01
	02 = ELECTRICITY FROM GENERATOR	☐ 02	☐ 02	☐ 02
	03 = GAS	☐ 03	☐ 03	☐ 03
	04 = PARAFFIN	☐ 04	☐ 04	☐ 04
	05 = WOOD	☐ 05	☐ 05	
	06 = COAL	☐ 06	☐ 06	
	07 = CANDLES		☐ 07	☐ 07
	08 = ANIMAL DUNG	☐ 08	☐ 08	
	09 = SOLAR ENERGY	☐ 09	☐ 09	☐ 09
	10 = OTHER, *specify*	☐ 10	☐ 10	☐ 10
	11 = NONE	☐ 11	☐ 11	☐ 11

4.16	Thinking back five years ago, did this household have a connection to the MAINS electricity supply, then?	
	1 = YES	☐ 1
	2 = NO	☐ 2
	3 = HOUSEHOLD DID NOT EXIST	☐ 3
	4 = DON'T KNOW	☐ 4

4.17	What type of toilet facility is available for this household? *Mark only one, the main toilet*	In dwelling	On site	Off site
	1 = FLUSH TOILET CONNECTED TO A PUBLIC SEWAGE SYSTEM	☐ 11	☐ 12	☐ 13
	2 = FLUSH TOILET CONNECTED TO A SEPTIC TANK	☐ 21	☐ 22	☐ 23
	3 = CHEMICAL TOILET		☐ 32	☐ 33
	4 = PIT LATRINE WITH VENTILATION PIPE		☐ 42	☐ 43
	5 = PIT LATRINE WITHOUT VENTILATION PIPE		☐ 52	☐ 53
	6 = BUCKET TOILET		☐ 62	☐ 63
	7 = NONE → ***Go to Q 4.20***			☐ 73

Ask if toilet is "ON SITE" or "OFF SITE". Otherwise Go to Q 4.19

4.18	**How far is the nearest toilet facility to which the household has access?** 1 = LESS THAN 2 MINUTES (LESS THAN 200M) 2 = 2 MINUTES BUT LESS THAN 5 MINUTES (200M - 500M) 3 = MORE THAN 5 MINUTES (MORE THAN 500M)	☐ 1 ☐ 2 ☐ 3

Ask if answer to Q 4.17 is "BUCKET TOILET". Otherwise Go to Q 4.20

4.19	**How frequently is it removed?** 1 = ONCE A WEEK OR MORE OFTEN 2 = ABOUT ONCE A FORTNIGHT 3 = ABOUT ONCE A MONTH 4 = LESS OFTEN THAN ONCE A MONTH	☐ 1 ☐ 2 ☐ 3 ☐ 4

Ask for all households

4.20	**How is the refuse or rubbish of this household taken care of?** 1 = REMOVED BY LOCAL AUTHORITY AT LEAST ONCE A WEEK 2 = REMOVED BY LOCAL AUTHORITY LESS OFTEN THAN ONCE A WEEK 3 = REMOVED BY COMMUNITY MEMBERS AT LEAST ONCE A WEEK 4 = REMOVED BY COMMUNITY MEMBERS LESS OFTEN THAN ONCE A WEEK 5 = COMMUNAL REFUSE DUMP/COMMUNAL CONTAINER 6 = OWN REFUSE DUMP 7 = NO RUBBISH REMOVAL 8 = OTHER, *specify*	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8

4.21	**Does this household have a landline telephone in the dwelling?** 1 = YES 2 = NO	☐ 1 ☐ 2
4.22	**Is there a cellular telephone available to this household for regular use?** 1 = YES 2 = NO	☐ 1 ☐ 2

Ask if answer is "No" to both Q 4.21 and Q 4.22. Otherwise Go to Q4.25

4.23	**How far does it take from here, to the nearest accessible telephone, using your usual means of transport?** 1 = 0 - 14 MIN 2 = 15 - 29 MIN 3 = 30 – 44 MIN 4 = 45 – 59 MIN 5 = 60 MIN OR MORE	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Ask for all households

4.24	**Thinking back five years ago, did this household have a landline telephone in the dwelling then?** 1 = YES 2 = NO 3 = HOUSEHOLD DID NOT EXIST 4 = DON'T KNOW	☐ 1 ☐ 2 ☐ 3 ☐ 4

4.25	How does this household receive most of its mail/post?	
	1 = DELIVERED TO THE DWELLING	☐ 1
	2 = DELIVERED TO A POST BOX/PRIVATE BAG	☐ 2
	3 = THROUGH FRIEND OR NEIGHBOUR	☐ 3
	4 = THROUGH SHOP	☐ 4
	5 = THROUGH SCHOOL	☐ 5
	6 = THROUGH WORKPLACE	☐ 6
	7 = THROUGH AUTHORITY	☐ 7
	8 = DO NOT RECEIVE MAIL	☐ 8
	9 = OTHER, *specify*	☐ 9

4.26 **What means of transport are usually, or would usually be used by members of this household to get to the nearest of each of these facilities?**

If more than one means of transport, take the one used over the longest distance

Facility	ON FOOT	TAXI	BUS (PUBLIC)	TRAIN	OWN TRANS-PORT	OTHER, *specify below*
a Food market	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
b Public transport	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
c Pre-Primary/Pre-school centre	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
d Primary school	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
e Secondary school	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
f Clinic	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
g Hospital	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
h Post office or post office agent	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
i Welfare office	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

If "Other" in Q 4.26, specify: _____

4.27	How long in minutes does it take or would it take, from here to reach the nearest …….using the usual means of transport?						
Facility		**0 - 14 MIN**	**15 - 29 MIN**	**30 - 44 MIN**	**45 - 59 MIN**	**60 MIN OR MORE**	**DON'T KNOW**
a	Food market	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
b	Public transport	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
c	Pre-Primary/Pre-school centre	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
d	Primary school	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
e	Secondary school	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
f	Clinic	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
g	Hospital	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
h	Post office or post office agent	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
i	Welfare office	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

4.28	**Does this household have access to land that is, or could be, used for agricultural purposes?** 1 = YES 2 = NO → ***Go to Q 4.32***	☐ 1 ☐ 2
4.29	**How many hectares of land, for agricultural purposes, if any, does the household have access to?** *Exclude communal grazing land* 1 = LESS THAN 5.000 M^2 *(5.000 m^2 is approximately one soccer field)* 2 = 5.000M^2 - 9.999M^2 3 = 1 BUT LESS THAN 5 HA 4 = 5 BUT LESS THAN 10 HA 5 = 10 BUT LESS THAN 20 HA 6 = 20 HA OR MORE 7 = DON'T KNOW	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7
4.30	**On what basis does the household have access to the land?** 1 = OWNS THE LAND 2 = RENTS THE LAND 3 = SHARECROPPING 4 = TRIBAL AUTHORITY 5 = OTHER, *specify* 6 = DON'T KNOW	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

4.31	**What farming activities, if any, take place on the land? Is it……..?** 1 = Field crops 2 = Horticulture 3 = Livestock 3 = Poultry 5 = Orchards 6 = Other, (*Specify)*……	YES NO ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2

Ask for all households

4.32	**Did the household receive a government land grant to obtain a plot of land for residence or for farming?** 1 = YES 2 = NO 3 = DON'T KNOW	☐ 1 ☐ 2 ☐ 3
4.33	**Does the household own any cattle or other large livestock?** 1 = YES 2 = NO → ***Go to Q 4.35***	☐ 1 ☐ 2
4.34	**How many head of cattle and other large livestock are currently owned by the household?**	
4.35	**Does the household own any sheep, goats and other medium size animals?** 1 = YES 2 = NO → ***Go to Q 4.37***	☐ 1 ☐ 2
4.36	**How many sheep, goats and other medium size animals are currently owned by the household?**	

4.37	**Does the household own any poultry such as chickens, ducks, etc** (but excluding chicks**)** 1 = YES 2 = NO → ***Go to Q 4.39***	☐ 1 ☐ 2
4.38	**How many chicken, ducks, etc. are currently owned by the household?**	

4.39	**Does the household own any of the following?** 01 = Car or truck 02 = Motorcycle 03 = Tractor 04 = Plough 05 = Television 06 = Bicycle 07 = Radio 08 = Bed 09 = Watch or clock 10 = Books	YES NO ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2
4.40	**In the past 12 months, did any adult in this household go hungry because there wasn't enough food?** 1 = NEVER 2 = SELDOM 3 = SOMETIMES 4 = OFTEN 5 = ALWAYS	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

4.41	**In the past 12 months, did any child (17 years or younger) in this household go hungry because there wasn't enough food?** 1 = NEVER 2 = SELDOM 3 = SOMETIMES 4 = OFTEN 5 = ALWAYS	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
4.42	**In the past 12 months, is there any young person, aged 5 - 17, who has left this household to live on the streets?** 1 = YES 2 = NO 3 = DON'T KNOW	☐ 1 ☐ 2 ☐ 3
4.43	**Does any member of this household receive any of the following Welfare Grants?** 1 = Old age pension 2 = Disability grant 3 = Child support grant 4 = Care dependency grant 5 = Foster care grant 6 = Grant in aid 7 = Social relief	YES NO ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ 1 ☐ 2
4.44	**What is the main source of income for this household?** 1 = SALARIES AND/OR WAGES 2 = REMITTANCES 3 = PENSIONS AND GRANTS 4 = SALES OF FARM PRODUCTS 5 = OTHER NON-FARM INCOME 6 = NO INCOME	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

4.45	**What was the total household expenditure in the last month?** Include everything that the household and its members spent money on, including food, clothing, transport, rent and rates, alcohol and tobacco, school fees, entertainment and any other expenses. 01 = R 0 – R 399 02 = R 400 – R 799 03 = R 800 – R 1 199 04 = R 1 200 – R 1 799 05 = R 1 800 – R 2 499 06 = R 2 500 – R 4 999 07 = R 5 000 – R 9 999 08 = 10 000 OR MORE 09 = DON'T KNOW 10 = REFUSE	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10

Please read as you show the prompt card
Now, I am now going to ask you questions regarding your physical safety and that of other members of your household. In some of the questions I will show you a prompt card, which has eleven choices "00" to "10" describing the level of your feelings about safety or satisfaction. Kindly point out the level that best describes your feelings.

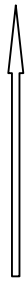
4.46	**Regarding your own safety, how safe do you feel if you are walking in this area at night?** 1 = VERY SAFE 2 = RATHER SAFE 3 = RATHER UNSAFE 4 = VERY UNSAFE	☐ 1 ☐ 2 ☐ 3 ☐ 4
4.47	**Thinking about your physical safety in your neighbourhood, how safe do you and other members of the household feel living here?** *(Ask respondent to point out the answer on a prompt card)* 01 = 10 (COMPLETELY SAFE) 02 = 09 03 = 08 04 = 07 05 = 06 06 = 05 07 = 04 08 = 03 09 = 02 10 = 01 11 = 00 (COMPLETELY UNSAFE)	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11

4.48	**During the past 12 months, have you or any member of this household been subjected to the following incidents?** **Have you or any member of this household ……**	**YES** **NO**
	1 = had things stolen	☐ 1 ☐ 2
	2 = been harassed or threatened by a household member	☐ 1 ☐ 2
	3 = been harassed or threatened by someone outside the household	☐ 1 ☐ 2
	4 = been sexually molested by a household member	☐ 1 ☐ 2
	5 = been sexually molested by someone out side the household	☐ 1 ☐ 2
	6 = been beaten up or hurt by a household member	☐ 1 ☐ 2
	7 = been beaten up or hurt by someone outside the household	☐ 1 ☐ 2
4.49	**Taking everything into account, how satisfied are you with public safety these days?** *(Ask respondent to point out the answer on a prompt card)* 01 = 10 (COMPLETELY SATISFIED) 02 = 09 03 = 08 04 = 07 05 = 06 06 = 05 07 = 04 08 = 03 09 = 02 10 = 01 11 = 00 (COMPLETELY DISSATISFIED)	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11

Please read out

Now, in the following questions, I am going to ask you whether you agree with several statements dealing with general problems of life. Please tell me if you completely agree, somewhat agree, somewhat disagree or strongly disagree with the statement.

4.50	**Would you agree with the statement that, you can't do much to change most of the difficulties we face today?** 1 = COMPLETELY AGREE 2 = SOMEWHAT AGREE 3 = SOMEWHAT DISAGREE 4 = STRONGLY DISAGREE	☐ 1 ☐ 2 ☐ 3 ☐ 4
4.51	**Would you agree with the statement that, you often feel lonely?** 1 = COMPLETELY AGREE 2 = SOMEWHAT AGREE 3 = SOMEWHAT DISAGREE 4 = STRONGLY DISAGREE	☐ 1 ☐ 2 ☐ 3 ☐ 4
4.52	**Would you agree with the statement that, you don't really enjoy your work?** 1 = COMPLETELY AGREE 2 = SOMEWHAT AGREE 3 = SOMEWHAT DISAGREE 4 = STRONGLY DISAGREE	☐ 1 ☐ 2 ☐ 3 ☐ 4
4.53	**Would you agree with the statement that, life has become so complicated today that you almost can't find your way?** 1 = COMPLETELY AGREE 2 = SOMEWHAT AGREE 3 = SOMEWHAT DISAGREE 4 = STRONGLY DISAGREE	☐ 1 ☐ 2 ☐ 3 ☐ 4
4.54	**Would you agree with the statement that, you are very optimistic about the future?** 1 = COMPLETELY AGREE 2 = SOMEWHAT AGREE 3 = SOMEWHAT DISAGREE 4 = STRONGLY DISAGREE	☐ 1 ☐ 2 ☐ 3 ☐ 4
4.55	**Would you agree with the statement that, in order to get ahead nowadays you are forced to do things that are not correct?** 1 = COMPLETELY AGREE 2 = SOMEWHAT AGREE 3 = SOMEWHAT DISAGREE 4 = STRONGLY DISAGREE	☐ 1 ☐ 2 ☐ 3 ☐ 4

4.56	**Please tell me how satisfied you are with your life in general.** *(Ask respondent to point out the answer on a prompt card)* 01 = 10 (COMPLETELY SATISFIED) 02 = 09 03 = 08 04 = 07 05 = 06 06 = 05 07 = 04 08 = 03 09 = 02 10 = 01 11 = 00 (COMPLETELY DISSATISFIED) 	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11

End of interview.

Thank the respondent!

Interviewer to answer questions on next page.

4.57	***Indicate the column number of the person who answered the questions in Section 5***	
4.58	***In what language was the main part of the interview conducted?*** 01 = AFRIKAANS 02 = ENGLISH 03 = ISINDEBELE/SOUTH NDEBELE/NORTH NDEBELE 04 = ISIXHOSA/XHOSA 05 = ISIZULU/ZULU 06 = SEPEDI/NORTHERN SOTHO 07 = SESOTHO/SOUTHERN SOTHO/SOTHO 08 = SETSWANA/TSWANA 09 = SISWATI/SWAZI 10 = TSHIVENDA/VENDA 11 = XITSONGA/TSONGA 12 = OTHER, *specify*	☐ 01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12

APPENDIX 2

EXTRACT FROM OHS 1997 QUESTIONNAIRE

SECTION 2

This section covers information regarding births.

This section must be completed for all women who have ever given birth

A separate form must be completed for each woman

Interviewer: Please read the instructions on this page before you start with Question 2.1.

Record all live births starting with the first born. Do **not include** still births and children adopted by the mother. Remember to include children who have died and children who are not currently part of the household.

First name of woman (a): ..... **Respondent No:** .....

2.1 How many children (live births) have you ever given birth to? ☐

2.2 How many of your children are still living? ☐

2.3 How many children (live births) have you had in the past 12 months? ☐

Now let us talk about each of your children

2.4	2.5		2.6			2.7			2.8		2.9			2.10		2.11		2.12	2.13
List of children (from the eldest to the youngest) **Interviewer:** Record twins on separate lines and mark with a bracket	Is/Was the child a boy or a girl?		**All children** Date of birth In what year, month and day was the child born?			**All children** Where was the child born?			**All children** Was the birth registered?		**If not registered** Why? 1= far distance 2= lack of knowledge 3= Does not seem important			**All children** Is the child still alive?		**If alive:** Is the child currently living with this household?		**If alive:** How old is he/she **Interviewer:** Record age in completed years less than 1 year = 0	**If dead** How old was the Child when he/she died? **Interviewer:** Record age in completed years less than 1 year = 0
Name of child (optional) **BIRTH ORDER**	Boy	Girl	Year	Mon	Day	In a hos-pital	in a clinic	Else where	Yes	No	Reasons for not Registering			Yes	No	Yes	No	Age in years	Age at death in years
1	1	2				1	2	3	1	2	1	2	3	1	2	1	2		
2	1	2				1	2	3	1	2	1	2	3	1	2	1	2		
3	1	2				1	2	3	1	2	1	2	3	1	2	1	2		
4	1	2				1	2	3	1	2	1	2	3	1	2	1	2		
5	1	2				1	2	3	1	2	1	2	3	1	2	1	2		
6	1	2				1	2	3	1	2	1	2	3	1	2	1	2		
7	1	2				1	2	3	1	2	1	2	3	1	2	1	2		
8	1	2				1	2	3	1	2	1	2	3	1	2	1	2		

Section 9
Household information
This section covers information regarding the dwellings, services and perceived quality of life of the household.

9.1 How many dwellings does this household occupy on this particular site? *By household we mean a person or a group of persons who live together at least four nights a week at the same address, eat together and share resources.*

Less than one dwelling (sharing a dwelling with other households)	1
One dwelling	2
Two dwellings	3
Three dwellings	4
More than three dwellings	5

9.2 Indicate the type of main dwelling and other dwelling(s) that the household occupies?

You can circle more than one code for the other dwelling(s) if the household occupies more than 2 dwellings

Type of dwelling	Main dwelling	Other dwelling
Dwelling/house or brick structure on a separate stand or yard	1	1
Traditional dwelling/hut/structure made of traditional materials	2	2
Flat or apartment in a block of flats	3	3
Town/cluster/semi-detached house (simplex, duplex or triplex)	4	4
Unit in retirement village	5	5
Dwelling/house/flat/room in backyard	6	6
Informal dwelling/shack, in backyard	7	7
Informal dwelling/shack NOT in back yard, e.g. in an informal/squatter settlement	8	8
Room /flatlet	9	9
Caravan/tent	10	10
Other (specify)	11	11

9.3 What is the **MAIN material** used for the roof and the walls of the *(main)* dwelling?(Circle one code in each column)

Material	**Roof**	**Walls**
Bricks		01
Cement block/concrete	02	02
Corrugated iron/zinc	03	03
Wood	04	04
Plastic	05	05
Cardboard	06	06
Mixture of mud and cement	07	07
Wattle and daub	08	08
Tile	09	
Mud		10
Thatching	11	11
Asbestos	12	12

9.4 What is the total number of rooms in the dwelling(s) that the household occupies?

Total number of rooms **including living rooms, bedrooms and kitchens** (excluding bathrooms and toilets)	

9.5 Is this dwelling (main dwelling, if more than one) owned by the household (even if not yet fully paid) ?

Yes **(Go to question 9.11)**	1
No **(Continue)**	2

IF THE HOUSEHOLD **DOES NOT OWN** THE DWELLING(S), ANSWER QUESTIONS 9.6 TO 9.10

9.6 **If the dwelling(s) is/are not owned by the household**, [*Ask*] Are you required to pay rent for the dwelling(s)?

Yes **(continue)**	1
No **(Go to question 9.10)**	2

9.7 What was the rent that was **charged last month**?

R.....

9.8 Is this rent subsidised?

Yes	1
No	2
Do not know	3

9.9 Do you rent this dwelling with or without furniture ?

With furniture	1
Without furniture	2

9.10 Is the dwelling owned by:

Employer (eg Eskom, AECI, Transnet, Farmer)	1
Government (national, provincial or local)	2
Charity organisation	3
Private owner	4
Other (specify).....	5

IF THE HOUSEHOLD **DOES OWN** THE DWELLING(S), ANSWER QUESTIONS 9.11 TO 9.12)

9.11 **Since this dwelling is owned by the household**, [*Ask*] Is this ownership:

Full title (including free-hold and lease-hold)	1
Sectional title	2
Do not know	3

If '**Sectional title'** what was the levy paid last month?

R.....

9.12 Is this household presently paying off a bond on the dwelling(s)?

Yes	1
No	2

If 'Yes' how much did you pay last month?

R.....

ASK EVERY HOUSEHOLD

Services available for the dwelling:

9.13 What is this household's **main** source of water? (Circle only one code)

Piped (tap) water, in dwelling	1
Piped (tap) water, on site or in yard	2
Public tap	3
Water-carrier/tanker	4
Borehole on site	5
Borehole: off site/communal	6
Rain-water tank on site	7
Flowing water/stream	8
Dam/pool/stagnant water	9
Well	10
Spring	11
Other (specify).	12

9.14 **If the water source is outside the dwelling(s)** [*Ask*] How far is the water source from the dwelling(s)?

Less than 100 m	1
100 m - less than 200 m	2
200 m - less than 500 m	3
500 m - less than 1 km	4
1 km or more	5
Not applicable (water on site)	6

9.15 Does the household have to pay for its water?

Always	1
Sometimes	2
Never	3

9.16 **If the household has to pay for its water** [Ask], How much does the household pay?

Less than R50	1
R50 or more	2
Do not know	3

ASK EVERY HOUSEHOLD

9.17 What is the **main** source of energy/fuel for this household? (Circle one code for each source)

Energy/fuel source	**Cooking**	**Heating**	**Lighting**
Electricity	1	1	1
Gas	2	2	2
Paraffin	3	3	3
Wood	4	4	
Coal	5	5	
Candles			6
Animal dung	7	7	
Solar Energy	8	8	8
Other (Specify)	.....	.....	.....

IF **WOOD** IS THE **MAIN SOURCE** OF FUEL FOR THE HOUSEHOLD, (FOR EITHER COOKING OR HEATING OR BOTH, ANSWER QUESTIONS 9.18 TO 9.22)

9.18 From where does the household get its wood? Indicate the **main** source. (Circle one code)

Woodlot	1
Commercial plantations	2
Natural forest	3
Veld	4
Home yard trees	5
Merchants	6

9.19 Is the wood obtained enough for normal household purpose?

Always	1
Mostly yes	2
Mostly no	3
No	4

9.20 Does the household have to pay for the wood?

Always	1
Sometimes	2
Never	3

9.21 Does the household have to fetch wood?

Yes	1
No	2

9.22 How far is the wood if it has to be fetched?

Less than 100m	1
100m - less than 200m	2
200m - less than 500m	3
500m - less than 1km	4
1 km or more	5

ASK EVERY HOUSEHOLD

Sanitation

9.23 What type of toilet facility is available for this household? (Circle only one code)

Toilet facility	In dwelling	On site	Off site
1. Flush toilet	1	1	1
2. Chemical toilet		2	2
3. Pit latrine with ventilation (VIP)		3	3
4. Other pit latrine		4	4
5.Bucket toilet		5	5
6. None			6
5.Other			7

9.24 Is the toilet facility shared with other households?

Yes	1
No	2

9.25 **If the toilet is not in the dwelling** [*Ask*] How far is the nearest toilet facility to which the household has access?

Less than 25m	1
25m- less than 50m	2
50m- less than 100m	3
100m or more	4

9.26 **If the facility is a bucket toilet** [*Ask*] How frequently is it removed?

Once a week or more often	1
About once a fortnight	2
About once a month	3
Less often than once a month	4

ASK EVERY HOUSEHOLD

Refuse disposal:

9.27 How is the refuse or rubbish of this household disposed of? (Circle only one code)

Removed by local authority at least once a week	1
Removed by local authority less often	2
Removed by community members at least once a week	3
Removed by community members less often	4
Communal refuse dump/communal container	5
Own refuse dump	6
No rubbish removal	7
Other (Specify)	

Telecommunication

9.28 Does anyone in this household have a cellular telephone?

Yes	1
No	2

9.29 Is there a telephone in this dwelling?(Please **DO NOT** include cellular telephones)

Yes	1
No	2

9.30 **If there is no telephone in the dwelling(s)** [*Ask*]
How many minutes do you have to travel to the nearest telephone you can use (by your usual means of transport)?

0 - 5 minutes	1
6 - 15 minutes	2
16 - 30 minutes	3
31 - 60 minutes	4
1 - 2 hours	5
Over 2 hours	6

ASK EVERY HOUSEHOLD

Let us talk about your safety and perceived quality of life

9.31 How safe do you feel living in the neighbourhood where you live?

Very safe	1
Rather safe	2
Rather unsafe	3
Very unsafe	4

9.32 How safe do you feel in the **dwelling** where you live?

Very safe	1
Rather safe	2
Rather unsafe	3
Very unsafe	4

9.33 Do you feel **safer**, about **the same**, or **less safe**, than you felt a year ago?

Safer	1
The same	2
Less safe	3

9.34 During the past 12 months, has this household experienced any burglaries, robberies or housebreaking ?

Yes	1
No	2

9.35 During the past 12 months, has anyone been murdered while he/she was a member of this household?

Yes	1
No	2

ASK EVERY HOUSEHOLD

9.36 Do you have any **street** lighting where you live?

Yes	1
No	2

9.37 In the past year, was there ever a time when you could not afford to feed the children in the household?

Yes	1
No	2
Not applicable (no children)	3

9.38 Taking everything into account, how satisfied is this household with the way it lives these days?

Very satisfied	1
Satisfied	2
Neither satisfied nor dissatisfied	3
Dissatisfied	4
Very dissatisfied	5

ASK EVERY HOUSEHOLD

9.39 Compared to one year ago, how would you say things are for this household?

Things are better	1
Things are about the same	2
Things are worse	3

9.40 How much money did this household spend **in total**, on all items (including food, clothing, housing, transport, medical care, etc), **during the past month**?

R.....

9.41 How much did the household spend on **food** during the past month?

R.....

9.42 Were there any unusual **cash purchases** (e.g. car, fridge, furniture, etc.) during the **past month** and/or **the past year**?

	Past month	Past year
Yes	1	1
No	2	2

9.43 **If there were any unusual cash purchases during the past month or past year**, [*Ask*] How much did the household spend on them all together?

Past month	R.....
Past year (**please do not include purchases for the past month**)	R.....

ASK EVERY HOUSEHOLD

9.44 If anyone in this household gets ill or injured and decides to seek medical help, where do they **usually** go first? (Circle only one code)

Public Sector	Hospital	1
	Clinic	2
	Other (specify).....	3
Private Sector	Hospital	4
	Clinic	5
	Private doctor/specialist	6
	Traditional healer	7
	Others(specify)……	8

ASK EVERY HOUSEHOLD

9.45 How far is the hospital/clinic/doctor/traditional healers where the household members usually go? (Circle only one code)

Less than 1 km	1
1km - less than 5km	2
5km - less than 10km	3
10km - less than 15km	4
15km or more	5

9.46 How long does it usually take to get there?

Less than 15 minutes	1
15 minutes - less than 30 minutes	2
30 minutes - less than 1 hour	3
1 hour - less than 2 hours	4
2 hours or more	5

9.47 What means of transport do the members of this household **mainly** use to get to the health facility? - ***mainly = longest distance*** (Circle only one code).

Ambulance	1
Own transport (car, minibus, etc.)	2
Train	3
Taxi	4
Bus (public)	5
On foot	6
Other transport (specify)	7

9.48 Where is this health care person/facility where household members usually go? **(State place name, magisterial district and province)**.

Town/place name	Magisterial district	Province (New)

ASK EVERY HOUSEHOLD

9.49 How far is the nearest social welfare service point?

Less than 1km	1
1km - less than 5km	2
5km or more	3
Do not know	4

9.50. Please indicate the respondent number of the person who answered the questions in this section

You have come to the end of the interview for this household. Thank the respondent for his/her co-operation.